Faculty of Economic and Business Sciences

ICADE

Bachelor's Thesis

Maximizing Shareholder Value through Project Finance in a Photovoltaic Power Plant

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1. INTRODUCTION

1.1 MOTIVATION

In recent years, Spain has experienced exponential growth in the development of solar energy as part of its strategic efforts to combat climate change, reduce dependence on foreign energy imports, and promote renewable and cost-efficient energy sources. Solar energy plays a crucial role in the country's transition to a more sustainable future, making it an essential pillar of the national energy strategy. (Ministerio para la Transición Ecológica y el Reto Demográfico, 2020)

To support this growth, it is vital to establish financial tools that enable the efficient and scalable development of solar energy projects. One such tool is Project Finance, a proven financing mechanism that minimizes financial risks while maximizing profitability. This structure not only attracts investors by offering favorable returns but also supports the deployment of significant capacities in the solar industry.

The motivation behind this thesis lies in the need to understand and optimize the financial mechanisms that underpin Project Finance in real-world solar projects. By doing so, it seeks to ensure financial sustainability while driving the rapid expansion of renewable energy infrastructure in Spain.

1.2 OBJECTIVES

The primary aim of this thesis is to analyze the financial variables influencing Project Finance for a solar energy project and to explore how these variables can be adjusted to maximize investor profitability while mitigating risks. Specifically, the objectives are:

- To develop a dynamic financial model in Excel capable of accurately reflecting the profitability of a solar energy project under varying financial conditions.
- To conduct a detailed analysis of individual financial variables and their impact on overall project performance.
- To simulate real-world scenarios that solar energy projects may encounter, identifying critical risks and assessing their potential effects on investment outcomes.
- To draw actionable conclusions on how to effectively structure and manage *Project Finance* for solar projects to enhance investor confidence and minimize financial risk.

Through these objectives, this thesis aims to provide insights into the optimal financial structuring of solar energy projects, offering a roadmap for achieving both economic and environmental sustainability.

1.3 STRUCTURE

The thesis is structured to provide a full understanding of Project Finance as applied to solar energy projects, progressing from theoretical foundations to practical implementation. The first section, the Theoretical Framework, outlines the fundamental concepts and current theoretical perspectives on Project Finance, with a particular focus on its application within the renewable energy sector.

Following this, the Financial Model section delves into the methodology and tools used to construct a dynamic financial model. It provides a detailed explanation of the model's key components, assumptions, and interdependencies, enabling a robust framework for analyzing the economic performance of solar energy projects.

The Base Case and Variable Analysis section then examines a baseline scenario to evaluate the project's financial performance under standard conditions. It also investigates the effects of individual financial variables, such as interest rates, PPA pricing, and operational costs, on the overall profitability of the project.

Building on this, the Scenario Comparison section explores a range of real-world scenarios, from pessimistic to optimistic, to assess how varying economic and operational conditions impact financial performance and risk exposure. This comparative analysis highlights the project's resilience under different circumstances and offers insights into potential strategies for optimization.

Finally, the Conclusions section synthesizes the key findings from the analysis, offering practical recommendations for structuring Project Finance in solar energy projects. These recommendations focus on maximizing returns, minimizing risks, and ensuring long-term viability.

2. METHODOLOGY

This thesis employs a structured methodology to evaluate the financial performance, resilience, and optimization potential of an operational solar farm. By integrating real-world data with advanced financial modeling and analysis techniques, the study aims to generate actionable insights to improve economic efficiency and adapt the project to dynamic market conditions. The methodology prioritizes the development of a robust model, complemented by sensitivity analyses, to test various financing and operational scenarios.

2.1 TYPE OF RESEARCH

The research adopts a mixed-methods approach, integrating both quantitative and qualitative techniques to ensure a holistic and thorough evaluation:

- Quantitative research: Financial and operational data are used to create precise projections, enabling measurable assessments of performance. Financial indicators such as Equity IRR, Project IRR, Payback Period, and LLCR will be calculated to evaluate the project’s feasibility. Sensitivity analyses will further explore the impacts of varying operational parameters.
- Qualitative research: Broader contextual factors such as market trends, policy frameworks, and regulatory developments are examined to understand their qualitative influence on the project’s performance and long-term viability.

This research is classified as analytical, as it focuses on critically assessing the solar farm’s financial structure and modeling alternative scenarios to evaluate their impact on shareholder value and overall financial sustainability.

2.2 ANALYSIS TOOLS AND TECHNIQUES

The analytical backbone of this project is Microsoft Excel, a tool renowned for its versatility in financial modeling and its capacity to handle complex data structures and computations. Excel has been augmented with VBA, a programming environment within Excel that allows for the automation of tasks, the creation of dynamic simulations, and the optimization of financial scenarios. Together, these tools provide a framework for building and analyzing the solar farm's financial model.

The use of Excel ensures a user-friendly interface and flexibility, enabling easy adjustments to variables and inputs while maintaining robust analytical capabilities. Meanwhile, VBA brings additional depth by automating essential processes, reducing the risk of manual errors, and saving significant time. For instance, VBA scripts are employed to optimize debt structuring and repayment schedules, enabling the evaluation of various scenarios with enhanced speed and accuracy. This integration of Excel and VBA ensures that the financial model is both accessible to users and sophisticated enough to meet the demands of project finance analysis.

VBA's role in the analysis extends beyond automation to include the implementation of optimization algorithms. These algorithms are essential for determining the most efficient allocation of debt and equity, evaluating repayment strategies, and analyzing sensitivities to financial variables. By embedding these algorithms directly within the Excel model, VBA enables a seamless workflow where advanced analytics are accessible without the need for external software or programming expertise.

To ensure rigorous evaluation and provide actionable results, the following analytical techniques have been applied:

- Development of a dynamic financial model: A financial model has been constructed in Excel to accurately reflect the solar farm's operational and financial state. This model integrates inputs such as CAPEX, OPEX, PPA pricing, energy production, tax rates, and debt structure, facilitating long-term projections and scenario testing. The inclusion of VBA code enhances the model by automating complex calculations, such as optimal debt allocation and repayment schedules, increasing precision and efficiency.
- Amortization schedules: Detailed debt repayment schedules have been developed to break down principal and interest payments over time. These schedules, created using Excel and VBA, allow for an in-depth analysis of the project's debt-servicing capacity and help identify potential cash flow bottlenecks.
- Discounted Cash Flow analysis: The DCF method has been used to project future cash flows and calculate the Net Present Value, providing insights into the project's profitability and long-term financial sustainability. This analysis forms the foundation for evaluating the solar farm's economic viability.
- Sensitivity analysis: Scenario-based sensitivity analyses have been conducted to assess the impact of changes in critical parameters, including interest rates, leverage ratios, CAPEX, OPEX, and PPA prices. VBA automation allows for rapid iteration and testing of multiple scenarios, enhancing the ability to identify vulnerabilities and optimize decision-making under various financial and market conditions.
- Evaluation of financial performance metrics: Financial indicators, including Equity IRR, Project IRR, Payback Period, and Loan Life Coverage Ratio, have been calculated to measure profitability, debt repayment ability, and overall financial efficiency. The automated processes in VBA ensure accurate and consistent results across all scenarios, enabling a more thorough evaluation of financial performance.

2.3 DATA SOURCES

The data used for this study will be sourced from two main categories to ensure the robustness of the analysis:

- Primary data: Operational and financial information will be obtained directly from a utility company based in Spain, ensuring real-world relevance and up-to-date data. This primary data will serve as the cornerstone for constructing the financial model.

- Secondary data: Scholarly literature, industry reports, and case studies on renewable energy financing will provide theoretical frameworks and contextual insights. These sources will help position the project analysis within the broader renewable energy market and economic landscape.

3. THEORETICAL FRAMEWORK

Project finance offers an approach to structuring investments by emphasizing risk allocation, cash flow dependency, and limited recourse arrangements, making it uniquely suited to renewable energy ventures. Solar energy projects benefit from this model due to their stable revenue streams and alignment with environmental sustainability objectives. Furthermore, effective financial structuring and robust risk management are essential for optimizing economic efficiency and mitigating uncertainties. Finally, an exploration of global trends in renewable energy financing and public policy highlights the dynamic interplay between innovation, market forces, and regulatory support, shaping the future of sustainable energy investments.

3.1 FUNDAMENTALS OF PROJECT FINANCE

Project finance is a financial structuring mechanism uniquely designed for large-scale, capital-intensive projects. Unlike traditional corporate finance, it emphasizes reliance on the project's own cash flows as the primary source of debt repayment, with the project's assets serving as collateral. This non-recourse or limited recourse structure limits lenders’ claims to the project itself, thereby insulating the sponsor’s broader financial position.

The project finance is most suitable for initiatives with predictable and stable cash flows, significant upfront capital requirements, and long operational lifespans, such as renewable energy projects, infrastructure developments, and public-private partnerships. These characteristics make project finance particularly relevant for solar farms, where long-term contracts, such as PPAs, ensure steady revenue streams essential for securing financing. (Gatti, 2008)

3.1.1 CHARACTERISTICS OF PROJECT FINANCE

- Limited Recourse Financing: Project finance relies primarily on the project's anticipated cash flows for repayment, minimizing dependency on the sponsor’s creditworthiness. This structure protects the sponsor’s broader financial stability by limiting liability to their equity contribution. Lenders, in turn, assume a higher degree of project-specific risk, demanding rigorous risk mitigation strategies.
- Risk Allocation: Central to project finance is the systematic allocation of risks to parties most capable of managing them. This approach involves detailed contractual agreements, such as Engineering, Procurement, and Construction (EPC) contracts and Operation and Maintenance (O&M) agreements, which distribute responsibilities and financial exposures. For solar farms, EPC contractors often assume risks related to construction delays and performance guarantees, while long-term PPAs address market risks by stabilizing revenue against electricity price volatility (Gatti, 2008).
- Cash Flow Dependency: The financial sustainability of project finance hinges on reliable and predictable cash flows. Projections must account for variables such as energy

production, pricing, and operational costs. According to (Santosh Raikar, 2020), solar energy projects align well with this model due to their stable revenue potential and cost predictability under contractual frameworks like PPAs.

3.1.2 APPLICATION IN RENEWABLE ENERGY PROJECTS

The renewable energy sector, particularly solar farms, has embraced project finance as the dominant funding structure due to its ability to manage high capital costs while ensuring financial sustainability. Solar projects typically secure long-term PPAs, which provide consistent revenue streams that meet lenders' requirements for predictable cash flow. Additionally, public policies, such as subsidies and feed-in tariffs, have further enhanced the financial viability of renewable energy projects.

The convergence of government incentives, technological advancements, and institutional investor interest has cemented project finance as an enabler of solar energy expansion. By combining robust financial structuring with environmental sustainability, project finance has empowered stakeholders to develop economically viable, scalable renewable energy projects. (Santosh Raikar, 2020)

3.2 FINANCIAL STRUCTURING AND RISK MANAGEMENT IN RENEWABLE ENERGY

Effective financial structuring and robust risk management are critical components of renewable energy projects, particularly for solar farms. These projects require an optimized balance of debt and equity to ensure economic efficiency while maintaining resilience against potential uncertainties. Additionally, strategic risk mitigation frameworks safeguard the project’s operational and financial stability, enhancing its attractiveness to investors and lenders.

3.2.1 DEBT AND EQUITY STRUCTURES

Renewable energy projects typically rely on a financing structure composed of 70-80% debt and 20-30% equity. This high leverage ratio is possible due to the predictable cash flows generated by solar projects under long-term PPAs. Debt financing, often secured through long-term loans or green bonds, offers lower capital costs compared to equity, thereby boosting overall returns for equity investors. (Gatti, 2008)

Equity investors, including sponsors and institutional stakeholders, play a crucial role in providing the initial capital required to secure debt financing. In some cases, mezzanine financing (a hybrid of debt and equity) may be used to bridge funding gaps, offering both flexibility and tax advantages. The importance of tailoring the debt-equity mix to the project’s risk profile, ensuring sufficient liquidity for operations while maintaining manageable repayment obligations. (Santosh Raikar, 2020)

3.2.2 RISKS AND MITIGATION STRATEGIES

Risk management is integral to ensuring the financial and operational success of solar energy projects. A range of risks must be anticipated and addressed through targeted strategies:

- Construction Risk: Construction risks arise during the project's development phase and include delays, cost overruns, and potential defects in construction. Such risks can significantly impact on the project's timeline and budget, leading to financial strain. These risks are commonly addressed through Engineering, Procurement, and Construction (EPC) contracts, which include fixed-price agreements and performance guarantees. By transferring the responsibility for timely and cost-effective delivery to experienced contractors, sponsors can minimize exposure to these uncertainties.

- Market Risk: Market risks stem from fluctuations in electricity prices, which can directly affect the project's revenue, particularly for projects exposed to merchant markets. Solar farms often mitigate this risk by securing long-term PPAs, which provide predictable revenue streams and shield the project from price volatility. This contractual stability reassures lenders and equity investors, making market risks manageable.

- Operational Risk: Operational risks are associated with inefficiencies, equipment failures, and maintenance challenges during the project's operational phase. These risks can reduce energy output, increase operating expenses, and compromise the project's financial health. To mitigate these challenges, Operation and Maintenance (O&M) agreements are established, ensuring regular inspections, repairs, and operational benchmarks. In addition, warranties and performance bonds from equipment manufacturers provide further safeguards against unexpected failures.

- Financial Risk: Financial risks include exposure to interest rate fluctuations and currency volatility, which can affect debt repayment and overall project costs. For solar farms with high leverage ratios, even minor changes in interest rates can have a significant impact on cash flows. Hedging instruments such as interest rate swaps and forward contracts are commonly employed to stabilize financing costs and protect against unfavorable financial conditions. These mechanisms allow projects to maintain predictable repayment schedules and preserve financial efficiency.

- Policy and Regulatory Risk: Policy and regulatory risks are linked to changes in subsidies, tax incentives, tariffs, or environmental regulations that can alter the project's profitability. Solar energy projects are particularly sensitive to such changes, as government incentives often form an important component of their financial viability. To address these risks, sponsors diversify revenue sources, engage with regulators to ensure compliance, and incorporate flexibility into their financial models to adapt to evolving policy environments.

3.2.3 SENSITIVITY ANALYSIS

Sensitivity analysis is a vital tool for evaluating the robustness of financial models under different scenarios. It tests the impact of variables, including capital expenditure (CAPEX), operating expenses (OPEX), energy production levels, and interest rates, on the project's financial performance.

For solar farms, sensitivity analysis often focuses on:

- CAPEX Sensitivity: Evaluating the effects of construction cost overruns financial metrics like IRR and DSCR.
- OPEX Sensitivity: Analyzing the impact of unexpected increases in operational costs on net cash flows and profitability.
- Production Variability: Examining scenarios such as reduced solar irradiance (e.g., P90 cases) to assess the resilience of revenue streams.
- Financing Conditions: Testing the sensitivity of debt repayment and equity returns to changes in interest rates or leverage ratios.

Sensitivity analysis not only highlights potential vulnerabilities but also informs risk mitigation strategies, enabling project sponsors to adapt financial structures proactively, ensuring that financial models remain aligned with the project's unique risk profile, supporting long-term sustainability. (Santosh Raikar, 2020) (Gatti, 2008)

3.3 RENEWABLE ENERGY FINANCING

Renewable energy financing has evolved significantly in recent years, driven by increasing global efforts to mitigate climate change and the growing demand for clean energy solutions. Solar energy, in particular, has benefited from technological advances that have significantly reduced the cost of photovoltaic systems, making projects more accessible and economically viable. Solar projects now attract substantial institutional investment, supported by their stable cash flows, long operational lifespans, and alignment with sustainability objectives. (Santosh Raikar, 2020)

The development of green financial instruments, such as green bonds and sustainability-linked loans, has diversified the funding landscape, enabling project sponsors to secure capital at competitive rates. These tools, combined with traditional project finance methods, provide flexible financing structures tailored to the specific needs of renewable energy projects. Gatti (2013) emphasizes that this trend has been particularly effective in increasing the scalability of solar projects by lowering financial barriers and broadening access to capital.

3.3.1 PUBLIC POLICY MECHANISMS

Government policies and regulatory frameworks have been critical in fostering the growth of renewable energy projects. These measures aim to reduce financial risks, encourage investment, and accelerate the transition to clean energy. Some mechanisms include:

- Power Purchase Agreements: PPAs establish long-term agreements between renewable energy producers and electricity buyers, ensuring stable revenue streams. This financial predictability is vital for obtaining favorable debt terms and attracting investors. In Spain, PPAs have become a foundational component of solar project financing, supported by regulatory stability and demand for renewable energy.
- Tax Incentives and Subsidies: Governments often provide direct subsidies, tax credits, or accelerated depreciation schemes to lower upfront costs and enhance project profitability. These incentives reduce financial burdens for developers while aligning public policy with environmental goals. (Santosh Raikar, 2020)
- Carbon Pricing and Regulatory Support: Mechanisms such as carbon taxes and emissions trading systems increase the cost competitiveness of renewables by disincentivizing fossil fuel usage. These policies, combined with renewable portfolio standards, create a favorable investment environment for solar energy projects.

3.3.2 EMERGING OPPORTUNITIES

The global focus on sustainability, combined with commitments to decarbonization, is driving the adoption of innovative financing models and advanced technologies in renewable energy. Solar projects stand to benefit from continued advancements in battery storage and grid integration, which further enhance their financial attractiveness. It is important to align financial structures with evolving market trends, including the increasing role of institutional investors and ESG considerations. (Gatti, 2008) (Santosh Raikar, 2020)

4. FINANCIAL MODEL

The financial model serves as a basis for the analysis of the solar energy project, integrating all relevant financial variables into an organized framework. This model provides a detailed evaluation of the project's economic viability by examining the interplay between revenues, costs, financing, and invested capital. It combines data inputs, including CAPEX, OPEX, expected revenue streams, and macroeconomic assumptions tailored to the current economic environment in Spain.

By employing this method, the financial model enables stakeholders to assess the project under various scenarios, facilitating a deeper understanding of cash flow dynamics and the potential impact of different financing strategies, including debt and equity contributions. The model is designed to evaluate the project's sustainability and optimize financial performance, calculating essential financial metrics such as the IRR, NPV, and DSCR. These indicators are critical for informed decision-making, providing clarity on the project's risk-return profile and ensuring a robust foundation for strategic financial planning.

4.1 FINANCIAL INPUTS AND ASSUMPTIONS

The solar plant under analysis features an installed capacity of 50 MW, representing a significant scale for renewable energy generation. This capacity forms an input for calculating revenue streams, estimating operating costs, and evaluating the overall financial feasibility of the project. Additionally, the model’s design includes the capability to adjust for potential capacity expansions, enabling stakeholders to assess the financial implications of scaling the project in subsequent phases.

4.1.1 MACROECONOMIC ASSUMPTIONS

The macroeconomic assumptions applied in this financial model reflect the economic indicators relevant to projects based in Spain. These assumptions establish a reliable foundation for generating financial projections:

- Inflation Rate: A fixed inflation rate has been applied, aligning with the European Central Bank's long-term inflation target.
- Corporate Tax Rate: The corporate tax rate is derived from internal data provided anonymously by the company involved in the project.

Given that the project is fully localized within Spain, exchange rate fluctuations are not considered in the model, as all financial transactions are conducted in euros. Furthermore, specific microeconomic factors related to the energy market are addressed separately in a dedicated section on energy projections, ensuring a focused analysis of revenue-generating elements.

4.1.2 IMPORTANT DATES

The financial model outlines a detailed timeline encompassing key milestones from the project's initial development to its eventual decommissioning. These milestones are essential for accurately forecasting cash flows, coordinating construction efforts, and evaluating the project's operational performance throughout its lifecycle:

- Model Start Date: Marks the commencement of financial projections and the beginning of the development phase, aligning all subsequent activities with the model's timeline.
- Construction Start Date: Represents the official initiation of construction activities, synchronized with the development phase to maintain consistency in cash flow projections and scheduling.
- Development and Construction Period: Spanning approximately 18 months, this phase allows for the completion of all necessary construction, installation, and commissioning activities, culminating in the readiness of the plant for operation.
- Commercial Operation Date (COD): Signals the transition to active revenue generation as the plant begins its commercial energy production. Regular operational expenses also commence at this stage.
- Operational Lifespan: The plant is designed to remain fully operational for three decades, ensuring long-term revenue generation through consistent electricity production.
- Decommissioning Date: Marks the end of the plant's operational life, at which point decommissioning activities will begin, involving either the dismantling or potential replacement of the facility, depending on prevailing conditions and advancements.

These milestones are designed to be adaptable, allowing the model to reflect changes in project conditions or requirements accurately. This flexibility ensures the model remains a dependable tool for ongoing financial planning and evaluation.

4.1.3 REVENUES

The financial model's revenue projections are primarily driven by two main sources: the sale of electricity and the generation of Guarantees of Origin (GOs). These revenue streams form the foundation of the project's financial viability, providing predictable and stable income over the plant's operational life.

- Electricity Sales: The primary source of revenue is the sale of electricity generated by the solar plant. This can be achieved through two main channels:
  - Power Purchase Agreement: The PPA is a long-term private contract that establishes a fixed initial price per megawatt-hour (MWh) with an agreed annual escalation rate. This contract provides stable and predictable cash flows, reducing exposure to market price volatility and enhancing the project's financial predictability. The PPA terms are structured to align with the plant's operational life, ensuring a consistent revenue stream throughout the contract period.

  - Regulated Market: Alternatively, the project can sell electricity on the regulated market, where prices fluctuate based on market conditions. The financial model incorporates three pricing methodologies for forecasting market-based revenues:
    - Baringa's Independent Projections: This approach uses detailed price forecasts provided by Baringa, a consulting firm specializing in market analysis and economic factors, offering a robust basis for estimating future electricity prices.
    - OMIE Market Futures: Price forecasts from the OMIE, Spain's main energy market operator, are also included. OMIE's projections reflect the anticipated trends in the Spanish energy market, providing reliable estimates for future pricing.
    - Manual Projections: Similar to the PPA model, this method involves setting an initial price per MWh with an annual escalation, specifically tailored for scenarios where market conditions differ significantly from external forecasts. This approach offers flexibility in adapting the model to specific project circumstances.

- Guarantees of Origin (GOs): In addition to electricity sales, the plant generates revenue from Guarantees of Origin, which are certificates that verify the renewable nature of the energy produced. These certificates are issued based on the amount of electricity generated from renewable sources and can be sold on the market, providing an additional income stream. The inclusion of GOs not only enhances the project's financial performance but also aligns with broader sustainability goals, appealing to stakeholders focused on environmental impact.

These revenue inputs are integral to the financial model, driving the calculations of cash flows and profitability. By incorporating both electricity sales and GOs, the model captures a view of the project's income potential, supporting detailed financial analysis and informed decision-making.

4.1.4 ENERGY GENERATION

The energy generation component of the financial model considers various factors influencing the solar plant's electricity output throughout its operational lifespan. This analysis is essential for estimating the project's long-term revenue potential and overall financial performance. The model evaluates the plant's capacity, panel degradation, probability scenarios, and seasonal variations, offering a comprehensive forecast of energy generation.

- Installed Capacity: The plant's total capacity serves as the foundation for calculating potential energy output, representing its maximum production capability under ideal operating conditions.
- Annual Panel Degradation: The model includes an annual degradation rate to account for the gradual reduction in panel efficiency over time due to aging and environmental exposure. This adjustment ensures the energy generation projections accurately reflect the long-term decline in performance.
- Probability Scenarios for Energy Production: To accommodate potential variability, the model employs probability-based scenarios:

  - *P50 Scenario*: Represents expected energy output under average conditions, serving as a baseline forecast.
  - *P90 Scenario*: Provides a conservative estimate to reflect potential underperformance, often used for stress-testing the project's financial resilience.
- Monthly Energy Generation: Energy output is forecasted on a monthly basis to account for seasonal variations in solar irradiance. Higher production is anticipated during peak sunlight months, while lower output is expected during periods with reduced daylight. This granularity enables precise cash flow projections and ensures revenue forecasts align with seasonal energy generation patterns.

By incorporating these elements, the model offers a detailed and realistic view of the project's energy generation capacity over its lifespan. This approach strengthens the reliability of long-term forecasts and supports an accurate financial evaluation of the solar project.

4.1.5 CAPEX

The Capital Expenditures (CAPEX) section outlines the investment required for the development and construction of the solar plant. Instead of a single upfront payment, this financial model distributes CAPEX across the entire development and construction period to reflect the incremental nature of the project's progression. This phased approach aligns with the project timeline, enabling more accurate cash flow forecasts and improving visibility of financial commitments during the construction phase.

The financial model incorporates the following key cost components, based on data provided by the company involved in the project:

- Engineering, Procurement, and Construction (EPC) Contract: Representing the largest portion of CAPEX, the EPC contract covers core construction activities. Payments are distributed across several months, with peak expenditures aligned with the most intensive phases of construction.
- Connection Rights: The cost of securing grid access is allocated over a specific period during the latter stages of the development timeline.
- Development Costs: These expenses, incurred early in the project, encompass planning, permitting, and other preparatory activities necessary for the project's initiation.
- Due Diligence Costs: Concentrated in the initial months of the project, these costs cover thorough evaluations to ensure the project's viability before major construction begins.
- Taxes and Licenses: Regulatory obligations are met through a one-time payment during the construction phase, covering all applicable taxes and licensing fees.
- Cost of Land: Land acquisition expenses are accounted for in a single installment during the early stages of the project, ensuring the necessary rights to the project site.

- Other Costs and Contingency: This category includes additional miscellaneous expenses and a contingency reserve to address any unforeseen financial needs during construction.

By distributing CAPEX across the development timeline, the financial model provides a structured approach to capital outflows, reducing financial strain and supporting better cash flow management. This allocation ensures that expenditures align with project milestones, facilitating a smoother financial trajectory and enhancing the solar plant's overall feasibility.

4.1.6 OPEX

The Operating Expenses (OPEX) section encompasses all recurring costs associated with the day-to-day operation and maintenance of the solar plant. These expenses are expected to increase annually at a consistent rate, accounting for inflation and the rising costs of services and materials over time. The financial model assumes these costs to be predictable and stable throughout the plant's operational lifespan, and therefore, does not allocate a contingency reserve for OPEX.

The components of OPEX are outlined as follows:

- Operation & Maintenance Contracts: O&M costs increase over time, reflecting the growing maintenance requirements as the plant ages. Expenses are escalated annually to account for inflation, with adjustments at defined intervals.
- IAE and Local Taxes: Recurring tax obligations are adjusted upward annually to reflect potential changes in tax policies and inflationary pressures.
- Supplies: This includes the cost of electricity consumed by the plant's auxiliary systems. These expenses increase annually in line with inflation.
- Grid Access Costs: Fees for accessing the electrical grid are subject to annual escalation, ensuring that the model reflects realistic future cost increases.
- Land Payments: Payments for surface rights are adjusted annually to align with inflation and market conditions.
- Easements: These costs cover legal permissions for infrastructure placement and are escalated annually to account for inflationary impacts.
- Asset Management: This includes the costs of financial audits, insurance, and general asset management services, with annual increases incorporated to maintain alignment with inflationary trends.
- Market Representative: The cost of hiring a market representative, essential for negotiating energy sales and maintaining competitive market positioning, increases annually in line with inflation.
- IT Services: Expenses related to IT services, including software maintenance, cybersecurity, and technical support, are adjusted annually for inflation.

- Other Operating Costs: Miscellaneous operating expenses, covering unforeseen costs not included in specific categories, are also escalated annually to account for inflation.

The financial model uses these OPEX components to accurately forecast the plant's operational cash flows, contributing to the evaluation of its long-term financial sustainability. Effective management of these recurring expenses is critical to maintaining operational efficiency and optimizing the solar plant's financial performance throughout its lifecycle.

4.1.7 WORKING CAPITAL MANAGEMENT

The working capital management section of the financial model is designed to maintain sufficient liquidity and ensure operational efficiency throughout the project's lifecycle. By effectively managing cash inflows and outflows, the model minimizes financial risks and supports the seamless operation of the solar plant. The following strategies are implemented to optimize working capital:

- Accounts Receivable Period: The model assumes a short collection period for payments from electricity sales. This approach ensures a steady cash inflow, reducing the risk of liquidity shortages and stabilizing the project's financial position.
- Accounts Payable Period: Supplier payments are scheduled to allow flexibility in managing cash outflows. This timing bridges the gap between incoming and outgoing cash flows, utilizing short-term revenues to cover obligations effectively.
- Prefunded Working Capital: The model includes an initial reserve to cover early operational costs. This provision ensures the project can meet its initial financial commitments without relying on revenues generated during the initial stages of operation, mitigating the risk of cash flow disruptions.
- Major Maintenance Reserve Account (MMRA): Although the current model does not include initial or annual funding for an MMRA, the potential for establishing such an account is considered for future significant maintenance activities. This reserve would act as a financial buffer for unexpected major repairs or replacements.
- Minimum Cash Balance: A mandatory minimum cash balance is maintained at all times, serving as a safeguard against unforeseen short-term expenses or fluctuations in working capital. This reserve ensures the project has sufficient liquidity to address unexpected financial needs.

These strategies are essential for preserving the project's financial health. By aligning cash inflows and outflows and maintaining appropriate reserves, the model ensures that the project can fulfill both its immediate and long-term financial obligations, supporting stable and sustainable operations over its lifespan.

4.1.8 FINANCING

The financing structure of the project is designed to balance risk and return effectively while ensuring long-term financial sustainability. It incorporates a strategic mix of equity contributions and senior debt, each tailored to meet the project's capital needs and optimize cash flow management. Equity contributions, including a shareholder loan component, provide a foundation of capital and align the interests of investors with the project's financial goals.

4.1.8.1 EQUITY CONTRIBUTION

The financing plan includes an equity component, part of which is structured as a shareholder loan. This approach allows the project to balance risk between equity investors and debt holders. The shareholder loan will carry an interest rate, providing a fixed return to investors while optimizing the tax efficiency of the financing structure. Furthermore, the terms stipulate that positive retained earnings must be achieved before dividends can be distributed to shareholders, ensuring that the project maintains sufficient financial reserves before making profit distributions.

4.1.8.2 SENIOR DEBT TIMING

The timing of debt disbursement and repayment plays a crucial role in the project's financial planning. The financial model incorporates specific dates to manage the flow of funds effectively:

- Loan Execution and Disbursement: The execution of the loan agreement and the initial disbursement of funds are carefully timed to align with the project's capital needs during the construction phase.
- First Interest and Principal Payments: These payments typically commence after the completion of the construction phase, allowing the project to generate revenue before incurring significant debt service obligations.
- Final Maturity Date: The loan's maturity date marks the end of the repayment period, coinciding with the latter stages of the plant's operational life to maximize cash flow availability for debt service.

4.1.8.3 SENIOR DEBT TERMS

The senior debt represents the primary loan used to finance the majority of the project's capital needs. The terms include:

- Maximum Leverage: The project's leverage ratio is capped to ensure a sustainable balance between debt and equity, minimizing financial risk.
- Interest Rate Structure: The interest rate is composed of a base rate plus a lender margin, reflecting market conditions and the risk profile of the project.
- Fees: The financing includes various additional fees, such as commitment fees for undrawn funds and up-front fees paid at the start of the loan.
- Grace Period: The loan features a grace period, during which no principal payments are required. This allows the project time to stabilize operations and generate sufficient cash flow before beginning principal repayments.

- Financial Covenants: The loan agreement includes requirements to maintain a minimum DSCR, as well as restrictions on dividend payments based on the project's financial performance. These covenants protect the interests of lenders by ensuring the project remains financially healthy.

4.2 MODEL CALCULATIONS: CASH FLOWS, DEBT STRUCTURING, AND EQUITY

The financial model's calculations provide a framework for evaluating the project's financial performance. By analyzing components of cash flows, optimizing the debt structure, and assessing equity returns, the model delivers critical insights into the project's overall viability. The integration of advanced financial mechanisms, such as debt sculpting and cash waterfalls, ensures precise forecasting and aligns financial outcomes with the strategic goals of the project.

The subsections below offer a detailed breakdown of the primary accounts and processes that form the core of the financial model. These include calculations related to cash inflows and outflows, debt repayment schedules, and equity distributions, all tailored to reflect the unique characteristics of the solar energy project.

4.2.1 ACCOUNTS OVERVIEW

The financial model includes several accounts, each designed to monitor and calculate the specific inflows, outflows, and reserves necessary for the solar energy project. These accounts provide a transparent framework for tracking financial activities, ensuring the accuracy of cash flow projections, and supporting the long-term financial sustainability of the project.

4.2.1.1 FLAGS AND INDEX FACTORS

The model utilizes a structured system of flags and index factors to effectively manage the various phases of the project. Flags are indicators that mark critical milestones, helping the model identify when the project transitions between stages such as construction, operational launch, and financing phases. This methodology ensures smooth progression by aligning the debt repayment schedule with the project's cash flow generation, clearly defining important events like the completion of construction and the start of full operations. These flags enable efficient project management and timely decision-making throughout the lifecycle of the solar plant.

In addition, the model incorporates index factors that dynamically adjust projections based on changing economic conditions. These indices allow the model to account for variations in operating costs, maintenance requirements, and energy production levels over time. For instance, the model can automatically adjust costs to reflect inflation or changes in operational efficiency, providing a realistic forecast that adapts to evolving market conditions. This flexibility enables stakeholders to test various scenarios and gain a deeper understanding of the project's long-term financial performance, enhancing the robustness of the financial analysis.

4.2.1.2 SOURCES OF FINANCING

The financial structure of the project is supported by three primary sources of funding: equity, shareholder loans, and senior debt.

- Equity: Equity capital represents the initial investment made by the project's shareholders. This foundational contribution is essential for covering early-stage development costs and demonstrates the financial commitment of stakeholders, providing a strong basis for the project's financing.
- Shareholder Loans: These loans provide additional internal financing, offering more favorable terms compared to external debt. Structured as subordinated debt, shareholder loans offer flexibility in repayment and can be used to bridge funding gaps while optimizing the tax efficiency of the project.
- Senior Debt: Senior debt constitutes the largest portion of the financing and is sourced from external financial institutions. This type of debt is structured with specific repayment terms, often sculpted to align with the project's cash flow capacity. The use of senior debt helps to leverage the project's financial structure, balancing the cost of capital and ensuring a sustainable approach to debt service over the duration of the loan.

4.2.1.3 USES OF FINANCING

The funds raised through these financing sources are allocated to two main categories: CAPEX and Financing Costs.

- CAPEX: This category covers the essential investments required for the construction and development of the solar plant. It includes expenses related to EPC, land acquisition, and other necessary infrastructure. A contingency reserve is also included to manage unexpected costs during the construction phase, ensuring that the project remains on budget.
- Financing Costs: This includes expenses such as up-front fees, commitment fees, and interest accrued during the construction period. These costs are crucial for securing external financing and managing the financial obligations of the project from inception through to the operational phase.

Together, the strategic allocation of funds ensures coverage of all project needs, from initial development through to full-scale operations, with provisions in place to handle both planned and unforeseen financial requirements.

4.2.1.4 CASH MANAGEMENT

The cash management strategy in the financial model is structured around a cash waterfall, which dictates the sequence in which project cash flows are allocated to meet financial obligations. This hierarchical approach ensures that cash is distributed effectively, prioritizing payments and maintaining financial stability.

- Cash Flow Allocation: The process begins with the project's EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization), from which adjustments are made for changes in working capital and tax payments. The resulting cash flow is designated as the Cash Flow Available for Debt Service (CFADS).

- Debt Service Payments: The primary use of CFADS is to cover the interest and principal repayments of senior debt. By aligning debt payments with the project's cash flow capacity, the model minimizes the risk of liquidity issues and ensures compliance with financial covenants.
- Reserve Accounts: Once senior debt obligations are met, the next allocation of cash is directed towards reserve accounts, such as the Debt Service Reserve Account (DSRA) and the Major Maintenance Reserve Account (MMRA). These reserves act as financial buffers, providing security against potential cash flow disruptions and ensuring that the project has sufficient funds for future debt payments and significant maintenance activities.
- Shareholder Loan Repayments: After funding the reserve accounts, any remaining cash is allocated to repay shareholder loans, covering both interest and principal components. This step helps maintain a balanced capital structure and rewards equity investors.
- Dividends and Net Cash Movements: Finally, the model calculates the cash available for dividend distribution to shareholders. The remaining cash flow is tracked through net cash movements, ensuring that the beginning and closing cash balances are maintained at sufficient levels. This systematic approach guarantees orderly payments, preserves liquidity, and supports the overall financial health of the project.

4.2.1.5 SECONDARY ACCOUNTS

The financial model includes several secondary accounts that play a vital role in enhancing the accuracy of financial projections and maintaining a view of the project's financial health. These accounts cover areas such as reserves, working capital, depreciation, taxes, retained earnings, dividends, internal rate of return (IRR), and debt covenants. Each account contributes to a deeper analysis of the project's financial dynamics.

- Depreciation: Tracks the gradual reduction in value of the project's assets over time, which is crucial for both accounting and tax purposes. The Capital Expenditures Depreciable Basis includes the total cost of building the plant and its infrastructure, depreciated over the project's lifespan. In addition, certain financing costs are also depreciated, as seen in the Financing Cost Depreciable Basis, which deducts initial contributions like the DSRA or MMRA from the overall financing costs. Depreciation is calculated on a straight-line basis, evenly distributing the asset value over the life of the project. This is essential for maintaining consistency between financial reporting and tax filings.
- Retained earnings: Reflects the accumulated profits that have not been distributed as dividends, providing a measure of the project's financial health. This account begins with the prior period's retained earnings and is updated by adding net income or subtracting losses and dividends. The final balance at the end of each period represents the profits available for reinvestment or future dividend distributions, contributing to the overall sustainability of the project.
- Dividends: Represent the distribution of profits to shareholders, but certain financial tests must be passed before they can be issued. These Dividend Blocker Tests ensure

that dividends are only distributed if certain conditions are met, such as maintaining a DSCR above a certain threshold, repaying shareholder loans, and having positive retained earnings. The available cash for dividends is calculated after ensuring a minimum cash balance is maintained, helping to safeguard the project's

- Internal rate of return: It is a crucial financial metric that measures the profitability of the project. Equity IRR reflects the returns to equity investors, accounting for equity drawdowns, shareholder loan repayments, interest, and dividends. It provides insight into how well the project generates returns for its equity holders. Meanwhile, the Project IRR, calculated both before and after taxes, assesses the overall financial performance of the project, taking into account total cash inflows and outflows over its life. The pre-tax and post-tax IRRs help stakeholders understand the financial viability of the project under different scenarios.
- Debt covenants: Establish financial limits and ratios that the project must meet to comply with loan agreements. The Debt Service Coverage Ratio (DSCR) measures the project's ability to cover its debt service obligations from available cash flow. Maintaining a minimum DSCR is crucial to ensure that the project can continue to meet its debt repayments. Additionally, the LLCR is used to assess whether the project has sufficient cash flow to cover the total debt throughout its life. Finally, the Weighted Average Life of the debt provides a measure of the average time until the principal payments are due, helping to evaluate the loan’s repayment schedule and maturity.

4.2.2 MODEL FUNCTIONALITY

This section explains the core mechanisms that drive the financial model, focusing on the cash waterfall, debt sizing, debt sculpting, and the resolution of circularity. These components work together to ensure accurate financial projections, maintain liquidity, and align debt repayments with the project’s cash flow capacity.

4.2.2.1 WATERFALL MODEL

The Cash Waterfall ensures that project cash flows are allocated in a structured manner to meet all financial obligations in the correct order of priority. It starts with EBITDA as the base for cash generation. From this, adjustments are made to account for changes in Net Working Capital and any Taxes Paid during the period. Additionally, any Interest on Reserve Accounts is added to the available cash flow, which is then used to service the project's debt.

The first priority is to ensure Cash Flow Available for Debt Service is sufficient to cover the Senior Debt Interest Expense and Senior Debt Principal Repayment. After satisfying these obligations, the model allocates Cash Flow Available for Reserve Accounts, which includes maintaining required balances in the DSRA, MMRA, and other necessary reserves.

Once the reserve accounts are sufficiently funded, the model moves on to the Cash Flow Available for Shareholder Loan payments, which includes both interest and principal repayments on any shareholder loans. Any remaining cash is finally allocated to Dividends, which are distributed to equity investors. The model ensures that net cash movements and balances at the beginning and end of each period align, keeping the cash balance at a healthy level.

4.2.2.2 DEBT SIZING

Debt sizing in the model is structured to optimize the amount of debt that can be issued for the project while maintaining financial stability. The model uses either the maximum debt amount allowable by the lender or the highest level of debt that can be supported by the DSCR, whichever is reached first. This ensures that the project does not over-leverage itself, protecting against financial risk.

Once the optimal debt size is calculated, the model issues debt up to this limit, structuring it to ensure that all financial covenants, such as maintaining the minimum DSCR, are respected throughout the project's life.

4.2.2.3 DEBT SCULPTING

Debt sculpting is an essential part of managing the project's financial structure. In this model, debt repayments are aligned with the project’s expected cash flows. The aim is to ensure that the project generates sufficient cash flow in each period to meet its debt service obligations while maintaining a stable financial position.

This approach adjusts the repayment schedule according to the cash flow forecasts, increasing payments during periods of higher cash generation and reducing them when cash flow is expected to be lower. By sculpting the debt in this way, the project can maintain adequate liquidity and avoid default, even during periods of lower cash flow.

4.2.2.4 CIRCULARITY RESOLUTION

Circularity is a common issue in financial models, where certain calculations depend on each other, leading to an endless loop if not resolved. To break this circularity, the model includes a macro that ensures calculations are performed in the correct sequence. The macro is designed to resolve dependencies between variables, allowing the model to produce accurate and stable results without encountering calculation errors.

This functionality ensures the model operates efficiently and accurately, especially when dealing with complex interdependencies, such as those involving cash flow calculations, reserve accounts, and debt repayments.

4.3 FINANCIAL OUTCOMES: METRICS AND PROJECTIONS

This section outlines the key financial metrics and statements used to evaluate the economic performance and sustainability of the solar energy project. These metrics, including IRR, DSCR, and LLCR, offer insights into the project's profitability, debt repayment capacity, and overall financial health.

Additionally, the financial statements—Income Statement, Balance Sheet, and Cash Flow Statement—provide a standardized and comprehensive framework for analyzing the project's operational outcomes, financial position, and liquidity. Together, these tools enable stakeholders to assess the project's viability, identify risks, and make informed investment and operational decisions throughout its.

4.3.1 FINANCIAL METRICS

4.3.1.1 INTERNAL RATE OF RETURN (IRR)

The IRR measures the profitability of the project by calculating the discount rate that sets the net present value (NPV) of the project's cash flows to zero. For renewable energy projects, the IRR typically ranges between 8% and 12%, depending on the risk profile, contractual structures like Power Purchase Agreements (PPAs), and market conditions. Projects with stable, long-term off-take agreements tend to achieve higher IRRs due to predictable revenue streams.

4.3.1.2 DEBT SERVICE COVERAGE RATIO (DSCR)

DSCR is a metric that evaluates the project's capacity to meet its debt obligations. It is the ratio of the cash available for debt service to the scheduled debt payments. A DSCR between 1.2 and 1.5 is generally considered acceptable, ensuring that the project generates sufficient cash flow to cover its debt, even under adverse conditions. The model typically includes stress testing to evaluate how sensitive the DSCR is to variables such as energy production and pricing fluctuations.

4.3.1.3 LOAN LIFE COVERAGE RATIO (LLCR)

The LLCR measures the total available cash flow over the life of the loan in relation to total debt service. It is often used by lenders to evaluate the project's long-term ability to repay its debt. LLCR values in the range of 1.4 to 1.6 are commonly targeted in renewable energy projects. The LLCR is particularly relevant in projects with fluctuating cash flows, as it provides a broader view of the project's financial strength over the loan term.

4.3.1.4 WEIGHTED AVERAGE LIFE (WAL)

The WAL represents the average time required to repay the loan's principal. A well-structured WAL aligns debt repayments with the project's cash flow generation, ensuring that principal and interest payments can be met without straining the project's liquidity. A balanced WAL helps in optimizing debt repayment schedules to match the project's operational and revenue-generating capacity.

4.3.1.5 PAYBACK PERIOD

The payback period refers to the time required to recover the initial investment made in the project. For solar energy projects, this period typically ranges from 8 to 12 years, depending on the capital expenditures (CAPEX) and revenue models. A shorter payback period is desirable, as it reduces the project's risk and makes it more attractive to investors, especially in volatile energy markets.

4.3.1.6 ANNUAL OUTPUT

The annual energy output of the solar plant is a fundamental driver of revenue. This is typically measured in megawatt-hours (MWh) produced per year. The project model considers factors such as panel degradation rates and the seasonal variation in sunlight to forecast the plant’s energy production. Accurate predictions of annual output are crucial for revenue forecasts and directly impact other financial metrics like IRR, DSCR, and payback period.

4.3.2 FINANCIAL STATEMENTS OUTPUTS

The project’s financial results are presented through the three main financial statements commonly used to report an entity's financial information: the Income Statement, the Balance Sheet, and the Cash Flow Statement. These statements provide a comprehensive view of the project's operating profitability, financial position, and cash flow movements over time. They form a solid foundation for financial analysis and decision-making. By employing these standardized reports, all relevant aspects of the project's financial performance are clearly and accurately accounted for, facilitating comparisons with other projects or entities.

4.3.2.1 INCOME STATEMENT

The Income Statement reflects the project’s financial performance, beginning with revenues generated from electricity sales and Guarantees of Origin (GOs). From these revenues, operating expenses, such as maintenance costs, taxes, and other recurring expenditures, are subtracted. The result is EBITDA, which measures the project’s operational capacity before financial expenses and depreciation. After deducting depreciation, the EBIT is obtained, which is then adjusted for debt and shareholder loan interest to calculate EBT (Earnings Before Taxes). Finally, taxes and changes in deferred tax assets and liabilities are accounted for, resulting in the net income or net loss for the period.

4.3.2.2 BALANCE SHEET

The Balance Sheet presents the project’s assets, liabilities, and equity at a specific point in time. Assets are categorized as current (e.g., cash and accounts receivable) and non-current (e.g., property and equipment). Liabilities include short-term obligations (e.g., accounts payable) and long-term debt. Equity reflects the capital provided by shareholders and retained earnings. The sum of assets must equal the sum of liabilities and equity, ensuring balance through the model’s balance check feature.

4.3.2.3 CASH FLOW STATEMENT

The Cash Flow Statement details the movement of cash across three categories: operating, investing, and financing activities. Operating activities include revenues adjusted for changes in working capital and financial expenses. Investing activities account for capital expenditures. Financing activities encompass loans, debt repayments, and dividend distributions. The net cash flow indicates changes in the cash position at the end of the period, ensuring that the project maintains an adequate liquidity level.

5. BASE CASE AND VARIABLE ANALYSIS

This section introduces the Base Case scenario as the foundational benchmark for evaluating the financial performance of the solar energy project. The Base Case consolidates all inputs and assumptions, providing a view of the project under typical operational conditions. It serves as the primary reference for assessing the impact of potential changes in various critical variables, offering a solid baseline against which different scenarios can be compared.

The sensitivity analysis will allows for a more in-depth understanding of the project's risk profile, examining how adjustments in inputs can influence overall profitability and financial stability. The following variables will be analyzed individually, providing a focused sensitivity assessment for each:

- Variations in Market Interest Rates: Changes in market interest rates can significantly affect the cost of senior debt and overall project financing. This sensitivity analysis will examine how fluctuations in base rates influence debt servicing obligations and financial sustainability.
- Changes in Leverage Levels: Adjusting the project's leverage ratio provides insights into the trade-offs between risk and return. Higher leverage can enhance equity returns but also increases financial risk, making this an essential variable to test in the model.
- Changes in PPA Price: PPA price is a critical driver of revenue. This analysis will evaluate the impact of different PPA pricing scenarios on the project's revenue stream and financial metrics, providing an understanding of market sensitivity.
- Changes in CAPEX: Fluctuations in initial investment costs can alter the project's financial structure and repayment capacity. This analysis will assess how increases or decreases in CAPEX affect metrics such as IRR, DSCR, and payback period.
- Changes in OPEX: Operational costs are subject to variability due to maintenance needs, inflation, or unexpected operational issues. Evaluating changes in OPEX provides insights into the impact on cash flow and profitability.
- Variability in Production Hours: The project's revenue is heavily influenced by the number of hours of energy production. This analysis will consider different production scenarios, accounting for potential fluctuations due to weather conditions or equipment efficiency.
- Changes in Investor Debt Levels: The level of debt provided by investors, including mezzanine and shareholder loans, affects the overall leverage and risk profile of the project. Analyzing different levels of investor debt helps identify the optimal capital structure for maximizing returns while maintaining financial stability.
- Changes in Investor Interest Rates: The interest rate on shareholder loans is an important factor in determining the project's cost of capital. This analysis will explore the effects of varying interest rates on the overall financial performance and equity returns.

- Tax Rate Changes: Variations in the corporate tax rate can directly impact the project's net income, affecting both the equity returns and the cash available for debt service. Analyzing different tax scenarios will help gauge the sensitivity of the financial metrics to fiscal policy changes.

By focusing on these individual variables, this approach offers a detailed analysis of the project's financial resilience. It helps stakeholders understand the potential risks and opportunities associated with each input, facilitating better decision-making and optimization of the financial structure.

5.1 BASE CASE

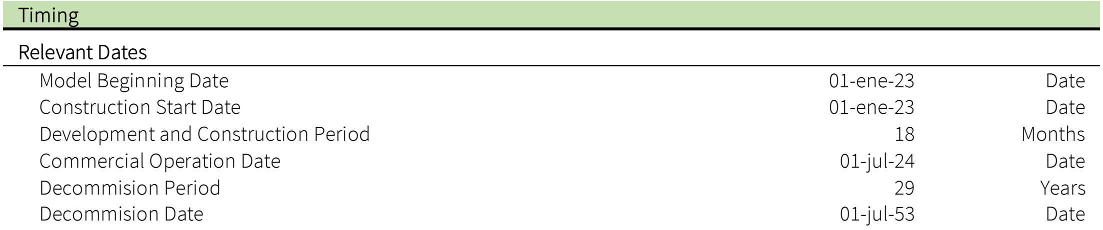
The Base Case scenario is built using data provided by the company involved in the solar energy project. All the inputs and assumptions are derived from a real Project Finance model, ensuring that the financial projections and metrics reflect the conditions of an actual solar energy project. However, to maintain confidentiality, the specific details of the solar park and the company have been anonymized. This anonymization ensures that the project remains unidentifiable while still providing a robust and realistic framework for the financial analysis.

Despite the anonymization, all the figures and assumptions are based on realistic data from a real-world example. Therefore, the Base Case scenario serves as an ideal foundation for this thesis, offering a perfect reference for understanding the financial viability of a solar energy project under standard conditions.

5.1.1 INPUTS

5.1.1.1 TIMING

The project has a total lifespan of 30 years, including an 18-month development and construction period. After this period, the solar plant will begin operations and continue producing energy for the remaining 29 years, after which the decommissioning process will commence.



Timing		
Relevant Dates		
Model Beginning Date	01-ene-23	Date
Construction Start Date	01-ene-23	Date
Development and Construction Period	18	Months
Commercial Operation Date	01-jul-24	Date
Decommision Period	29	Years
Decommision Date	01-jul-53	Date

Table 1: Base Case Timing

5.1.1.2 ENERGY PRODUCTION AND REVENUES

The solar park, with an installed capacity of 49.809 MW, is expected to produce energy under two scenarios: P50, generating 100,515 MWh annually, and P90, with a more conservative estimate of 94,625 MWh annually, accounting for an annual panel degradation of 0.55%.

Revenues are primarily driven by a Power Purchase Agreement (PPA), offering a fixed tariff of 38 EUR/MWh with an annual escalation of 2%, ensuring stable revenue growth over time. The PPA will remain in effect until July 1, 2053, providing a secure and predictable income stream throughout the plant's operational life.

Energy and Revenues		
Energy Production		
Capacity	49.809	MW
Annual Panel Degradation	0.55	%
P50 Annual Generation	100,515	MWh
Revenues		
PPA Tariff	38,00	EUR / MWh
PPA Tariff Annual Escalation	2,0	% / yr
PPA End Date	01-jul-53	Date

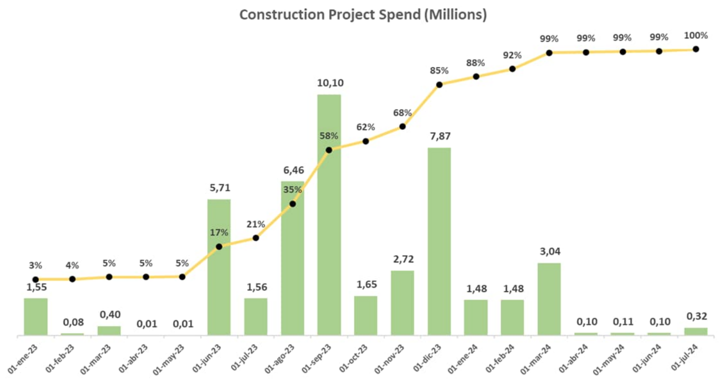
Table 2: Base Case Energy Production & Revenues

5.1.1.3 CAPEX

The CAPEX for the project is primarily dominated by the EPC contract, which accounts for the largest portion of the budget dedicated to the engineering, procurement, and construction of the solar park. Additional costs include connection rights, development costs, due diligence, taxes, licenses, and land acquisition, all essential for enabling and constructing the project. A contingency of 1% of the total CAPEX has been set aside to cover potential overruns and ensure that the construction can be completed without unforeseen financial issues.

CAPEX		
Initial Capital Expenses		
EPC Contract	34.866.300	EUR
Connection Rights	2.477.557	EUR
Development Costs	1.351.395	EUR
Due diligence costs	527.046	EUR
Taxes & Licences	1.340.372	EUR
Cost of land (Surface Right)	1.981.272	EUR
Other	-	EUR
Contingency	425.439	EUR

Table 3: Base Case Capex



Graph 1: Base Case Construction Expenditure

5.1.1.4 OPEX

The OPEX for the project includes varying Operation and Maintenance (O&M) contracts that change over time. In the first few years, the O&M costs are lower due to the reduced need for maintenance shortly after construction, but they increase in later years as more extensive maintenance becomes necessary. This is independent of the 2% annual increase applied to all O&M costs to account for inflation.

In addition to O&M costs, the project incurs standard operating expenses such as local taxes, self-consumption supplies, grid access fees, land payments, easements, asset management (including audit and insurance), market representation, IT services, and other miscellaneous costs. These expenses also experience a 2% annual increase to account for rising operational costs over time.

OPEX		
Annual Operating Expenses		
O&M Contract 1-2	388.444	EUR
O&M Contract 3-5	405.440	EUR
O&M Contract 6-20	522.338	EUR
IAE+ Local Taxes	76.748	EUR
Supplies (self consumption)	45.046	EUR
Grid Access cost (Toll tax)	56.871	EUR
Land Payments	19.145	EUR
Easements	5.631	EUR
Asset Management (incl audit & insurances)	106.985	EUR
Market representative (€/MW)	84.462	EUR
IT services	4.505	EUR
Other	59.292	EUR

Table 4: Base Case OPEX

5.1.1.5 WORKING CAPITAL MANAGEMENT

The working capital management is structured to ensure smooth cash flow operations, with accounts receivable set to be collected in one month and accounts payable to be settled in two months. This timing gap allows the project to receive payments before needing to disburse funds, effectively self-financing the working capital and reducing the need for additional financing sources such as credit lines.

Regarding the minimum cash balance, a threshold of €50,000 has been established. Although this amount is adjustable within the model, which aligns debt payments with available cash, the minimum balance serves as a safeguard. It ensures liquidity in case of any extraordinary situations, despite the flexible nature of the model's debt servicing mechanism.

Working Capital Management		
Cash Management		
Accounts Receivable Period	1	Months
Accounts Payable Period	2	Months
Minimum Cash Balance	50.000	EUR

Table 5: Base Case Working Capital Management

5.1.1.6 EQUITY FINANCING

The equity financing structure follows the real-world approach used in funding the solar park. Dividends can only be distributed when the company has positive retained earnings, in line with the general accounting principles in Spain. Additionally, the capital is not entirely contributed as direct equity by investors. Instead, 25% is contributed as equity, while the remaining 75% is structured as mezzanine debt, allowing the investors to benefit from tax deductions on interest payments. This is why the investor debt carries a higher interest rate of 8%, significantly above market rates, to optimize the tax benefits for the investors. Besides having a higher interest rate, this debt also involves significantly higher risk compared to senior debt, due to its lower repayment priority in case of financial issues.

Shareholder Financing		
Contribution		
Total Equity Contribution	17.009.219	EUR
Amount of Equity Contributed as Shareholder Loan	75,00	%
Shareholder Loan Annual Interest Rate	8,00	%
Positive Retained Earnings Required for Dividend	Yes	Y/N
Total Equity Contribution	17.009.219	EUR

Table 6: Base Case Shareholder Financing

5.1.1.7 DEBT FINANCING

The debt financing for the project is structured to last until the end of the solar park's operational life, maximizing the investor's return. The debt carries a leverage ratio of 62%, with an interest rate of 4.5%, which includes a base rate and lender margin. Additionally, there are various fees, such as an up-front fee and a commitment fee, that form part of the debt structure. A minimum DSCR of 1.25 is required to ensure the project generates enough cash flow to comfortably cover debt repayments.

Senior Debt		
Timming		
Loan Execution Date	01-ene-23	Date
First Disbursement Date	30-sep-23	Date
First Interest Payment Date	30-mar-24	Date
First Principal Payment Date	30-sep-25	Date
Final Maturity Date	30-abr-53	Date
Debt characteristics		
Maximum Leverage	62,0%	%
Base Rate	2,00%	%
Lender Margin	2,50%	%
Commitment Fee	0,1%	%
Up-Front Fee	2,0%	%
Annual Day Count	360	Days
Maximum Tenor	30	Years
Grace Period	20	Months
Debt-Sculpting Minimum DSCR	1,25	Ratio
Dividend Blocker Minimum DSCR	1,20	Ratio
Retainer Fee	100.000	EUR
Annual Administrative Fee	20.000	EUR
Payment Frequency		

Table 7: Base Case Senior Debt

5.1.2 RESULTS

5.1.2.1 FINANCIAL METRICS

The financial metrics of the project underscore its solid financial viability and the potential for attractive returns to investors. The following paragraphs will discuss the performance indicators (KPIs) in detail.

The Equity IRR of 10.2% reflects a competitive return for shareholders, aligning well with typical targets for renewable energy projects, which generally range between 8-12%. This return is especially favorable given the stable long-term cash flows typical of solar projects supported by long-term power purchase agreements (PPAs).

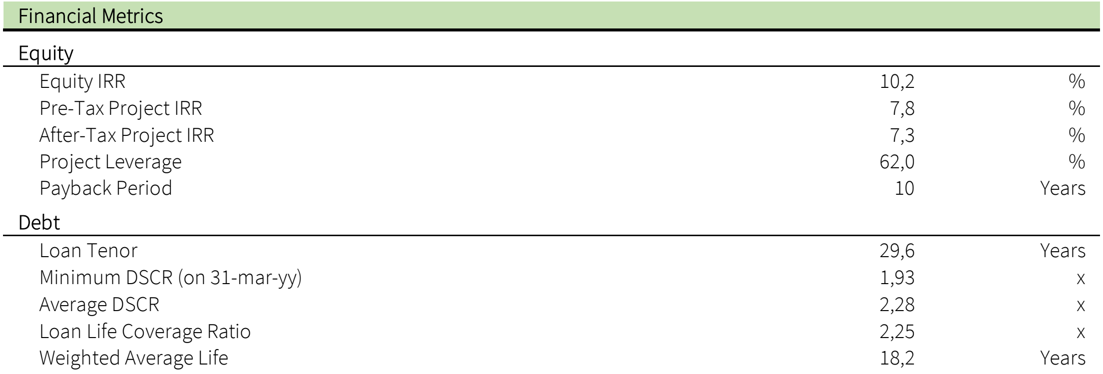
The Pre-Tax Project IRR of 7.8% and After-Tax Project IRR of 7.3% demonstrate the project’s overall profitability before and after taxes. The small difference between pre- and post-tax IRRs highlights the efficiency of the project's tax structure, which is critical for maintaining profitability over the long term.

The project leverage of 62% indicates a balanced use of debt in the financing structure, maximizing returns for equity holders while maintaining financial stability. This level of leverage is typical in project finance, where debt plays a significant role in funding capital-intensive projects like solar energy.

The payback period of 10 years is appropriate for a solar project with a lifespan of 30 years, ensuring that the initial capital investment is recovered within a reasonable timeframe while leaving ample time for profit generation throughout the remaining operational life of the project.

Regarding debt metrics, the loan tenor of 29.6 years matches the operational lifespan of the solar plant, ensuring that debt repayments are spread across the productive years of the project. The Minimum DSCR of 1.93x and the Average DSCR of 2.28x indicate a robust capacity to meet debt obligations, with a comfortable margin above the typical minimum requirement of 1.25x, providing security against potential cash flow fluctuations.

Finally, the LLCR of 2.25x demonstrates the project’s strong ability to cover total debt throughout its life, ensuring long-term financial sustainability and providing confidence to lenders.



Financial Metrics		
Equity		
Equity IRR	10,2	%
Pre-Tax Project IRR	7,8	%
After-Tax Project IRR	7,3	%
Project Leverage	62,0	%
Payback Period	10	Years
Debt		
Loan Tenor	29,6	Years
Minimum DSCR (on 31-mar-yy)	1,93	x
Average DSCR	2,28	x
Loan Life Coverage Ratio	2,25	x
Weighted Average Life	18,2	Years

Table 8: Base Case Financial Metrics

5.1.2.1 USES AND SOURCES OF FOUNDS

The analysis of the Uses and Sources of Funds reveals that the majority of the project's resources are allocated to Capital Expenditures (CAPEX), with the largest portion dedicated to the EPC contract, which represents 77.9% of total costs. This highlights the significant investment required for the engineering, procurement, and construction phases of the solar park. Other notable CAPEX components include connection rights, development costs, and land acquisition, all essential to successfully implement the project.

Uses of Founds		
Capital Expenditures		
EPC Contract	34.866.300	*77,9%*
Connection Rights	2.477.557	*5,5%*
Development Costs	1.351.395	*3,0%*
Due diligence costs	527.046	*1,2%*
Taxes & Licences	1.340.372	*3,0%*
Cost of land (Surface Right)	1.981.272	*4,4%*
Other	-	*0,0%*
Contingency	425.439	*1,0%*
Total Capital Expenditures	42.969.381	96,0%
Financing Costs		
Retainer Fee	100.000	*0,2%*
Upfront Fees	555.038	*1,2%*
Commitment Fees	26.790	*0,1%*
Interest During Construction	691.978	*1,5%*
Initial DSRA Funding	317.915	*0,7%*
Initial MMRA Funding	-	*0,0%*
Initial Working Capital	100.000	*0,2%*
Other	-	*0,0%*
Total Financing Costs	1.791.720	4,0%
Total Costs	44.761.101	100,0%

Table 9: Base Case Uses of Funds

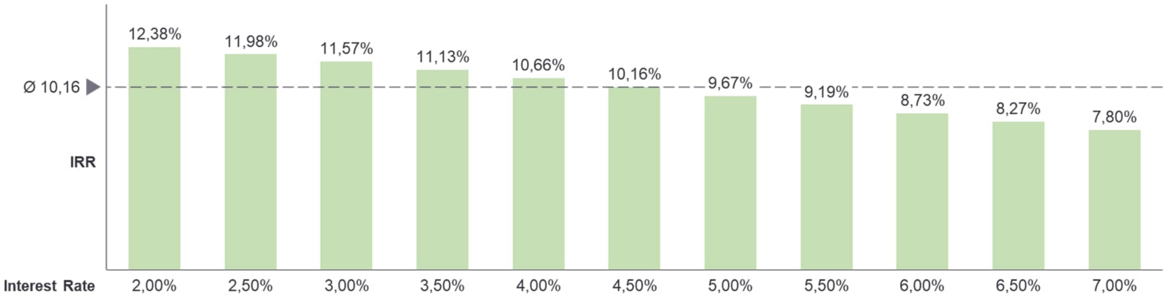
On the funding side, the largest source of financing comes from senior debt, which constitutes 62% of the total funds. This is followed by mezzanine debt contributed by the investors, making up 28.5% of the total. Finally, equity contributions from investors represent 9.5% of the total, which, while smaller compared to debt financing, remains a significant commitment. This balanced structure, with a heavier reliance on debt, optimizes returns for equity holders while maintaining the project's financial stability.

Sources of Founds		
Equity	4.252.305	*9,5%*
Shareholder Loan	12.756.914	*28,5%*
Senior Debt	27.751.883	*62,0%*
Total Sources	44.761.101	*100,0%*

Table 10: Base Case Sources of Funds

5.2 INTEREST RATES

The sensitivity analysis of interest rates reveals an inverse relationship between interest rates and the project's profitability. As interest rates rise, the IRR decreases, indicating reduced returns for investors. For instance, with an interest rate of 2.0%, the IRR is 12.38%, while at a rate of 7.0%, the IRR falls to 7.80%. (Banco de España, 2024)



Graph 2: Sensitivity Analysis - Interest Rates

In the base case scenario, an interest rate of 4.5% is used, reflecting a typical estimate based on the average reference rates set by the European Central Bank and general market conditions. However, interest rates are subject to fluctuation, influenced by changes in monetary policy and broader economic trends. In periods of monetary easing, interest rates tend to decrease, potentially approaching levels around 2%. This scenario would be favorable for the project, as it lowers the cost of financing and enhances profitability, increasing the IRR and strengthening financial metrics such as the DSCR.

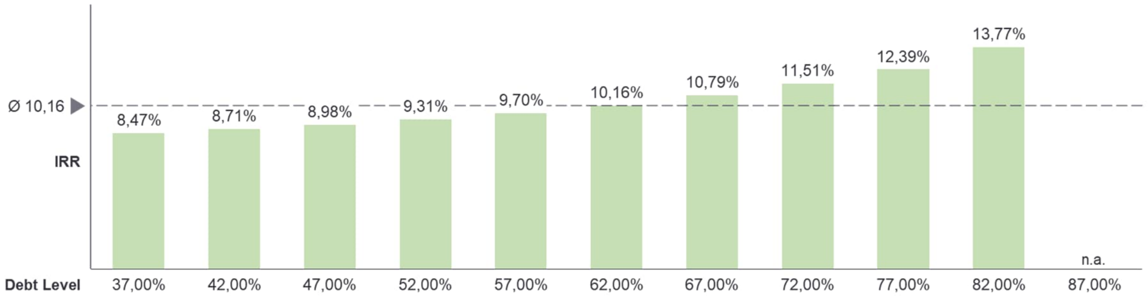
Conversely, if the economic environment experiences high inflationary pressures, central banks like the ECB might implement tighter monetary policies, leading to higher interest rates. A significant increase, potentially reaching levels close to 7%, would indicate a substantial tightening of monetary conditions. Such an environment would negatively impact the project, as higher financing costs would reduce the IRR, extend the payback period, and increase the risk of failing to meet debt service obligations.

Given the capital-intensive nature of this project, its financial performance is highly sensitive to interest rate levels. An increase in rates significantly raises the cost of debt service, reducing the cash flow available to shareholders and diminishing overall profitability. Therefore, it is critical to consider interest rate hedging strategies, such as swaps or other derivative contracts, to mitigate the risks associated with interest rate volatility and ensure the project's financial viability.

In conclusion, the project shows a strong sensitivity to interest rate fluctuations. Maintaining lower interest rates is necessary to maximize profitability and enhancing the attractiveness of the investment. Proactive management of interest rate risk is essential to safeguard the project's value and long-term stability.

5.3 DEBT LEVEL

The analysis of varying debt levels indicates that increasing leverage enhances the project's IRR, thereby boosting investor returns. For instance, with a debt level of 37%, the IRR stands at 8.47%, whereas at 82% leverage, the IRR rises to 13.77%. This effect is attributed to financial leverage, where a higher proportion of debt financing amplifies equity returns due to the lower cost of debt compared to equity.



Graph 3: Sensitivity Analysis - Debt level

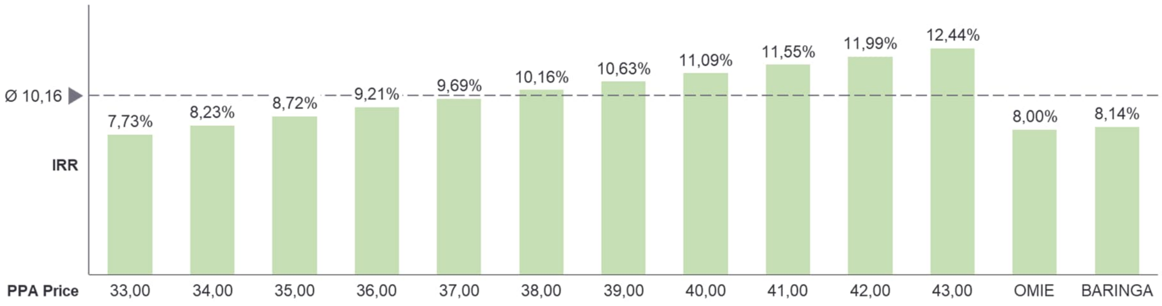
However, the extent to which debt can be utilized is constrained by the project’s ability to service this debt. Lenders evaluate this capacity using the DSCR, which measures the project’s capability to cover debt obligations with its operating income. In the context of solar parks in Spain, banks typically require a minimum DSCR of 1.25x to 1.35x, providing a sufficient buffer to meet debt service payments without compromising financial stability.

Regarding leverage levels, solar projects in Spain often achieve debt-to-equity ratios ranging from 70:30 to 80:20, depending on the project's risk profile and cash flow stability. These ratios reflect a high reliance on debt financing, which is feasible due to predictable revenue streams from long-term PPAs. However, when leverage reaches 87%, as shown in the analysis, the DSCR falls below the acceptable minimum threshold of 1.25x, indicating that the project cannot adequately cover its debt obligations. This breach triggers an "Error" in the model, highlighting the unsustainable nature of such high leverage levels.

In conclusion, while increasing debt levels can enhance investor returns through financial leverage, it is imperative to maintain a balance that ensures the project’s DSCR remains within acceptable limits set by lenders. Exceeding these limits, as seen with leverage levels above 82%, can jeopardize the project’s financial stability and its ability to secure necessary financing. Therefore, careful structuring and adherence to financial covenants are crucial for maintaining the project’s viability.

5.4 ENERGY PRICE

The Power Purchase Agreement price is one of the most critical variables influencing the financial performance of a photovoltaic project. As the primary determinant of revenue, changes in PPA price have a direct and significant impact on the IRR. The sensitivity analysis highlights how variations in the PPA price can either greatly enhance or severely diminish project profitability, underscoring its importance in financial planning and risk assessment. (Roca, 2024)



Graph 4: Sensitivity Analysis - Energy Price

The analysis demonstrates a strong correlation between PPA price and IRR. In the base case scenario, a PPA price of €38/MWh yields an IRR of 10.16%, which represents a balanced return for investors and aligns with industry standards for renewable energy projects. However, deviations from this price lead to considerable shifts in financial outcomes:

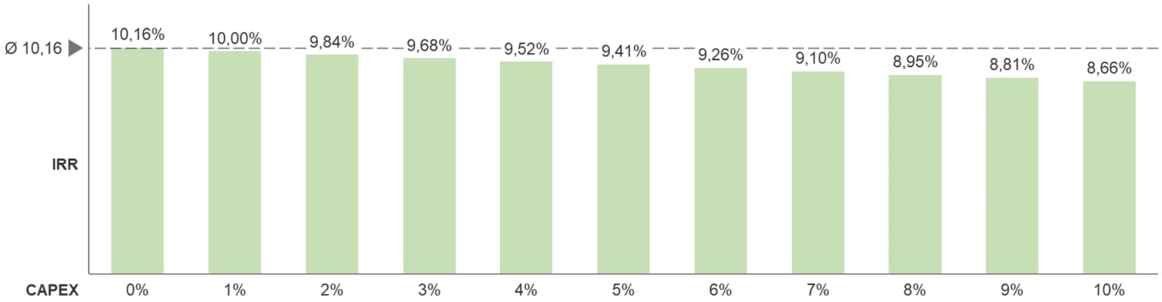
- Low PPA Prices Reduce Profitability: At a PPA price of €33/MWh, the IRR falls sharply to 7.73%, significantly reducing the project's profitability and making it less attractive to investors. Similarly, at €35/MWh, the IRR increases slightly to 8.72%, but still remains below the levels typically required to secure financing or satisfy equity stakeholders. These results highlight the vulnerability of the project to lower-than-expected PPA prices, which would strain cash flows and reduce the margin for absorbing operational risks.
- High PPA Prices Enhance Profitability: Conversely, an increase in the PPA price produces a substantial boost in IRR. For example, at €41/MWh, the IRR rises to 11.55%, providing strong returns that are likely to attract investors. A further increase to €43/MWh maximizes the IRR at 12.44%, making the project highly profitable and competitive within the renewable energy sector. This illustrates the sensitivity of the financial model to higher PPA prices, where even moderate increases yield disproportionately positive results for stakeholders.

The analysis also evaluates the IRR outcomes associated with market-based PPA projections, such as those provided by OMIE and Baringa. Both benchmarks yield similar IRRs of 8.00% and 8.14%, respectively, which are notably lower than the base case fixed PPA price of €38/MWh. These results suggest that relying on market-based pricing introduces additional uncertainty and limits profitability compared to securing long-term fixed PPAs. While OMIE and Baringa projections are considered realistic under current market conditions, their outcomes fall short of the returns achievable with a favorable fixed-price agreement.

The strong influence of the PPA price on IRR underscores the need for meticulous planning and negotiation when establishing PPA terms. Securing a fixed PPA price in the range of €38/MWh to €42/MWh ensures balanced profitability, offering stable cash flows while achieving investor return expectations. On the other hand, reliance on market-based pricing mechanisms, as reflected in OMIE and Baringa projections, may lead to reduced profitability and heightened financial risk.

It is also critical to conduct thorough scenario analyses to prepare for adverse pricing conditions. Hedging instruments or hybrid revenue models can mitigate exposure to market fluctuations, safeguarding financial performance in volatile environments. Overall, achieving the right balance in PPA pricing is crucial for ensuring the project's financial sustainability and its ability to deliver consistent returns to investors.

5.5 CAPITAL EXPENDITURE



Graph 5: Sensitivity Analysis - CAPEX

An unexpected rise in CAPEX during construction can significantly impact a project's financial performance, particularly in capital-intensive projects like solar energy. Several factors can lead to CAPEX increases:

- Supply Chain Disruptions: Events such as the COVID-19 pandemic caused significant delays and increased costs for materials like steel, aluminum, and solar panels. Logistical challenges and shipping constraints have resulted in price spikes, raising project costs by up to 15-20% in some cases.
- Inflation: High inflation rates increase the costs of labor, equipment, and services. Recent periods of global inflation have driven up costs, especially in the renewable energy sector, affecting overall project budgets.
- Regulatory Changes: New environmental regulations or updated building codes may require adjustments in project design or materials, increasing the initial investment unexpectedly.
- Currency Volatility: Projects relying on imported components can face increased procurement costs due to unfavorable exchange rate movements.

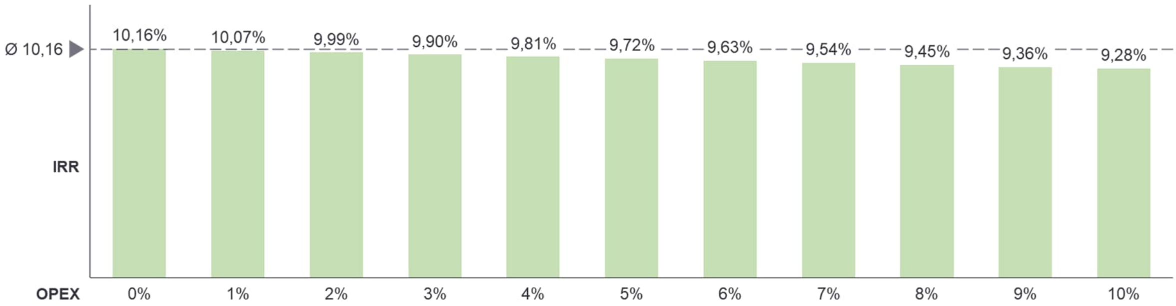
Given these factors, a 10% increase in CAPEX is plausible under current market conditions, driven primarily by inflation and supply chain disruptions. The sensitivity analysis shows that such an increase would lower the project’s IRR from 10.16% to 8.66%, significantly reducing profitability.

To address these risks, several mitigation strategies can be implemented. Fixed-price Engineering, Procurement, and Construction (EPC) contracts can lock in costs, minimizing the impact of market fluctuations. Establishing a contingency reserve (typically 5-10% of total CAPEX) provides a financial buffer to absorb unforeseen expenses, while currency hedging can stabilize procurement costs for imported components, mitigating the effects of exchange rate volatility. Additionally, conducting thorough risk assessments during the planning phase can help identify potential cost escalations early on, allowing for proactive adjustments.

In conclusion, proactive risk management, including fixed-price contracts, contingency reserves, currency hedging, and risk assessments, is essential to handle unexpected CAPEX increases and safeguard the project's financial stability and long-term viability.

5.6 OPERATING EXPENSES

An unexpected increase in OPEX can significantly impact the financial health of solar energy projects. As OPEX directly influences the project's cash flow and profitability, understanding its drivers and mitigating risks is crucial.



Graph 6: Sensitivity Analysis - OPEX

The main reasons for rising OPEX include several interconnected factors:

- Maintenance and Repair Costs: Over time, the components of a solar plant—such as inverters, panels, and transformers—require more frequent servicing, particularly as they age. Wear and tear, coupled with exposure to harsh environmental conditions, can lead to unexpected repairs or replacements, driving up OPEX.
- Rising Labor Costs: Inflation and shortages in skilled labor have contributed to higher wages, particularly for technicians specialized in renewable energy. These increased labor expenses add pressure to the operational budget, reflecting broader trends in the energy sector.
- Insurance Premiums: With solar projects exposed to risks like extreme weather and natural disasters, insurance costs have been rising. Higher premiums are necessary to ensure adequate coverage, but they also increase the overall OPEX, affecting the project's financial stability.
- Regulatory Changes: New environmental regulations and stricter safety standards can impose additional requirements on solar projects. Adapting to these changes may involve installing advanced monitoring systems or updating equipment, leading to unforeseen costs.

- Inflation: The general rise in prices affects all aspects of OPEX, from spare parts and consumables to administrative overhead. Persistent inflation can erode purchasing power, increasing the financial burden on the project.

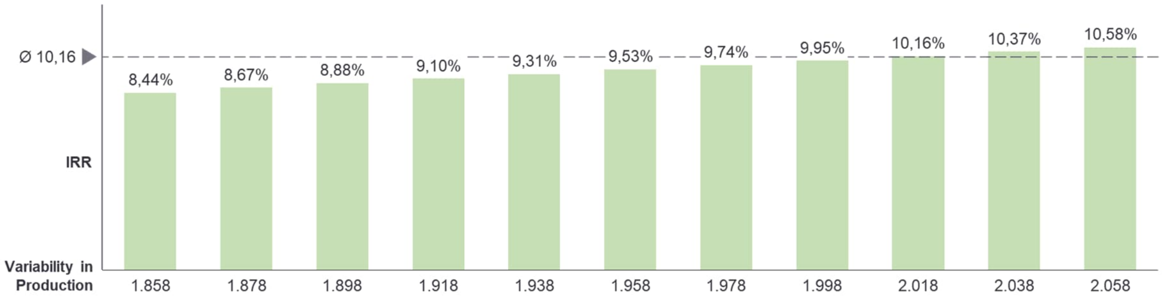
The sensitivity analysis demonstrates that a 10% rise in OPEX reduces the project's IRR from 10.16% to 9.28%. This reduction illustrates how sensitive the project is to operational cost increases, which can also affect the DSCR. If OPEX escalates beyond expectations, the DSCR may drop below the minimum threshold of 1.25x, risking covenant breaches and complicating the financing terms. However, it is important to note that increases in OPEX generally have a less pronounced impact on profitability compared to increases in CAPEX. This is because OPEX costs are spread across the entire lifespan of the project, reducing their present value due to the time value of money. In contrast, CAPEX represents a significant upfront investment, which occurs when the value of money is highest, thus exerting a greater impact on overall returns.

To mitigate the risks of rising OPEX, several strategies can be implemented. Fixed-price maintenance contracts, such as long-term service agreements (LTSA), offer cost predictability and reduce exposure to unexpected price hikes. Preventive maintenance programs help extend equipment lifespan and lower the likelihood of costly repairs. Regularly reviewing and optimizing insurance policies can manage premium increases while ensuring adequate coverage. Proactively monitoring regulatory changes enables the project to adapt quickly, minimizing compliance costs. Finally, employing inflation hedging instruments can help stabilize expenses and protect the project's cash flow from rising prices.

In conclusion, managing unexpected increases in OPEX is critical for maintaining the financial health of solar energy projects. While OPEX increases tend to be less detrimental to profitability than CAPEX due to their distribution over time, they still pose a significant risk. By implementing strategies such as fixed-price contracts, preventive maintenance, and inflation hedging, the project can better withstand cost fluctuations. These measures help safeguard profitability, enhance cash flow stability, and support long-term financial viability.

5.7 ENERGY PRODUCTION

The number of effective sunlight hours is a fundamental driver of energy production in solar projects, directly influencing revenue and overall profitability. In the base case scenario, the project assumes a P50 probability level, corresponding to 2,018 effective sunlight hours per year. This P50 estimate reflects the median scenario, where there is a 50% chance that the actual number of sunlight hours will meet or exceed this figure. In contrast, the P90 scenario assumes a more conservative estimate of 1,900 sunlight hours, representing a situation where there is only a 10% chance that production will fall below this threshold.



Graph 7: Sensitivity Analysis - Energy Production

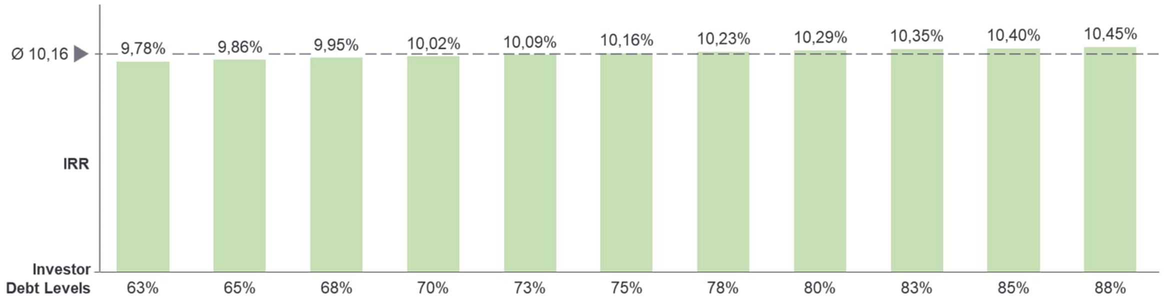
If actual production aligns with or exceeds this P50 level, the project can expect stable cash flows and improved financial performance. However, in the case of lower-than-expected sunlight hours (closer to the P90 estimate of 1,900 hours), the project's energy production and, subsequently, revenue would decrease. This would reduce the IRR and could affect financial metrics such as the DSCR, potentially pushing it closer to the minimum acceptable threshold of 1.25x.

To mitigate these risks, solar projects often incorporate detailed site assessments and employ advanced forecasting tools to refine production estimates. Additionally, diversifying the revenue model with mechanisms like incorporating energy storage solutions can help stabilize income during periods of lower sunlight. In regions with high variability in weather patterns, further financial safeguards, such as insurance products for production shortfall, can provide additional protection.

In conclusion, the base case scenario’s conservative estimate of 2,018 sunlight hours provides a reasonable buffer against production risks, aligning well with the variability seen across different regions in Spain. However, maintaining close alignment with regional averages and employing risk mitigation strategies is crucial to enhance forecast accuracy and support the long-term financial viability of the project.

5.8 INVESTOR DEBT LEVELS

Incorporating mezzanine debt into the financial structure of a solar energy project provides strategic benefits, particularly in terms of risk allocation and tax efficiency. Mezzanine financing occupies an intermediate position between senior debt and equity, offering a flexible solution that can enhance the capital structure without the same level of security required by senior lenders. This type of debt is subordinated to senior debt, meaning it carries a higher risk profile, but it also offers higher potential returns to investors. The primary advantage of including mezzanine debt is the clear separation of risk: senior debt holders, who have first priority on the project’s assets, face less risk, while mezzanine investors accept a higher risk in exchange for potentially better returns. This structure helps protect the interests of senior lenders by reducing the overall risk of default, as the mezzanine layer can absorb potential losses before they affect senior debt.



Graph 8: Sensitivity Analysis - Investor Debt Levels

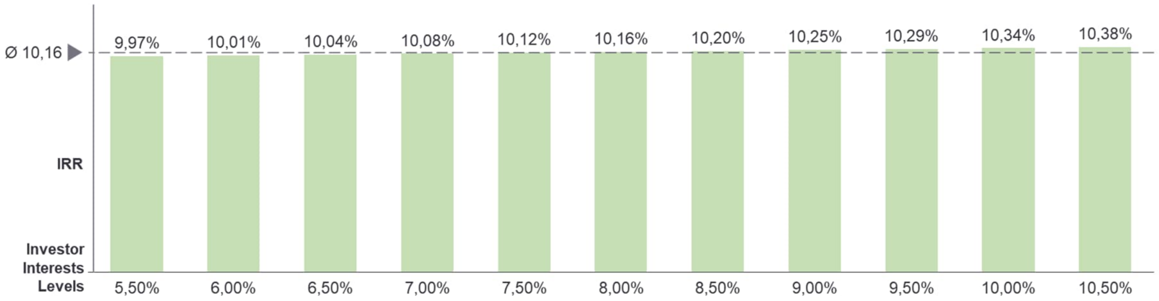
In addition to risk separation, mezzanine debt is a highly effective tool for optimizing the project's tax efficiency, particularly in jurisdictions like Spain. Interest payments on debt are generally tax-deductible, allowing the issuing company to reduce its taxable income and lower its corporate tax burden. This contrasts with dividend payments, which are not tax-deductible and may be subject to double taxation—first at the corporate level and then again at the shareholder level. By structuring a portion of the equity investment as mezzanine debt, the project can distribute returns to investors through interest payments rather than dividends. This approach not only minimizes the impact of double taxation but also provides a steady income stream to investors in the form of interest, which is typically taxed only once at the investor level.

The sensitivity analysis demonstrates that increasing the proportion of mezzanine debt in the capital structure has a positive impact on the project's IRR. For example, raising the investor debt level from 63% to 88% increases the IRR from 9.78% to 10.45%. This increase in returns highlights the benefit of leveraging mezzanine debt, as it allows the project to reduce the need for direct equity investment while still offering attractive returns to investors. However, it is important to balance this approach carefully, as excessive use of mezzanine debt can elevate the project's financial risk, particularly if the DSCR falls below the minimum acceptable threshold of 1.25x. At very high levels of investor debt, such as 88%, the model indicates a potential error, suggesting that the DSCR is likely breached, highlighting the limitations of increasing leverage beyond sustainable levels.

In conclusion, mezzanine debt plays a vital role in enhancing the capital structure of solar energy projects. It not only separates risk effectively between senior debt and equity but also offers a tax-efficient way of distributing returns to investors. By leveraging this type of financing, the project can increase its overall IRR while optimizing tax liabilities, making mezzanine debt an attractive component of the funding strategy. However, careful consideration must be given to maintaining a healthy DSCR to ensure the financial stability of the project and protect the interests of all stakeholders involved.

5.9 INVESTOR DEBT INTEREST

Adjusting the interest rate on mezzanine debt is an important consideration in the financial structuring of project finance, as it directly affects both the cost of capital and the overall returns for investors. Mezzanine debt, positioned between senior debt and equity, typically carries higher interest rates due to its subordinated status and increased risk profile. This type of debt functions as a hybrid instrument, blending characteristics of both debt and equity, which allows it to offer higher potential returns in exchange for the additional risk undertaken by investors.



Graph 9: Sensitivity Analysis - Investor Debt Interest

The interest rate on mezzanine debt is a critical component of the total return for investors, forming a part of the IRR calculation. Unlike equity returns, which may depend on dividends or capital appreciation, the returns from mezzanine debt are primarily derived from interest payments. This steady stream of interest payments provides a reliable income for investors, making it an attractive option, especially in projects with stable cash flows. Therefore, setting an appropriate interest rate on mezzanine debt is essential to align investor expectations with the risk profile of the project.

In the sensitivity analysis, increasing the shareholder interest rate from 5.5% to 10.5% shows a relatively modest change in the project's IRR, ranging from 9.97% to 10.38%. This suggests that, within this range, the project's IRR is not highly sensitive to variations in mezzanine debt interest rates. However, a higher interest rate increases the project's cost of capital, potentially reducing net cash flows available for equity holders. Conversely, a lower interest rate on mezzanine debt can enhance overall project profitability by reducing financing costs, but it may offer less attractive returns for mezzanine investors.

In conclusion, while the interest rate on mezzanine debt forms a significant part of the IRR for investors, its impact on overall project profitability may be less pronounced compared to other financial variables. Nevertheless, optimizing the interest rate is an important part of the financing strategy, as it affects both investor returns and the project's cost of capital. A well-structured mezzanine debt agreement can enhance the financial viability of the project while offering a compelling return profile for investors.

5.10 TAX BURDEN

The sensitivity analysis indicates that an increase in the tax rate from 20% to 30% results in a decrease in the project's IRR from 10.16% to 9.67%. Conversely, a reduction in the tax rate to 10% increases the IRR to 10.64%. This demonstrates that higher tax rates reduce net profits, thereby lowering the IRR, while lower tax rates enhance profitability.

Graph 10: Sensitivity Analysis - Tax Rate

While a 20% tax rate is advantageous, it is essential to assess the sustainability of this rate over the project's lifespan. Tax policies can change due to economic conditions or government decisions, potentially leading to higher rates. Therefore, it is prudent to conduct scenario analyses to understand the project's resilience to tax rate fluctuations.

While the current 20% tax rate positively impacts the project's IRR, it is crucial to remain vigilant regarding potential tax policy changes. Implementing tax-efficient strategies and staying informed about available incentives can help mitigate the effects of tax rate increases, ensuring the project's long-term profitability.

6. SCENARIO COMPARISON

This section provides a comparative analysis of the solar project's financial performance under five distinct scenarios, ranging from adverse economic conditions to an ideal case of market and policy support. Each scenario highlights the interplay between key variables—such as interest rates, leverage, PPA prices, CAPEX, OPEX, production levels, and taxation—and their impact on financial metrics, including IRR, payback period, and loan coverage ratios. Through this analysis, we aim to identify the financial resilience and opportunities for optimization across varying economic and operational conditions.

The accompanying table provides a clear comparison of key financial inputs and outputs across all five scenarios. It highlights how interest rates, leverage ratios, PPA prices, CAPEX, and OPEX changes influence production levels, investor contributions, and financial metrics. This visualization underscores the sensitivity of project performance to macroeconomic and policy conditions, facilitating a holistic understanding of the project's adaptability and profitability.

When added, the graph will show the following data:

Scenario	Interest Rate	Leverage	PPA Price (€)	CAPEX	OPEX	Production (hours)	Investor Debt	Investor Interest	Taxes	IRR (%)
Adverse Scenario	7%	50%	35	+8%	+7%	1,900 (P90)	50%	8%	20%	4.3%
Challenging Scenario	6%	60%	38	+3%	+5%	1,958	60%	8%	25%	7.1%
Base Case Scenario	4.5%	62%	38	0%	0%	2,018 (P50)	75%	8%	20%	10.2%
Optimistic Scenario	4%	70%	42	0%	0%	2,058	80%	9%	20%	12.4%
Ideal Scenario	3%	80%	42	0%	0%	2,138 (P10)	80%	9%	18%	21.9%

Graph 11: Scenarios Inputs

6.1 ADVERSE SCENARIO: GLOBAL ECONOMIC CRISIS AND HIGH INFLATION

This scenario depicts a severe global economic crisis characterized by prolonged recession, elevated inflation, and significant geopolitical tensions. Possible triggers for this scenario include global conflicts, trade wars, or a resurgence of a health crisis similar to COVID-19. The disruption of global supply chains exacerbates the situation, driving up costs for essential materials and causing delays in project development. Additionally, inflation is rampant, forcing central banks like the European Central Bank to adopt aggressive monetary policies, sharply increasing interest rates to curb rising prices.

6.1.1 INPUT VARIABLES

The interest rate in this scenario rises to 7%, a reflection of the restrictive measures taken by central banks to counteract inflation. High interest rates increase the cost of borrowing, which severely impacts the project's ability to service its debt. As a result, the leverage ratio is reduced to 50%, as lenders become more conservative, limiting the amount of debt that the project can sustain. In an environment where the cost of debt is high, excessive leverage would strain the project's cash flows and increase the risk of default.

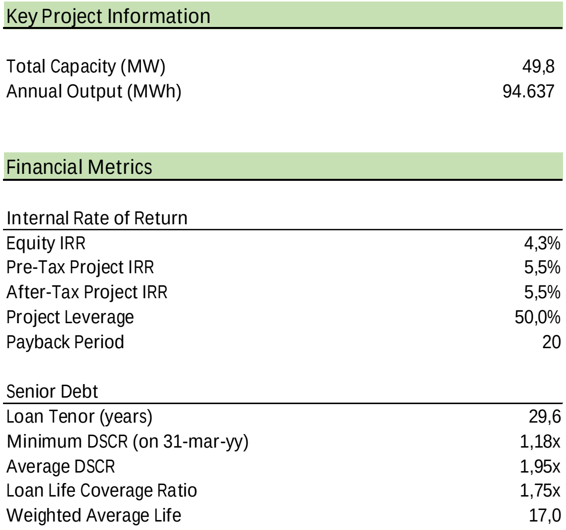
In terms of revenue generation, the PPA price falls to €35/MWh due to a significant drop in energy demand. During economic recessions, industrial activity typically declines, leading to lower electricity consumption. The reduced demand pressures energy prices downward, affecting the project's revenue streams. Furthermore, inflation drives up both CAPEX and OPEX; capital expenditure increases by 8% due to higher costs for raw materials like steel and solar panels, while operating expenses rise by 7% as maintenance and labor costs escalate.

The energy production estimate in this scenario is set at a conservative P90 level, assuming lower solar irradiance and less favorable weather conditions. Given the heightened economic uncertainty, a conservative production forecast helps mitigate the risk of overestimating revenues. Finally, the investor debt is limited to 50% (over investor contribution), with an interest rate of 8%. The corporate tax rate remains stable at 20%.

6.1.1 RESULTS

In this adverse scenario, the project encounters substantial financial challenges caused by soaring inflation, reduced energy demand, and a spike in borrowing costs. These conditions erode profitability, strain cash flows, and extend the investment recovery timeline. While some resilience is evident in certain metrics, the overall financial health of the project deteriorates, highlighting the fragility of renewable energy investments under unfavorable macroeconomic conditions.

Below is a graphical summary of the financial metrics under this adverse scenario:



Key Project Information	
Total Capacity (MW)	49,8
Annual Output (MWh)	94.637
Financial Metrics	
Internal Rate of Return	
Equity IRR	4,3%
Pre-Tax Project IRR	5,5%
After-Tax Project IRR	5,5%
Project Leverage	50,0%
Payback Period	20
Senior Debt	
Loan Tenor (years)	29,6
Minimum DSCR (on 31-mar-yy)	1,18x
Average DSCR	1,95x
Loan Life Coverage Ratio	1,75x
Weighted Average Life	17,0

Graph 12: Adverse Scenario - Results

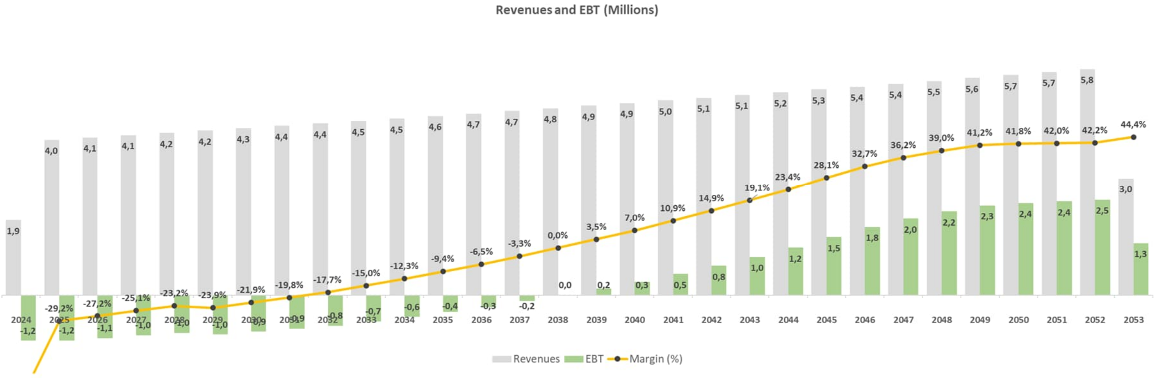
6.1.1.1 ANALYSIS OF FINANCIAL METRICS

- Equity IRR: The Equity IRR reflects the diminished profitability of the project. A drop from the base case to 4.3% indicates limited attractiveness to equity investors, who are unlikely to see adequate returns given the heightened financial risks. This highlights how sensitive equity returns are to both higher costs and reduced revenues in adverse economic conditions.

- Project IRR: The Project IRR's decline to 5.5% underlines the overall reduction in the project's financial viability. This value barely exceeds typical hurdle rates for renewable energy projects and is primarily constrained by the increase in CAPEX (+8%), OPEX (+7%), and a reduced PPA price (€35/MWh). This level of IRR suggests that the project is barely profitable under these macroeconomic challenges.
- Payback Period: The payback period extending to 20 years is a clear reflection of financial strain, indicating a delayed recovery of the initial investment. Investors typically expect shorter timelines to mitigate risks associated with long-term uncertainties. This extended timeline significantly affects the project's appeal in the financial market.
- Loan Life Coverage Ratio (LLCR): Despite the challenging conditions, the LLCR remains above the critical threshold of 1.25x, primarily due to the reduced leverage ratio (50%). This suggests that the project still has the capacity to meet its debt obligations, although the margin of safety is much narrower compared to the base case.

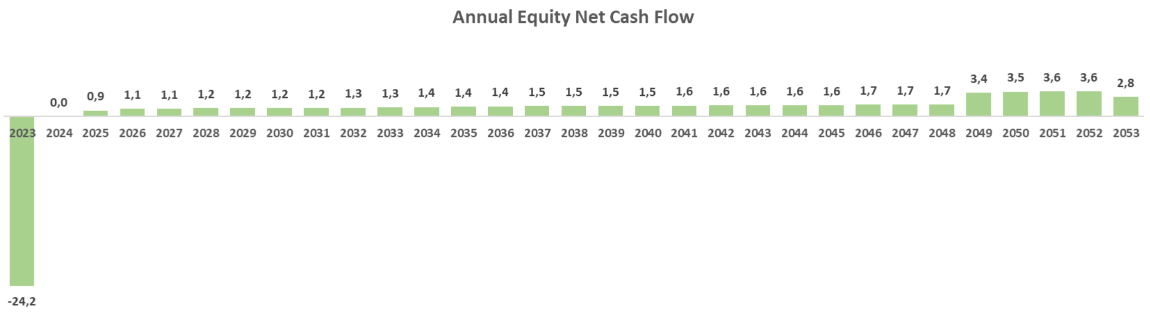
6.1.1.2 GRAPHICAL ANALYSIS

- Revenues and EBITDA: This graph shows the suppressed revenues due to a lower PPA price and the erosion of EBITDA margins caused by inflated OPEX. While the EBITDA margin steadily improves over the project's life, the initial years remain challenging, with profitability barely recovering until after 2030. These trends highlight the critical importance of controlling operational costs in adverse economic climates.



Graph 13: Adverse Scenario - Revenues

- Annual Equity Net Cash Flow: The annual equity net cash flow graph illustrates significant initial cash outflows, driven by heightened CAPEX and reduced equity inflows due to lower leverage. Cash flows remain stable but relatively low throughout the project, with more substantial positive cash flows only emerging toward the latter half of the operational life. This delayed cash flow recovery aligns with the extended payback period, further emphasizing the financial strain under this scenario.



Graph 14: Adverse Scenario - Cash Flows

6.1.1 CONCLUSION

In summary, while the project demonstrates some ability to withstand economic stress through conservative financial management, the adverse scenario illustrates the importance of proactive strategies in cost control, revenue stability, and risk mitigation to secure long-term sustainability and investor confidence.

6.2 CHALLENGING SCENARIO: MODERATE ECONOMIC HEADWINDS AND INFLATIONARY PRESSURES

In this scenario, the global economy faces moderate challenges, including slow growth and controlled inflation. The economic recovery is underway but remains fragile, influenced by lingering effects of previous crises and geopolitical uncertainties. Inflation is present but not as severe, prompting central banks to implement moderate tightening measures. The political climate is relatively stable, although governments continue to grapple with the economic fallout from past crises, affecting fiscal policy and public spending.

6.2.1 INPUT VARIABLES

The interest rate in this scenario is set at 6%, indicating a cautious approach by central banks, who aim to balance inflation control without stifling economic growth. The higher borrowing costs impact the project's financing structure, but the effect is less pronounced than in the very negative scenario. Consequently, the leverage ratio increases slightly to 60%, as lenders are more willing to provide credit based on a recovering economy and stabilizing market conditions.

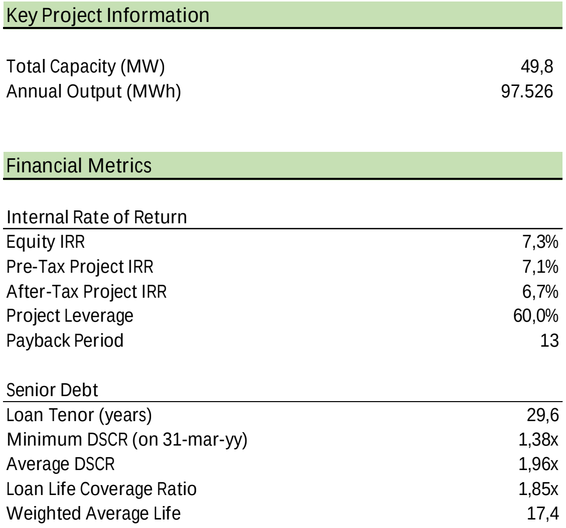
The PPA price remains at €38/MWh, indicating stable demand for electricity. This stability is driven by a gradual return to normal industrial activities and sustained consumer demand, supporting the project's revenue expectations. However, moderate inflation leads to a 3% increase in CAPEX, influenced by slightly higher costs for equipment and materials. The OPEX also rises by 5%, reflecting increased labor costs and inflationary pressures on maintenance expenses.

Production levels are estimated at 1,958 MWh, slightly below the base case. This conservative estimate takes into account potential disruptions in supply chains or unexpected operational challenges. The investor debt level is set at 60%, with an interest rate of 8%, providing a balanced risk-return profile. Governments may raise the tax rate to 25%, aiming to increase fiscal revenues and reduce public debt, which places additional pressure on the project's net income.

6.2.2 RESULTS

This challenging scenario reflects moderate economic headwinds characterized by controlled inflation and a fragile recovery. Central banks maintain a cautious approach to monetary tightening, resulting in increased borrowing costs and modest inflationary pressures on both CAPEX and OPEX. While the energy demand remains stable, supported by a steady PPA price, higher tax rates and conservative production estimates marginally constrain the project's profitability. The following analysis explores the financial impact of these conditions.

Below is a graphical summary of the financial metrics and cash flow outcomes under this scenario:



Key Project Information	
Total Capacity (MW)	49,8
Annual Output (MWh)	97.526

Financial Metrics	
Internal Rate of Return	
Equity IRR	7,3%
Pre-Tax Project IRR	7,1%
After-Tax Project IRR	6,7%
Project Leverage	60,0%
Payback Period	13
Senior Debt	
Loan Tenor (years)	29,6
Minimum DSCR (on 31-mar-yy)	1,38x
Average DSCR	1,96x
Loan Life Coverage Ratio	1,85x
Weighted Average Life	17,4

Graph 15: Challenging Scenario - Results

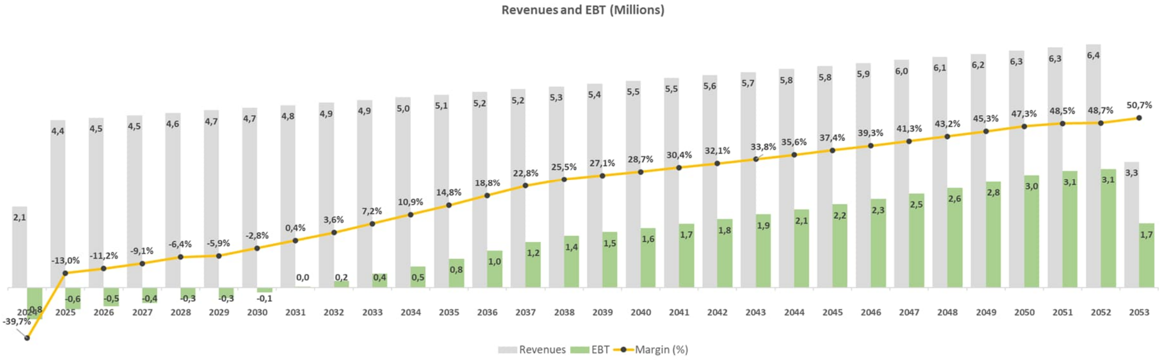
6.2.2.1 ANALYSIS OF FINANCIAL METRICS

- Equity IRR: The Equity IRR achieves a modest 7.1%, indicating a notable improvement from the adverse scenario but falling short of the base case. This reflects the project's ability to generate stable returns under moderate economic pressures, although increased CAPEX, OPEX, and higher tax rates limit the upside potential for equity investors.
- Project IRR: The Project IRR of 6.3% reflects the project's overall resilience, bolstered by stable revenues from a consistent PPA price. However, the metric highlights the dampening effects of moderate inflation on CAPEX (+3%) and OPEX (+5%), coupled with higher interest and tax rates. While the project remains viable, profitability is constrained compared to more favorable conditions.

- Payback Period: The payback period extends to 16 years, highlighting a slower recovery of initial investments. While shorter than the adverse scenario’s 20 years, this recovery timeline still reflects the impact of elevated costs and reduced net cash flows. Investors may view this timeline as a moderate risk, particularly in the context of lingering economic uncertainties.
- Loan Life Coverage Ratio (LLCR): The LLCR improves slightly compared to the adverse scenario, reaching 1.85x. This suggests the project maintains adequate capacity to meet its debt obligations, supported by a balanced leverage ratio (60%) and stable cash flows. The improved LLCR provides a stronger margin of safety for lenders, enhancing confidence in the project's ability to navigate moderate economic challenges.

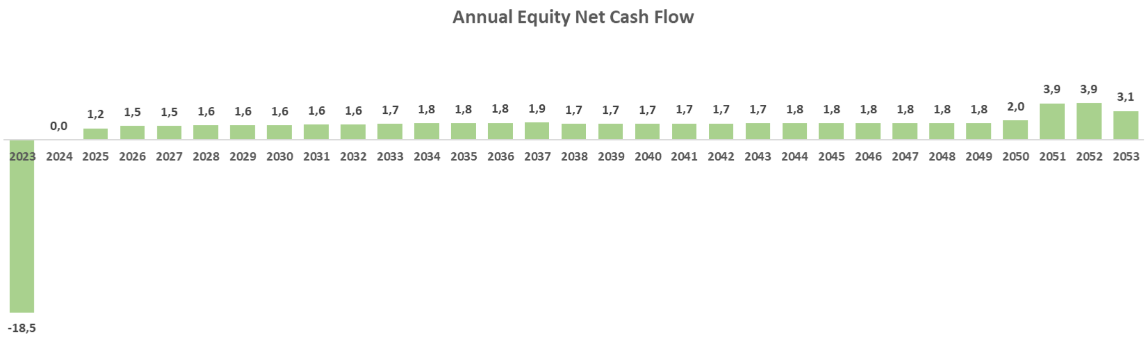
6.2.2.2 GRAPHICAL ANALYSIS

- Revenues and EBITDA: This graph demonstrates the stability of revenue generation, driven by the consistent PPA price of €38/MWh. However, EBITDA margins are compressed in the early years due to elevated CAPEX and OPEX. Between 2025 and 2030, the EBITDA margin fluctuates around negative or minimal levels, highlighting the strain on early profitability. Starting in 2031, EBITDA steadily improves as operational efficiency increases and CAPEX pressures subside, ultimately reaching a margin of 50.7% by 2053. This trend underscores the importance of cost control and operational stability to achieve profitability in the long term.



Graph 16: Challenging Scenario - Revenues

- Annual Equity Net Cash Flow: The annual equity net cash flow graph reveals steady, predictable cash flows following the initial construction phase. Positive cash flows begin in 2025, albeit at a slightly lower level compared to the base case. The gradual increase over time reflects the project’s ability to adapt to moderate cost pressures and maintain financial stability.



Graph 17: Challenging Scenario - Cash Flows

6.2.3 CONCLUSION

Overall, the challenging scenario highlights the need for strategic adaptability to navigate economic uncertainties. By focusing on efficiency improvements, stabilizing cash flows, and optimizing financial structures, the project can mitigate moderate inflationary pressures and ensure steady performance. This scenario underscores the importance of proactive planning and flexible risk management to safeguard long-term viability and attract continued investor interest.

6.3 BASE CASE SCENARIO: STABLE ECONOMIC CONDITIONS AND INDUSTRY NORMS

The base case scenario assumes a stable economic environment, characterized by moderate growth, controlled inflation, and a positive outlook for renewable energy investments. The geopolitical situation is calm, and fiscal policies are supportive of economic stability. Renewable energy remains an important focus for policymakers, with ongoing commitments to decarbonization and sustainability goals. The overall market sentiment is optimistic, creating favorable conditions for investment in clean energy projects.

6.3.1 INPUT VARIABLES

The interest rate is set at 4.5%, reflecting typical market conditions and an accommodative stance by the ECB aimed at fostering economic growth while keeping inflation in check. This balanced interest rate allows the project to maintain a healthy leverage ratio of 62%, optimizing debt usage without compromising financial stability. The PPA price remains stable at €38/MWh, supported by consistent demand for renewable energy and long-term contracts with energy buyers.

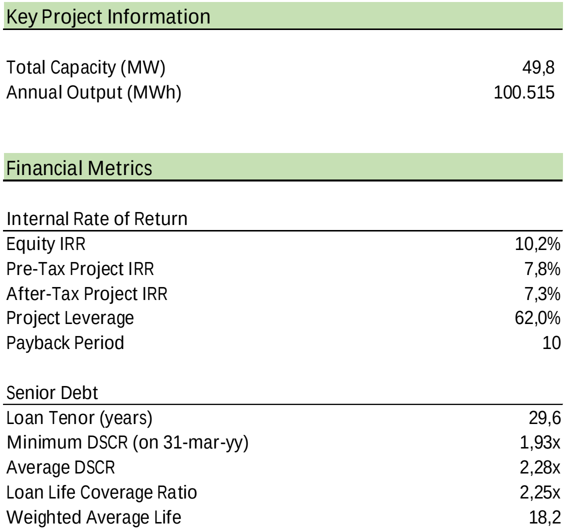
The CAPEX and OPEX remain unchanged, reflecting stable economic conditions with minimal inflationary pressures. The project benefits from predictable cost structures, enhancing the accuracy of financial forecasts. Energy production is estimated at 2,018 MWh (P50 scenario), representing a median performance level based on historical solar irradiance data. The investor debt is set at 75%, reflecting strong confidence in the project's cash flow generation, while the tax rate is maintained at 20%, aligning with standard corporate tax levels in Spain.

6.3.1 RESULTS

The base case scenario assumes a favorable and stable economic environment, supported by moderate growth, controlled inflation, and a positive outlook for renewable energy investments. This context allows the project to operate under predictable market conditions, with a balanced interest rate of 4.5% and a stable PPA price of €38/MWh. The geopolitical landscape remains calm, bolstering investor confidence and fostering a strong commitment to decarbonization goals.

This scenario presents an ideal backdrop for renewable energy projects, with minimal inflationary pressures ensuring stable CAPEX and OPEX. Predictable energy production, supported by a P50 scenario of 2,018 MWh, enhances revenue accuracy. While challenges such as competitive energy markets persist, the general sentiment and market dynamics favor sustained profitability and efficient debt servicing.

Below is a graphical summary of the financial metrics and cash flow outcomes under this scenario:



Key Project Information	
Total Capacity (MW)	49,8
Annual Output (MWh)	100.515

Financial Metrics	
Internal Rate of Return	
Equity IRR	10,2%
Pre-Tax Project IRR	7,8%
After-Tax Project IRR	7,3%
Project Leverage	62,0%
Payback Period	10
Senior Debt	
Loan Tenor (years)	29,6
Minimum DSCR (on 31-mar-yy)	1,93x
Average DSCR	2,28x
Loan Life Coverage Ratio	2,25x
Weighted Average Life	18,2

Graph 18: Base Case Scenario - Results

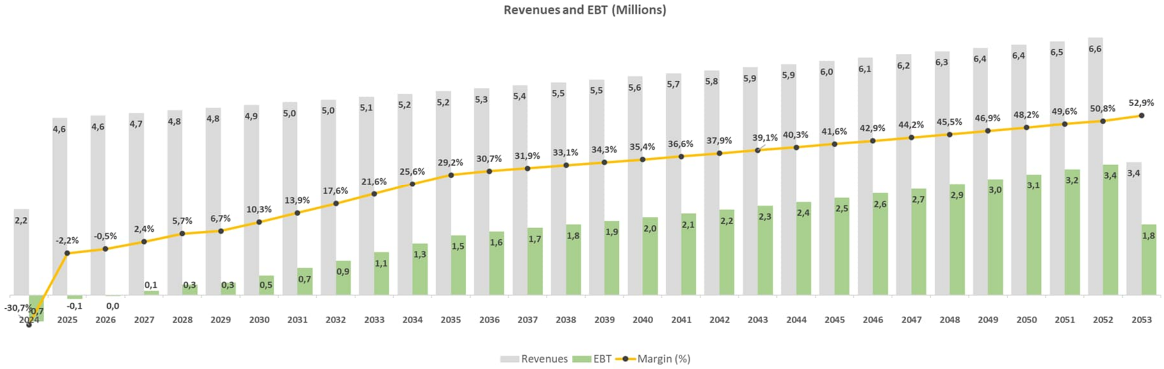
6.3.1.1 ANALYSIS OF FINANCIAL METRICS

- Equity IRR: The Equity IRR of 10.2% reflects the project's strong profitability in this stable economic scenario. This return is highly competitive within the renewable energy sector, where IRRs typically range between 8% and 12%. The consistent cash flow generated by the long-term PPA and the project's efficient cost structure are the primary drivers behind this robust return, making the project highly attractive to equity investors.
- Project IRR: The Project IRR of 7.8% demonstrates the overall viability of the project, supported by the balanced use of leverage (62%) and a stable revenue stream. This IRR indicates that the project meets or exceeds the hurdle rates for renewable energy investments, ensuring its appeal to both equity and debt investors. The efficient allocation of CAPEX and OPEX further reinforces this strong performance.

- Payback Period: The payback period of 10 years highlights the project's ability to recover its initial investment within a relatively short timeframe. This reflects the effectiveness of the stable revenue and cost structure, providing confidence to investors that the project is capable of generating returns over the remaining 19 years of its operational life.
- Loan Life Coverage Ratio (LLCR): With an LLCR of 2.25x, the project demonstrates a strong capacity to meet its debt obligations. This level significantly exceeds the typical minimum threshold of 1.25x required by lenders, underscoring the project's financial resilience and ability to withstand potential market fluctuations.

6.3.1.2 GRAPHICAL ANALYSIS

- Revenues and EBITDA: The graph highlights the project's stable revenue generation at €38/MWh, ensuring consistent cash inflows over its operational life. EBITDA margins show steady growth, starting from a modest 17.6% in the early years and reaching 52.9% by 2053. This trend reflects the efficient management of operating expenses, combined with stable revenues, which drive profitability as the project matures.



Graph 19: Base Case Scenario - Revenues

- Annual Equity Net Cash Flow: This graph demonstrates a clear progression in equity cash flows. After an initial negative cash flow in 2023 due to high CAPEX, the project begins generating positive equity cash flows in 2024. These grow steadily, reaching significant levels toward the later years of the project's lifespan. This pattern indicates a strong capacity to deliver consistent returns to equity investors over time, aligning with the project's favorable IRR metrics.

Graph 20: Base Case Scenario - Cash Flows

6.3.2 CONCLUSION

In conclusion, the base case scenario provides an ideal foundation for renewable energy investments, showcasing the project's ability to deliver sustainable returns and maintain robust financial performance in a favorable market environment. This outcome reaffirms the importance of sound financial planning and a stable macroeconomic context in achieving long-term viability.

6.4 OPTIMISTIC SCENARIO: ECONOMIC GROWTH AND RISING RENEWABLE ENERGY DEMAND

In this scenario, the economy experiences strong growth, driven by robust consumer spending and government investments in infrastructure, particularly in the renewable energy sector. Geopolitical stability and favorable fiscal policies, including tax incentives for green projects, contribute to a positive investment environment. The global push for decarbonization, combined with technological advancements, accelerates the transition to clean energy, increasing demand for solar power.

6.4.1 INPUT VARIABLES

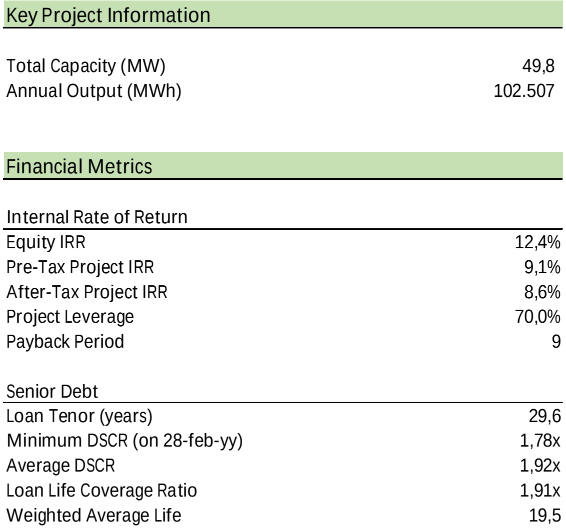
The interest rate is reduced to 4%, reflecting a supportive monetary policy aimed at stimulating investment. Lower borrowing costs enable the project to increase its leverage ratio to 70%, taking advantage of the favorable financing conditions. The PPA price rises to €42/MWh due to increased demand for renewable energy as businesses and governments commit to sustainable energy sources.

There is no significant change in CAPEX or OPEX, as the economic environment remains stable, and efficiency gains offset inflationary pressures. The project benefits from improved production, estimated at 2,058 MWh, thanks to favorable weather conditions and enhanced solar panel performance. The investor debt level reaches 80%, indicating strong market confidence, while the tax rate remains steady at 20%.

6.4.2 RESULTS

Under these favorable conditions, the project demonstrates significant improvements in its financial metrics. The reduced interest rate and higher PPA price enhance profitability, while optimized energy production boosts revenue streams. The combination of increased leverage and improved efficiency maximizes equity returns without jeopardizing financial stability.

The table summarizes the project's financial metrics and assumptions, providing an overview of its performance and viability under the given scenario.



Key Project Information	
Total Capacity (MW)	49,8
Annual Output (MWh)	102.507

Financial Metrics	
Internal Rate of Return	
Equity IRR	12,4%
Pre-Tax Project IRR	9,1%
After-Tax Project IRR	8,6%
Project Leverage	70,0%
Payback Period	9
Senior Debt	
Loan Tenor (years)	29,6
Minimum DSCR (on 28-feb-yy)	1,78x
Average DSCR	1,92x
Loan Life Coverage Ratio	1,91x
Weighted Average Life	19,5

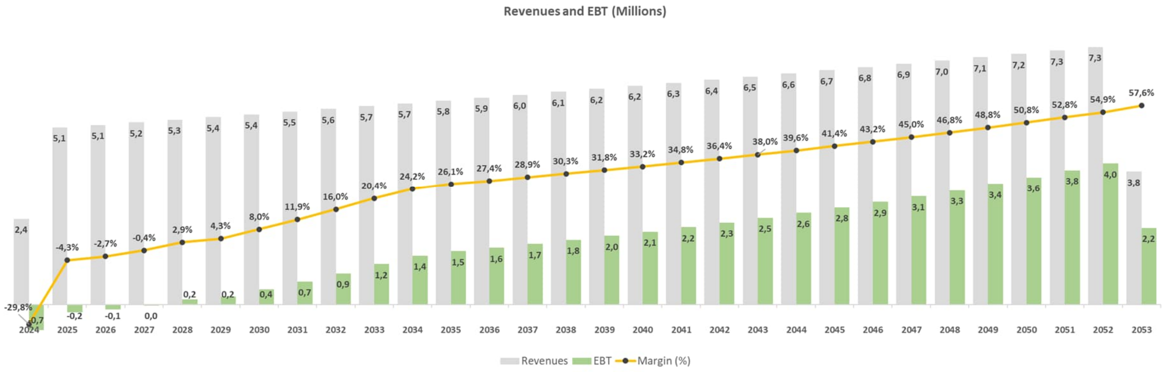
Graph 21: Optimistic Scenario - Results

6.4.2.1 ANALYSIS OF FINANCIAL METRICS

- Equity IRR: The Equity IRR under this scenario highlights a substantial improvement compared to the base case, reflecting the enhanced profitability achieved through higher revenues and favorable financing terms. This increase underscores the sensitivity of equity returns to PPA prices and energy production efficiency, which are vital drivers in renewable energy investments.
- Project IRR: The Project IRR surpasses typical hurdle rates, signaling strong overall viability. The improved IRR is driven by higher cash flow generation from increased energy production (2,058 MWh) and a favorable PPA price (€42/MWh). The alignment of financial and operational variables positions the project as highly attractive in this optimistic environment.
- Payback Period: A shortened payback period of 9 years highlights the accelerated recovery of the initial investment, driven by increased cash inflows from higher revenues. This reduction in recovery time minimizes investor exposure to long-term risks, enhancing the project's appeal to stakeholders.
- Loan Life Coverage Ratio (LLCR): The LLCR of 1.91x reflects a robust ability to meet debt obligations. This improvement is attributed to the higher leverage ratio (70%) and the lower interest rate (4%), which reduce debt servicing costs and enhance cash flow availability for debt repayment.

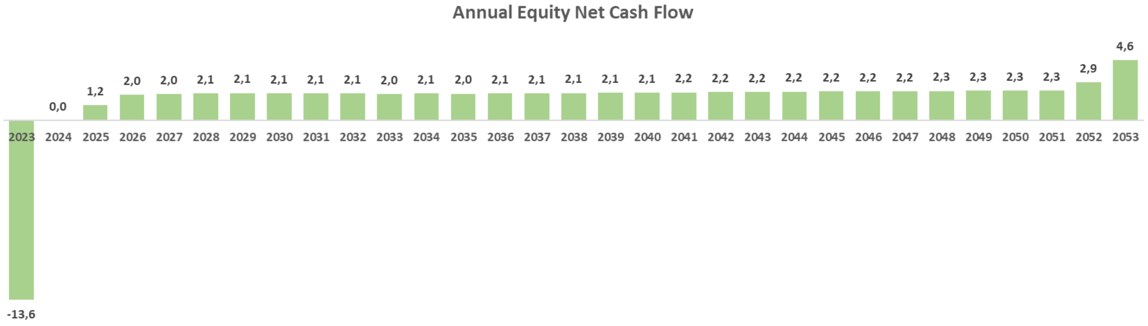
6.4.2.2 GRAPHICAL ANALYSIS

- Revenues and EBITDA: The revenue and EBITDA trends showcase sustained growth, with revenues increasing steadily due to higher PPA prices and improved energy production. The EBITDA margin surpasses 50% by 2043, reflecting efficient cost management and stable operational performance. This trend demonstrates the financial sustainability of the project, even as operational costs remain constant.



Graph 22: Optimistic Scenario - Revenues

- Annual Equity Net Cash Flow: The annual equity net cash flow highlights consistent positive returns after the initial investment period. Cash flow stabilizes early in the operational phase, with significant surpluses emerging in later years, peaking at €4.6 million by 2053. This trajectory supports the reduced payback period and demonstrates the long-term profitability of the project.



Graph 23: Optimistic Scenario - Cash Flows

6.4.3 CONCLUSION

In conclusion, this scenario highlights the potential for renewable energy projects to thrive under favorable economic and sectoral conditions. By proactively aligning financial structures and operational strategies with market opportunities, the project achieves significant value creation, strengthening its appeal to both equity investors and lenders.

6.5 IDEAL SCENARIO: EXCEPTIONAL MARKET CONDITIONS AND STRONG POLICY SUPPORT

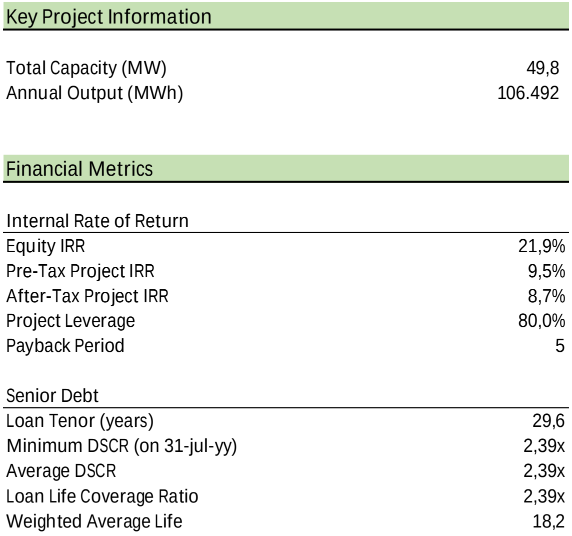
This scenario represents an ideal situation, where the global economy is booming, and aggressive government policies favor renewable energy investments. Subsidies, tax incentives, and favorable refinancing options are widely available, enhancing the financial attractiveness of solar projects. Technological advancements increase energy efficiency, and exceptional weather conditions boost solar irradiance, resulting in record-high energy production.

6.5.1 INPUT VARIABLES

The interest rate drops to 3%, driven by expansionary monetary policies aimed at maximizing investment growth. The low cost of capital allows the project to achieve an 80% leverage ratio, optimizing debt usage. The PPA price remains high at €42/MWh, driven by strong demand for clean energy. Production levels reach a peak of 2,138 MWh (P10 scenario), reflecting ideal weather conditions and technological efficiency. The tax rate is reduced to 18%, as governments introduce incentives to support renewable energy, boosting project profitability.

6.5.2 RESULTS

Under this scenario, the project achieves outstanding financial outcomes, fueled by reduced borrowing costs (3% interest rate), an elevated PPA price (€42/MWh), and peak production levels of 2,138 MWh. These factors drive remarkable profitability, strong cash flows, and an expedited return on investment.



Key Project Information	
Total Capacity (MW)	49,8
Annual Output (MWh)	106.492
Financial Metrics	
Internal Rate of Return	
Equity IRR	21,9%
Pre-Tax Project IRR	9,5%
After-Tax Project IRR	8,7%
Project Leverage	80,0%
Payback Period	5
Senior Debt	
Loan Tenor (years)	29,6
Minimum DSCR (on 31-jul-yy)	2,39x
Average DSCR	2,39x
Loan Life Coverage Ratio	2,39x
Weighted Average Life	18,2

Graph 24: Ideal Scenario - Results

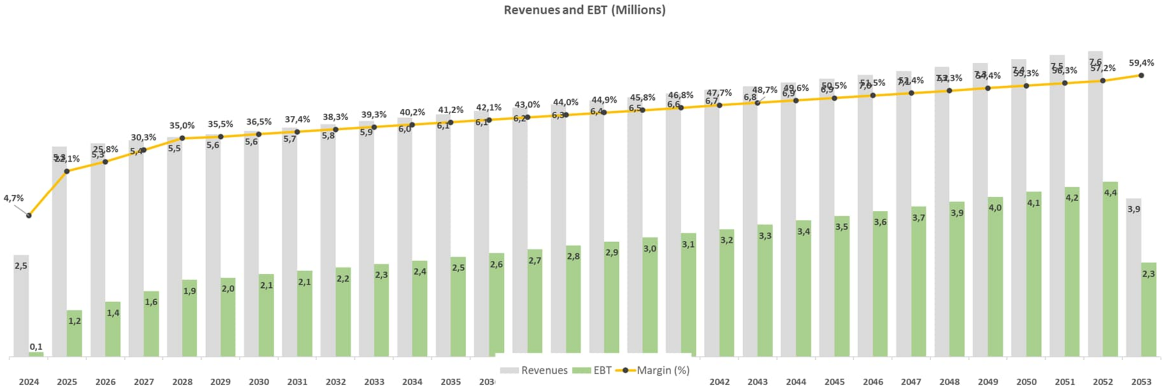
6.5.2.1 ANALYSIS OF FINANCIAL METRICS

- Equity IRR: The Equity IRR demonstrates extraordinary profitability for equity investors, significantly exceeding industry benchmarks. This is driven by a combination of reduced financing costs, favorable tax policies (18% corporate tax rate), and record-breaking energy production, coupled with elevated PPA prices that ensure strong revenue streams throughout the project lifecycle.

- Project IRR: The Project IRR reflects robust overall financial performance, highlighting the project's capacity to generate reliable returns even when considering the total invested capital. While slightly lower than the Equity IRR due to the higher debt leverage, this value still reflects the strength of the project in an ideal economic setting.
- Payback Period: The payback period is significantly reduced to just five years, marking an exceptional recovery timeframe for the initial investment. This highlights the efficiency of cash flow generation in this scenario, reducing long-term risk exposure and providing early returns for investors.
- Loan Life Coverage Ratio (LLCR): The LLCR showcases strong debt repayment ability, with a substantial safety margin well above critical thresholds. The low interest rate (3%) and healthy cash flows enhance the project's resilience in meeting debt obligations while maintaining flexibility for unforeseen challenges.

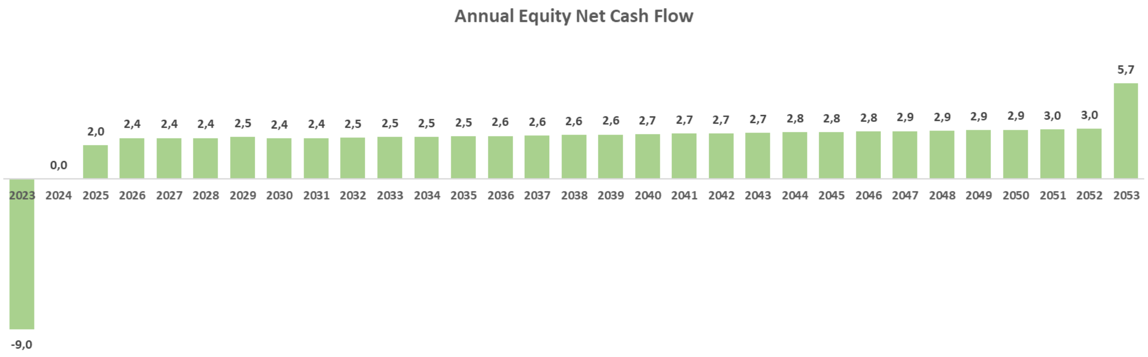
6.5.2.2 GRAPHICAL ANALYSIS

- Revenues and EBITDA: The graph highlights steady and substantial revenue growth, supported by the high PPA price (€42/MWh) and peak energy production levels. EBITDA margins exhibit a consistent upward trend, reaching 59.4% by 2053. This illustrates the project's operational efficiency and the ability to capitalize on favorable macroeconomic conditions to maximize profitability.



Graph 25: Ideal Scenario - Revenues

- Annual Equity Net Cash Flow: The cash flow analysis reflects the project's ability to deliver consistent, positive returns to equity investors from 2024 onward. Following the initial outflow in 2023 (-€9.0 million), net cash flows stabilize at approximately €2.5 million annually, culminating in €5.7 million in 2053. This pattern confirms the project's strong financial health and its ability to generate reliable and increasing returns over time.



Graph 26: Ideal Scenario - Cash Flows

6.5.3 CONCLUSION

Takeaways include the critical role of leveraging low interest rates, securing government incentives, and optimizing operational efficiency to achieve superior financial outcomes. This scenario demonstrates that under optimal conditions, solar energy projects can deliver exceptional returns while maintaining strong financial resilience, serving as a model for future renewable energy investments.

7. CONCLUSIONS

7.1 MAIN CONCLUSIONS

The financial analysis conducted in this thesis provides a comprehensive understanding of how Project Finance structures can effectively support the development of a solar photovoltaic (PV) power plant. The following key conclusions emerge from the study, shedding light on critical aspects of financial structuring, risk management, and operational sustainability in renewable energy projects:

- **Efficiency of the project finance structure:**

Project Finance has proven to be a robust mechanism for financing large-scale renewable energy projects, particularly in the solar sector. By allocating risks to the stakeholders best equipped to manage them this model ensures a balanced and transparent risk-sharing framework.

The inclusion of long-term Power Purchase Agreements (PPAs) has been central to mitigating market risk, as these contracts provide predictable and stable revenue streams. This analysis highlights the critical role of cash flow dependency in Project Finance, where the success of the project hinges on accurate forecasting and management of inflows and outflows.

- **Optimization of shareholder value:**

The thesis underscores the importance of achieving an optimal debt-to-equity ratio to balance returns and risk exposure. The leverage ratio of 62% in the base case scenario exemplifies a well-calibrated structure that maximizes equity returns (10.2% IRR) without compromising the project's resilience. Increasing leverage, as seen in the optimistic scenario (70%), enhances equity returns but also raises financial risk. Conversely, conservative leverage levels in adverse scenarios (50%) lower financial risk but diminish returns, making such projects less attractive to equity investors.

This analysis emphasizes that financial sustainability is achieved when a debt-to-equity balance supports both competitive returns and robust risk mitigation. It also demonstrates that equity investors can benefit from hybrid financial instruments like mezzanine debt, which not only improve tax efficiency but also create a flexible capital structure suited for renewable energy projects.

- **The critical role of policy and regulation:**

The Spanish regulatory framework has been instrumental in enabling the rapid growth of solar PV projects, and its continued support will be essential to achieving the country’s renewable energy targets. Policies such as tax incentives, subsidies, and Guarantees of Origin have significantly improved project viability by reducing CAPEX requirements and enhancing revenue streams. The study highlights the importance of aligning financial models with existing regulatory frameworks to maximize project benefits.

However, it also emphasizes the need for flexibility to adapt to potential changes in policy, as such shifts could profoundly affect profitability and risk exposure. Proactive monitoring of regulatory environments is therefore essential to sustaining long-term project viability.

- **Value of sensitivity analyses:**

Sensitivity analyses conducted in this study have demonstrated their indispensable role in understanding and mitigating potential risks in solar PV projects. By individually examining variables such as interest rates, CAPEX, OPEX, and energy production, the financial model provides insights into how changes in these parameters can impact project profitability and financial sustainability. The integration of these analyses ensures that the financial structure remains resilient under varying economic, operational, and regulatory conditions, equipping stakeholders with actionable insights to address potential vulnerabilities.

- **Strategic alignment of financial goals with sustainability objectives:**

The study reinforces that Project Finance not only facilitates economic efficiency but also aligns with broader environmental and sustainability goals. By channeling investment into solar PV projects, this financing model supports the global energy transition while providing stable, long-term returns for investors.

Moreover, the financial model developed in this thesis highlights how Project Finance frameworks can be adapted to integrate emerging technologies like energy storage and smart grids. These innovations have the potential to enhance the profitability and scalability of solar projects, enabling greater participation in the energy market and increasing resilience to variability in energy production.

7.2 CONTRIBUTIONS TO PROJECT FINANCE

This thesis provides significant contributions to the field of Project Finance, particularly in the context of renewable energy projects such as solar photovoltaic (PV) plants. Through innovative methodologies, practical tools, and forward-looking insights, it enhances the understanding and application of Project Finance structures, offering valuable implications for future projects. Below are the key contributions derived from this study:

- **Validation of the project finance model for renewable energy**

The study reaffirms the suitability of Project Finance as an ideal framework for renewable energy projects, particularly solar PV plants. With predictable cash flows generated by long-term Power Purchase Agreements (PPAs) and relatively low operational risks, solar projects align well with the principles of Project Finance.

This validation is supported by the financial stability observed in the base case scenario, where the project achieves an Equity IRR of 10.2% and maintains robust debt coverage metrics (LLCR of 2.25x). The results demonstrate how risk allocation—between lenders, sponsors, and contractors—is effectively managed through contractual agreements, such as Engineering, Procurement, and Construction (EPC) contracts and Operation and Maintenance (O&M) agreements.

- **Innovation in financial modeling**

One of the most significant contributions of this thesis lies in the development of a dynamic financial model, constructed in Microsoft Excel and enhanced with VBA programming. This model offers a highly practical tool for evaluating the financial performance of solar PV projects under diverse scenarios, addressing variables such as CAPEX, OPEX, energy production, and financing conditions.

This innovation is not only adaptable to solar projects but also extends to other renewable energy technologies, such as wind or hydroelectric power, demonstrating its versatility. By offering a transparent and user-friendly interface, the model empowers stakeholders to make informed decisions, enhancing its practical application in real-world projects.

- **Comprehensive risk analysis**

The thesis introduces an integrated approach to risk analysis, combining both qualitative and quantitative methods to assess the financial and operational sustainability of solar PV projects. This dual approach provides a complete view of the risks and uncertainties that could impact project performance.

This integrated risk analysis framework is a valuable contribution to the Project Finance literature, offering a robust methodology for evaluating renewable energy projects in dynamic economic and regulatory environments.

7.3 LIMITATIONS OF THE STUDY

This section critically examines the limitations of the research, offering a reflective assessment of the study's constraints while identifying areas for potential improvement and future exploration. Recognizing these limitations is essential for situating the findings within a broader context and providing a foundation for subsequent studies.

- **Dependence on Assumptions**

The financial model developed in this study relies heavily on key assumptions, such as the Power Purchase Agreement (PPA) price, interest rates, operational costs (OPEX), and energy production estimates. While these assumptions are grounded in realistic scenarios and industry benchmarks, they remain inherently subject to future variability.

This reliance on assumptions highlights the need for continuous model updates as new data becomes available, ensuring relevance and accuracy in changing economic and operational conditions.

- **Geographical Scope**

The study is confined to the Spanish renewable energy market, reflecting the regulatory, economic, and climatic conditions unique to Spain. While this specificity enhances the relevance of the findings for projects in Spain, it limits their generalizability to other regions with differing contexts.

Future research could extend the analysis to other geographical contexts, comparing the applicability of Project Finance models across diverse regulatory and economic landscapes.

- **Exclusion of Certain Risks**

Although the study provides sensitivity analyses and detailed risk assessments, several external risks remain underexplored or excluded, which limits the holistic understanding of the project's risk environment.

Political risks, for instance, could profoundly influence the financial outcomes of solar energy projects. Policy changes, such as the removal of subsidies, revisions in feed-in tariffs, or the introduction of taxes targeting renewable energy, can disrupt the financial stability of projects. Similarly, technological risks represent a growing concern, as advancements in solar panel efficiency, inverter technologies, or the emergence of alternative renewable energy sources could alter market dynamics and economic competitiveness. Furthermore, social risks, such as community resistance to large-scale solar installations or evolving public perceptions about land use and environmental impacts, could affect both the implementation and operational continuity of such projects.

Future analyses incorporating these external factors would provide a more rounded understanding of the risks, thereby strengthening the robustness of financial models and risk mitigation strategies.

- **Temporal Scope**

The temporal scope of this study is limited to the 30-year operational lifespan of the solar plant, excluding scenarios that extend beyond this timeframe. Notably, the analysis does not consider the possibility of repowering, which involves upgrading equipment or replacing solar panels to extend the operational life of the project.

Such scenarios are increasingly relevant in renewable energy investments, as they offer opportunities for enhanced efficiency and prolonged revenue generation. Similarly, the study omits potential expansions in capacity or integration with advanced technologies, such as energy storage systems and smart grid solutions.

These innovations could significantly influence the project's financial metrics, enabling better energy dispatchability and alignment with future energy market demands. Addressing these temporal limitations in future research would offer insights into the long-term adaptability and financial sustainability of solar energy projects, particularly in rapidly evolving technological and market landscapes.

- **Lack of Empirical Validation**

One significant limitation of the study is the absence of empirical validation of the financial model against real-world operational data. While the model relies on anonymized inputs and widely accepted industry assumptions, its accuracy and reliability could be significantly improved by incorporating actual performance data from existing solar photovoltaic projects. Metrics such as realized energy production levels, actual operational costs, and debt repayment schedules would refine the model's predictive accuracy.

Additionally, benchmarking the model against financial and operational outcomes of comparable renewable energy projects would provide an external validation framework, ensuring its applicability across different contexts and scenarios. Integrating empirical data would not only strengthen the credibility of the model but also enhance its value as a practical tool for investors, lenders, and policymakers in the renewable energy sector.

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Project Finance Model - Annual Financial Statements

OK

Year			2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
Period End			31/12/2023	31/12/2024	31/12/2025	31/12/2026	31/12/2027	31/12/2028	31/12/2029	31/12/2030	31/12/2031	31/12/2032	31/12/2033	31/12/2034	31/12/2035	31/12/2036	31/12/2037	31/12/2038	31/12/2039	31/12/2040	31/12/2041	31/12/2042	31/12/2043	31/12/2044	31/12/2045	31/12/2046	31/12/2047	31/12/2048	31/12/2049	31/12/2050	31/12/2051	31/12/2052	31/12/2053
Income Statement	Unit																																
Revenues	EUR	160,622,197	-	2,199,524	4,554,806	4,620,281	4,686,552	4,753,627	4,821,509	4,890,206	4,959,721	5,030,062	5,101,232	5,173,236	5,246,081	5,319,770	5,394,308	5,469,699	5,545,949	5,623,061	5,701,038	5,779,886	5,859,607	5,940,205	6,021,684	6,104,045	6,187,292	6,271,427	6,356,453	6,442,371	6,529,183	6,616,891	3,422,492
less: Operating Expenses	EUR	(37,485,382)	-	(423,565)	(855,601)	(890,223)	(908,027)	(926,188)	(1,072,511)	(1,093,961)	(1,115,841)	(1,138,157)	(1,160,920)	(1,184,139)	(1,207,822)	(1,231,978)	(1,256,618)	(1,281,750)	(1,307,385)	(1,333,533)	(1,360,203)	(1,387,407)	(1,415,156)	(1,443,459)	(1,472,328)	(1,501,774)	(1,531,810)	(1,562,446)	(1,593,695)	(1,625,569)	(1,658,080)	(1,691,242)	(853,993)
less: Banking Fees	EUR	(580,000)	-	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	(20,000)	-
EBITDA	EUR	122,556,815	-	1,755,959	3,679,205	3,710,058	3,758,525	3,807,439	3,728,998	3,776,244	3,823,881	3,871,904	3,920,311	3,969,097	4,018,259	4,067,792	4,117,690	4,167,949	4,218,564	4,269,528	4,320,835	4,372,479	4,424,452	4,476,747	4,529,356	4,582,270	4,635,482	4,688,981	4,742,758	4,796,802	4,851,103	4,905,649	2,568,498
less: Depreciation	EUR	(44,343,187)	-	(764,675)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(1,529,349)	(756,734)
EBIT	EUR	78,213,628	-	991,284	2,149,856	2,180,709	2,229,176	2,278,089	2,199,649	2,246,895	2,294,532	2,342,555	2,390,962	2,439,748	2,488,910	2,538,442	2,588,341	2,638,600	2,689,215	2,740,179	2,791,486	2,843,130	2,895,103	2,947,397	3,000,006	3,052,921	3,106,133	3,159,632	3,213,408	3,267,453	3,321,754	3,376,300	1,811,765
less: Senior Debt Interest Expense	EUR	(22,091,655)	-	(637,061)	(1,254,213)	(1,212,595)	(1,188,036)	(1,165,415)	(1,135,413)	(1,108,260)	(1,080,209)	(1,055,351)	(1,024,115)	(994,368)	(963,147)	(933,000)	(895,659)	(858,606)	(819,161)	(779,457)	(732,745)	(685,459)	(635,328)	(583,933)	(526,095)	(466,658)	(403,844)	(338,565)	(267,564)	(193,714)	(115,862)	(37,823)	-
less: Shareholder Loan Interest Expense	EUR	(8,217,122)	(396,915)	(1,037,562)	(1,034,727)	(1,021,272)	(959,776)	(873,939)	(773,079)	(666,628)	(552,005)	(429,735)	(295,515)	(151,414)	(24,556)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
add: Interest on Reserve Accounts	EUR	856,847	-	7,281	39,792	30,252	30,334	30,435	29,894	29,865	29,333	28,974	28,929	28,972	28,995	28,604	28,799	29,060	29,320	30,233	30,429	30,681	30,931	31,239	31,423	31,665	31,896	30,343	32,369	32,596	32,818	21,530	(144)
EBT	EUR	48,761,698	(396,915)	(676,059)	(99,293)	(22,906)	111,698	269,171	321,052	501,872	691,652	886,442	1,100,261	1,322,938	1,530,203	1,634,046	1,721,481	1,809,054	1,899,373	1,990,954	2,089,170	2,188,351	2,290,706	2,394,704	2,505,335	2,617,928	2,734,185	2,851,410	2,978,214	3,106,334	3,238,710	3,360,007	1,811,621
less: Taxes Paid	EUR	(9,752,340)	-	-	-	-	-	-	-	-	(81,711)	(157,220)	(198,814)	(242,027)	(288,223)	(317,131)	(335,905)	(353,154)	(370,941)	(388,979)	(408,315)	(427,843)	(447,994)	(468,469)	(490,244)	(512,406)	(535,288)	(558,353)	(583,309)	(608,519)	(634,564)	(660,875)	(682,054)
add: Change in Deferred Tax Asset	EUR	-	79,383	135,212	19,859	4,581	(22,340)	(53,834)	(64,210)	(37,650)	(8,578)	(8,546)	(6,202)	(6,641)	(2,820)	(1,639)	(1,715)	(1,792)	(1,872)	(1,953)	(2,043)	(2,133)	(2,228)	(2,324)	(1,556)	(1,219)	(1,274)	(1,332)	(1,394)	(1,457)	(1,523)	(758)	-
less: Change in Deferred Tax Liability	EUR	-	-	-	-	-	-	-	-	(62,724)	(48,041)	(11,523)	(15,036)	(15,920)	(14,997)	(8,039)	(6,676)	(6,865)	(7,062)	(7,259)	(7,476)	(7,693)	(7,919)	(8,148)	(9,267)	(9,961)	(10,274)	(10,597)	(10,940)	(11,291)	(11,655)	(10,369)	319,729
Net Income / (Loss)	EUR	39,009,358	(317,532)	(540,847)	(79,435)	(18,325)	89,358	215,337	256,841	401,498	553,321	709,154	880,209	1,058,351	1,224,162	1,307,237	1,377,185	1,447,243	1,519,499	1,592,763	1,671,336	1,750,681	1,832,564	1,915,763	2,004,268	2,094,342	2,187,348	2,281,128	2,382,571	2,485,067	2,590,968	2,688,005	1,449,297
Balance Sheet	Unit																																
Current Assets																																	
Unrestricted Cash	EUR		100,000	1,189,273	725,053	729,643	738,665	747,699	724,569	733,127	741,772	750,576	759,486	768,451	460,945	465,486	470,045	474,620	687,131	1,271,628	1,795,774	2,258,939	2,658,411	2,992,992	3,256,718	3,448,044	4,187,717	3,602,341	3,557,086	3,426,020	3,205,411	3,872,824	(0)
DSRA	EUR		-	631,355	607,683	595,595	586,084	569,522	556,148	542,120	531,155	531,683	537,685	543,715	549,794	555,851	561,955	568,080	574,251	580,390	586,572	592,768	599,003	605,198	611,428	617,665	-	630,151	636,396	642,638	648,904	-	-
MMRA	EUR		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accounts Receivable	EUR		-	183,799	186,444	189,121	191,831	194,573	197,349	200,157	202,999	205,875	208,784	211,727	214,705	217,717	220,764	223,845	226,961	230,113	233,300	236,522	239,780	243,073	246,402	249,768	253,169	256,606	260,080	263,590	267,136	270,719	-
Total Current Assets	EUR		100,000	2,004,428	1,519,180	1,514,360	1,516,580	1,511,795	1,478,065	1,475,404	1,475,926	1,488,133	1,505,954	1,523,893	1,225,444	1,239,054	1,252,764	1,266,546	1,488,343	2,082,131	2,615,646	3,088,229	3,497,194	3,841,263	4,114,548	4,315,476	4,440,886	4,489,099	4,453,562	4,332,248	4,121,451	4,143,543	(0)
Non-Current Assets																																	
Net Property, Plant and Equipment	EUR		38,026,696	43,578,512	42,049,163	40,519,814	38,990,464	37,461,115	35,931,766	34,402,417	32,873,067	31,343,718	29,814,369	28,285,020	26,755,671	25,226,321	23,696,972	22,167,623	20,638,274	19,108,924	17,579,575	16,050,226	14,520,877	12,991,527	11,462,178	9,932,829	8,403,480	6,874,130	5,344,781	3,815,432	2,286,083	756,734	-
Deferred Tax Asset	EUR		79,383	214,595	234,453	239,034	216,695	162,861	98,650	61,000	52,422	43,876	37,674	31,033	28,212	26,574	24,859	23,067	21,194	19,242	17,199	15,065	12,838	10,514	8,958	7,739	6,464	5,132	3,738	2,281	758	-	-
Total Non-Current Assets	EUR		38,106,079	43,793,107	42,283,616	40,758,848	39,207,159	37,623,976	36,030,416	34,463,417	32,925,489	31,387,594	29,852,043	28,316,053	26,783,883	25,252,895	23,721,831	22,190,689	20,659,468	19,128,166	17,596,774	16,065,291	14,533,714	13,002,041	11,471,136	9,940,568	8,409,944	6,879,262	5,348,519	3,817,713	2,286,841	756,734	-
Total Assets	EUR		38,206,079	45,797,535	43,802,796	42,273,208	40,723,739	39,135,771	37,508,482	35,938,821	34,401,416	32,875,727	31,357,997	29,839,946	28,009,327	26,491,949	24,974,594	23,457,235	22,147,811	21,210,297	20,212,420	19,153,520	18,030,908	16,843,304	15,585,684	14,256,044	12,850,830	11,368,361	9,802,082	8,149,961	6,408,292	4,900,277	(0)
Current Liabilities																																	
Accounts Payable	EUR		-	141,188	144,012	149,840	152,836	155,893	180,522	184,132	187,815	191,571	195,402	199,311	203,297	207,363	211,510	215,740	220,055	224,456	228,945	233,524	238,195	242,958	247,818	252,774	257,829	262,986	268,246	273,611	279,083	284,664	-
Deferred Tax Liability	EUR		-	-	-	-	-	-	-	62,724	110,765	122,288	137,323	153,243	168,240	176,279	182,955	189,820	196,881	204,141	211,616	219,310	227,229	235,377	244,643	254,604	264,878	275,475	286,415	297,706	309,361	319,729	-
Accrued Interest: Shareholder Loan	EUR		396,915	1,434,477	568,855	247,352	225,784	201,494	175,166	146,841	116,270	83,454	47,875	9,349	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Accrued Interest: Senior Debt	EUR		-	319,147	307,180	301,070	294,643	287,890	281,130	274,039	267,029	260,069	252,781	245,127	237,103	228,634	219,582	209,940	199,682	188,802	177,228	164,952	151,945	138,190	123,621	108,219	91,948	74,789	56,666	37,557	17,418	-	-
Current Portion of Long-Term Senior Debt	EUR		-	1,040,540	531,322	558,874	587,212	587,889	616,606	609,534	605,200	633,709	665,582	697,758	736,459	787,150	838,415	891,966	946,106	1,006,439	1,067,430	1,131,105	1,196,056	1,266,891	1,339,297	1,414,856	1,492,106	1,575,889	1,661,702	1,751,217	1,514,574	-	-
Total Current Liabilities	EUR		396,915	2,935,352	1,551,370	1,257,137	1,260,476	1,233,166	1,253,423	1,277,270	1,287,078	1,291,090	1,298,965	1,304,788	1,345,098	1,399,425	1,452,461	1,507,466	1,562,724	1,623,838	1,685,219	1,748,891	1,813,424	1,883,416	1,955,378	2,030,452	2,106,762	2,189,139	2,273,028	2,360,090	2,120,435	604,394	-
Non-Current Liabilities																																	
Shareholder Loan	EUR		12,756,914	12,756,914	12,756,914	12,098,758	11,043,804	9,855,698	8,567,916	7,182,445	5,687,110	4,081,965	2,341,733	457,266	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Long-Term Senior Debt	EUR		21,117,477	26,711,343	26,180,021	25,621,146	25,033,934	24,446,046	23,829,440	23,219,906	22,614,706	21,980,997	21,315,415	20,617,656	19,881,198	19,094,048	18,255,632	17,363,666	16,417,560	15,411,121	14,343,691	13,212,586	12,016,530	10,749,639	9,410,343	7,995,487	6,503,381	4,927,492	3,265,791	1,514,574	-	-	-
Total Non-Current Liabilities	EUR		33,874,391	39,468,257	38,936,935	37,719,905	36,077,738	34,301,743	32,397,356	30,402,351	28,301,816	26,062,962	23,657,148	21,074,923	19,881,198	19,094,048	18,255,632	17,363,666	16,417,560	15,411,121	14,343,691	13,212,586	12,016,530	10,749,639	9,410,343	7,995,487	6,503,381	4,927,492	3,265,791	1,514,574	-	-	-
Total Liabilities	EUR		34,271,306	42,403,609	40,488,305	38,977,041	37,338,214	35,534,909	33,650,779	31,679,621	29,588,894	27,354,052	24,956,113	22,379,711	21,226,296	20,493,473	19,708,094	18,871,132	17,980,284	17,034,959	16,028,910	14,961,477	13,829,954	12,633,055	11,365,721	10,025,940	8,610,143	7,116,631	5,538,819	3,874,664	2,120,435	604,394	-
Shareholders' Equity																																	
Share Capital	EUR		4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305	4,252,305
Retained Earnings	EUR		(317,532)	(858,379)	(937,813)	(956,138)	(866,780)	(651,443)	(394,602)	6,896	560,217	1,269,371	2,149,580	3,207,930	2,530,727	1,746,172	1,014,196	333,798	(84,777)	(76,966)	(68,795)	(60,262)	(51,351)	(42,055)	(32,341)	(22,200)	(11,618)	(574)	10,958	22,993	35,552	43,578	(4,252,305)
Total Shareholders' Equity	EUR		3,934,773	3,393,926	3,314,491	3,296,167	3,385,525	3,600,861	3,857,703	4,259,200	4,812,522	5,521,675	6,401,884	7,460,235	6,783,031	5,998,476	5,266,500	4,586,103	4,167,527	4,175,338	4,183,509	4,192,043	4,200,954	4,210,249	4,219,963	4,230,105	4,240,687	4,251,731	4,263,263	4,275,298	4,287,857	4,295,883	-
Total Liabilities & Shareholders' Equity	EUR		38,206,079	45,797,535	43,802,796	42,273,208	40,723,739	39,135,771	37,508,482	35,938,821	34,401,416	32,875,727	31,357,997	29,839,946	28,009,327	26,491,949	24,974,594	23,457,235	22,147,811	21,210,297	20,212,420	19,153,520	18,030,908	16,843,304	15,585,684	14,256,044	12,850,830	11,368,361	9,802,082	8,149,961	6,408,292	4,900,277	-
Balance Check	Check	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Cash Flow Statement	Unit																																
Operating Activities																																	
Net Income	EUR	39,009,358	(317,532)	(540,847)	(79,435)	(18,325)	89,358	215,337	256,841	401,498	553,321	709,154	880,209	1,058,351	1,224,162	1,307,237	1,377,185	1,447,243	1,519,499	1,592,763	1,671,336	1,750,681	1,832,564	1,915,763	2,004,268	2,094,342	2,187,348	2,281,128	2,382,571	2,485,067	2,590,968	2,688,005	1,449,297
less: Changes in Net Working Capital	EUR	(0)	-	(42,611)	179	3,150	287	314	21,853	802	841	881	922	965	1,009	1,054	1,101	1,149	1,198	1,250	1,302	1,357	1,413	1,470	1,530	1,591	1,654	1,719	1,786	1,855	1,926	1,999	(13,946)
less: Change in Deferred Tax Asset	EUR	-	(79,383)	(135,212)	(19,859)	(4,581)	22,340	53,834	64,210	37,650	8,578	8,546	6,202	6,641	2,820	1,639	1,715	1,792	1,872	1,953	2,043	2,133	2,228	2,324	1,556	1,219	1,274	1,332	1,394	1,457	1,523	758	-
add: Change in Deferred Tax Liability	EUR	-	-	-	-	-	-	-	-	62,724	48,041	11,523	15,036	15,920	14,997	8,039	6,676	6,865	7,062	7,259	7,476	7,693	7,919	8,148	9,267	9,961	10,274	10,597	10,940	11,291	11,655	10,369	(319,729)
add: Depreciation	EUR	44,343,187	-	764,675	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	1,529,349	756,734
add: Senior Debt Interest Expense	EUR	22,091,655	-	637,061	1,254,213	1,212,595	1,188,036	1,165,415	1,135,413	1,108,260	1,080,209	1,055,351	1,024,115	994,368	963,147	933,000	895,659	858,606	819,161	779,457	732,745	685,459	635,328	583,933	526,095	466,658	403,844	338,565	267,564	193,714	115,862	37,823	-
add: Shareholder Loan Interest Expense	EUR	8,217,122	396,915	1,037,562	1,034,727	1,021,272	959,776	873,939	773,079	666,628	552,005	429,735	295,515	151,414	24,556	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
less: Interest on Reserve Accounts	EUR	(856,847)	-	(7,281)	(39,792)	(30,252)	(30,334)	(30,435)	(29,894)	(29,865)	(29,333)	(28,974)	(28,929)	(28,972)	(28,995)	(28,604)	(28,799)	(29,060)	(29,320)	(30,233)	(30,429)	(30,681)	(30,931)	(31,239)	(31,423)	(31,665)	(31,896)	(30,343)	(32,369)	(32,596)	(32,818)	(21,530)	144
Cash Flows From Operating Activities	EUR	112,804,475	-	1,713,348	3,679,384	3,713,208	3,758,812	3,807,753	3,750,851	3,777,046	3,743,010	3,715,565	3,722,419	3,728,035	3,731,044	3,751,714	3,782,885	3,815,945	3,848,822	3,881,799	3,913,822	3,945,992	3,977,870	4,009,748	4,040,641	4,071,456	4,101,848	4,132,347	4,161,235	4,190,138	4,218,465	4,246,774	1,872,499
Investing Activities																																	
Capital Expenditures	EUR	(42,969,381)	(37,221,114)	(5,748,267)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cash Flows From Investing Activities	EUR	(42,969,381)	(37,221,114)	(5,748,267)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Financing Activities																																	
Drawdown of Equity	EUR	4,252,305	4,252,305	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drawdown of Senior Loan	EUR	27,751,883	21,117,477	6,634,406	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drawdown of Shareholder Loan	EUR	12,756,914	12,756,914	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Principal Repayment of Senior Loan	EUR	(27,751,883)	-	-	(1,040,540)	(531,322)	(558,874)	(587,212)	(587,889)	(616,606)	(609,534)	(605,200)	(633,709)	(665,582)	(697,758)	(736,459)	(787,150)	(838,415)	(891,966)	(946,106)	(1,006,439)	(1,067,430)	(1,131,105)	(1,196,056)	(1,266,891)	(1,339,297)	(1,414,856)	(1,492,106)	(1,575,889)	(1,661,702)	(1,751,217)	(1,514,574)	-
Principal Repayment of Shareholder Loan	EUR	(12,756,914)	-	-	-	(658,156)	(1,054,954)	(1,188,106)	(1,287,782)	(1,385,471)	(1,495,335)	(1,605,145)	(1,740,232)	(1,884,467)	(457,266)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest Payment for Senior Loan	EUR	(22,091,655)	-	(317,915)	(1,266,180)	(1,218,705)	(1,194,463)	(1,172,167)	(1,142,173)	(1,115,351)	(1,087,218)	(1,062,311)	(1,031,403)	(1,002,022)	(971,171)	(941,470)	(904,711)	(868,248)	(829,419)	(790,338)	(744,319)	(697,735)	(648,336)	(597,687)	(540,664)	(482,060)	(420,115)	(355,724)	(285,686)	(212,824)	(136,001)	(55,241)	-
Interest Payment for Shareholder Loan	EUR	(8,217,122)	-	-	(1,900,349)	(1,342,775)	(981,344)	(898,229)	(799,407)	(694,953)	(582,576)	(462,552)	(331,093)	(189,941)	(33,904)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dividends	EUR	(43,261,663)	-	-	-	-	-	-	-	-	-	-	-	-	(1,901,366)	(2,091,792)	(2,109,161)	(2,127,640)	(1,938,074)	(1,584,952)	(1,663,165)	(1,742,148)	(1,823,653)	(1,906,468)	(1,994,554)	(2,084,201)	(2,176,765)	(2,270,084)	(2,371,039)	(2,473,032)	(2,578,409)	(2,679,979)	(5,745,180)
Retainer Fee	EUR	(100,000)	(100,000)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Upfront Fees	EUR	(555,038)	(555,038)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Commitment Fees	EUR	(26,790)	(25,355)	(1,435)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest During Construction	EUR	(691,978)	(125,188)	(566,789)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drawdown / (Deposit) to DSRA	EUR	-	-	(631,355)	23,672	12,088	9,512	16,562	13,374	14,028	10,964	(527)	(6,002)	(6,030)	(6,079)	(6,057)	(6,104)	(6,126)	(6,170)	(6,140)	(6,181)	(6,196)	(6,235)	(6,195)	(6,230)	(6,237)	617,665	(630,151)	(6,245)	(6,242)	(6,265)	648,904	-
Drawdown / (Deposit) to MMRA	EUR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest on Reserve Accounts	EUR	856,847	-	7,281	39,792	30,252	30,334	30,435	29,894	29,865	29,333	28,974	28,929	28,972	28,995	28,604	28,799	29,060	29,320	30,233	30,429	30,681	30,931	31,239	31,423	31,665	31,896	30,343	32,369	32,596	32,818	21,530	(144)
Cash Flows From Financing Activities	EUR	(69,835,094)	37,321,114	5,124,193	(4,143,605)	(3,708,618)	(3,749,790)	(3,798,719)	(3,773,981)	(3,768,488)	(3,734,366)	(3,706,761)	(3,713,509)	(3,719,070)	(4,038,550)	(3,747,173)	(3,778,326)	(3,811,370)	(3,636,310)	(3,297,302)	(3,389,676)	(3,482,827)	(3,578,398)	(3,675,167)	(3,776,915)	(3,880,130)	(3,362,175)	(4,717,723)	(4,206,490)	(4,321,204)	(4,439,074)	(3,579,360)	(5,745,324)
Net Movements In Cash	EUR	(0)	100,000	1,089,273	(464,221)	4,590	9,022	9,034	(23,130)	8,558	8,644	8,804	8,909	8,966	(307,506)	4,541	4,559	4,575	212,511	584,497	524,146	463,165	399,472	334,581	263,726	191,326	739,673	(585,376)	(45,255)	(131,066)	(220,609)	667,414	(3,872,824)
Cash Position																																	
Beginning of Period	EUR		-	100,000	1,189,273	725,053	729,643	738,665	747,699	724,569	733,127	741,772	750,576	759,486	768,451	460,945	465,486	470,045	474,620	687,131	1,271,628	1,795,774	2,258,939	2,658,411	2,992,992	3,256,718	3,448,044	4,187,717	3,602,341	3,557,086	3,426,020	3,205,411	3,872,824
End of Period	EUR	-	100,000	1,189,273	725,053	729,643	738,665	747,699	724,569	733,127	741,772	750,576	759,486	768,451	460,945	465,486	470,045	474,620	687,131	1,271,628	1,795,774	2,258,939	2,658,411	2,992,992	3,256,718	3,448,044	4,187,717	3,602,341	3,557,086	3,426,020	3,205,411	3,872,824	(0)
Cash Waterfall	Unit																																
EBITDA	EUR	122,556,815	-	1,755,959	3,679,205	3,710,058	3,758,525	3,807,439	3,728,998	3,776,244	3,823,881	3,871,904	3,920,311	3,969,097	4,018,259	4,067,792	4,117,690	4,167,949	4,218,564	4,269,528	4,320,835	4,372,479	4,424,452	4,476,747	4,529,356	4,582,270	4,635,482	4,688,981	4,742,758	4,796,802	4,851,103	4,905,649	2,568,498
less: Change in Net Working Capital	EUR		-	(42,611)	179	3,150	287	314	21,853	802	841	881	922	965	1,009	1,054	1,101	1,149	1,198	1,250	1,302	1,357	1,413	1,470	1,530	1,591	1,654	1,719	1,786	1,855	1,926	1,999	(13,946)
less: Taxes Paid	EUR		-	-	-	-	-	-	-	-	(81,711)	(157,220)	(198,814)	(242,027)	(288,223)	(317,131)	(335,905)	(353,154)	(370,941)	(388,979)	(408,315)	(427,843)	(447,994)	(468,469)	(490,244)	(512,406)	(535,288)	(558,353)	(583,309)	(608,519)	(634,564)	(660,875)	(682,054)
add: Interest on Reserve Accounts	EUR		-	7,281	39,792	30,252	30,334	30,435	29,894	29,865	29,333	28,974	28,929	28,972	28,995	28,604	28,799	29,060	29,320	30,233	30,429	30,681	30,931	31,239	31,423	31,665	31,896	30,343	32,369	32,596	32,818	21,530	(144)
Cash Flow Available for Debt Service	EUR	113,661,322	-	1,720,629	3,719,176	3,743,460	3,789,146	3,838,188	3,780,745	3,806,911	3,772,344	3,744,539	3,751,348	3,757,007	3,760,040	3,780,318	3,811,684	3,845,004	3,878,141	3,912,032	3,944,251	3,976,673	4,008,801	4,040,987	4,072,064	4,103,121	4,133,744	4,162,690	4,193,604	4,222,734	4,251,283	4,268,303	1,872,355
less: Senior Debt Interest Expense	EUR		-	(317,915)	(1,266,180)	(1,218,705)	(1,194,463)	(1,172,167)	(1,142,173)	(1,115,351)	(1,087,218)	(1,062,311)	(1,031,403)	(1,002,022)	(971,171)	(941,470)	(904,711)	(868,248)	(829,419)	(790,338)	(744,319)	(697,735)	(648,336)	(597,687)	(540,664)	(482,060)	(420,115)	(355,724)	(285,686)	(212,824)	(136,001)	(55,241)	-
less: Senior Debt Principal Repayment	EUR		-	-	(1,040,540)	(531,322)	(558,874)	(587,212)	(587,889)	(616,606)	(609,534)	(605,200)	(633,709)	(665,582)	(697,758)	(736,459)	(787,150)	(838,415)	(891,966)	(946,106)	(1,006,439)	(1,067,430)	(1,131,105)	(1,196,056)	(1,266,891)	(1,339,297)	(1,414,856)	(1,492,106)	(1,575,889)	(1,661,702)	(1,751,217)	(1,514,574)	-
Cash Flow Available for Reserve Accounts	EUR		-	1,402,714	1,412,456	1,993,433	2,035,808	2,078,808	2,050,684	2,074,954	2,075,591	2,077,028	2,086,236	2,089,403	2,091,110	2,102,390	2,119,824	2,138,341	2,156,756	2,175,588	2,193,493	2,211,509	2,229,361	2,247,243	2,264,510	2,281,764	2,298,774	2,314,860	2,332,028	2,348,208	2,364,065	2,698,489	1,872,355
add: Initial Working Capital	EUR		100,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
add: Initial DSRA Funding	EUR		-	317,915	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
add: Initial MMRA Funding	EUR		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
less: Change in DSRA	EUR		-	(631,355)	23,672	12,088	9,512	16,562	13,374	14,028	10,964	(527)	(6,002)	(6,030)	(6,079)	(6,057)	(6,104)	(6,126)	(6,170)	(6,140)	(6,181)	(6,196)	(6,235)	(6,195)	(6,230)	(6,237)	617,665	(630,151)	(6,245)	(6,242)	(6,265)	648,904	-
less: Change in MMRA	EUR		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cash Flow Available for Shareholder Loan	EUR		100,000	1,089,273	1,436,129	2,005,521	2,045,320	2,095,370	2,064,058	2,088,982	2,086,556	2,076,501	2,080,234	2,083,373	2,085,031	2,096,333	2,113,720	2,132,215	2,150,586	2,169,449	2,187,311	2,205,312	2,223,125	2,241,048	2,258,280	2,275,527	2,916,438	1,684,709	2,325,784	2,341,966	2,357,800	3,347,393	1,872,355
less: Shareholder Loan Interest Payment	EUR		-	-	(1,900,349)	(1,342,775)	(981,344)	(898,229)	(799,407)	(694,953)	(582,576)	(462,552)	(331,093)	(189,941)	(33,904)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
less: Shareholder Loan Principal Repayment	EUR		-	-	-	(658,156)	(1,054,954)	(1,188,106)	(1,287,782)	(1,385,471)	(1,495,335)	(1,605,145)	(1,740,232)	(1,884,467)	(457,266)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cash Flow Available for Dividends	EUR		100,000	1,089,273	(464,221)	4,590	9,022	9,034	(23,130)	8,558	8,644	8,804	8,909	8,966	1,593,860	2,096,333	2,113,720	2,132,215	2,150,586	2,169,449	2,187,311	2,205,312	2,223,125	2,241,048	2,258,280	2,275,527	2,916,438	1,684,709	2,325,784	2,341,966	2,357,800	3,347,393	1,872,355
Dividend	EUR		-	-	-	-	-	-	-	-	-	-	-	-	(1,901,366)	(2,091,792)	(2,109,161)	(2,127,640)	(1,938,074)	(1,584,952)	(1,663,165)	(1,742,148)	(1,823,653)	(1,906,468)	(1,994,554)	(2,084,201)	(2,176,765)	(2,270,084)	(2,371,039)	(2,473,032)	(2,578,409)	(2,679,979)	(5,745,180)
Net Movements in Cash	EUR		100,000	1,089,273	(464,221)	4,590	9,022	9,034	(23,130)	8,558	8,644	8,804	8,909	8,966	(307,506)	4,541	4,559	4,575	212,511	584,497	524,146	463,165	399,472	334,581	263,726	191,326	739,673	(585,376)	(45,255)	(131,066)	(220,609)	667,414	(3,872,824)
Beginning Cash Balance	EUR		-	100,000	1,189,273	725,053	729,643	738,665	747,699	724,569	733,127	741,772	750,576	759,486	768,451	460,945	465,486	470,045	474,620	687,131	1,271,628	1,795,774	2,258,939	2,658,411	2,992,992	3,256,718	3,448,044	4,187,717	3,602,341	3,557,086	3,426,020	3,205,411	3,872,824
Closing Cash Balance	EUR	-	100,000	1,189,273	725,053	729,643	738,665	747,699	724,569	733,127	741,772	750,576	759,486	768,451	460,945	465,486	470,045	474,620	687,131	1,271,628	1,795,774	2,258,939	2,658,411	2,992,992	3,256,718	3,448,044	4,187,717	3,602,341	3,557,086	3,426,020	3,205,411	3,872,824	-
Annual = Monthly Check	Check	OK																															

Declaración de Uso de Herramientas de Inteligencia Artificial Generativa en Trabajos Fin de Grado

ADVERTENCIA: Desde la Universidad consideramos que ChatGPT u otras herramientas similares son herramientas muy útiles en la vida académica, aunque su uso queda siempre bajo la responsabilidad del alumno, puesto que las respuestas que proporciona pueden no ser veraces. En este sentido, NO está permitido su uso en la elaboración del Trabajo fin de Grado para generar código porque estas herramientas no son fiables en esa tarea. Aunque el código funcione, no hay garantías de que metodológicamente sea correcto, y es altamente probable que no lo sea.

Por la presente, yo, Álvaro Alonso Martínez de Salinas, estudiante del programa de Ingeniería Industrial y ADE de la Universidad Pontificia Comillas al presentar mi Trabajo Fin de Grado titulado "Maximizing Shareholder Value through Project Finance in a Photovoltaic Power Plant", declaro que he utilizado la herramienta de Inteligencia Artificial Generativa ChatGPT u otras similares de IAG de código sólo en el contexto de las actividades descritas a continuación:

1. Brainstorming de ideas de investigación: Utilizado para idear y esbozar posibles áreas de investigación.
2. Corrector de estilo literario y de lenguaje: Para mejorar la calidad lingüística y estilística del texto.
3. Revisor: Para recibir sugerencias sobre cómo mejorar y perfeccionar el trabajo con diferentes niveles de exigencia.
4. Traductor: Para traducir textos de un lenguaje a otro.

Afirmo que toda la información y contenido presentados en este trabajo son producto de mi investigación y esfuerzo individual, excepto donde se ha indicado lo contrario y se han dado los créditos correspondientes (he incluido las referencias adecuadas en el TFG y he explicitado para que se ha usado ChatGPT u otras herramientas similares). Soy consciente de las implicaciones académicas y éticas de presentar un trabajo no original y acepto las consecuencias de cualquier violación a esta declaración.

Fecha: 03/12/2024

Alvaro.Alonso.Martinez.De.Salinas
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