



AGRISOL

High-Level Feasibility Study

Submitted to:

The Ministry of Digital Economy and Entrepreneurship

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Founders and investors considering this project are advised to conduct further analysis on projected adoption rates, development costs, and ongoing operational expenses. This additional scrutiny will help mitigate potential risks related to technology challenges, changes in regulations, market penetration, and competitive pressures.

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A National Entrepreneurship Policy Project



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Executive Summary

AGRISOL integrates transparent photovoltaic (PV) panels into agricultural settings to address Jordan's challenges of water scarcity, limited arable land, and energy needs. By enhancing agricultural productivity and promoting renewable energy, AGRISOL aims to contribute to Jordan's sustainability goals. Ensuring smooth operations and long-term success requires addressing potential risks through strategic planning and contingency measures.

Engaging with regulatory bodies is crucial to navigate the regulatory landscape for agrivoltaics systems, facilitating deployment across farms. Pilot projects in various regions will demonstrate the technology's benefits, refine the business model with real-world data, and establish proof of concept for customers and investors. Building partnerships with technology providers, universities, and government agencies will enhance technological capabilities and align AGRISOL with national agricultural goals.

Marketing and educational campaigns will raise awareness about agrivoltaics technology, targeting farmers, agricultural cooperatives, and agribusinesses. Continuous investment in research and development will keep AGRISOL competitive as new advancements emerge. Risk mitigation strategies include implementing testing protocols, securing funding through grants and partnerships, conducting outreach and education programs, building regulatory relationships, implementing targeted marketing campaigns, establishing a robust supply chain, and diversifying market presence. By addressing these risks strategically, AGRISOL aims for sustainable growth and operational success in Jordan.

I. Introduction

AGRISOL is an agricultural technology startup focused on developing transparent photovoltaic (PV) panels designed for use in greenhouses and open agricultural settings. This technology enables simultaneous crop cultivation and solar energy generation. By addressing the dual challenge of energy demand and agricultural productivity in Jordan, AGRISOL helps farms become solar power producers without compromising agricultural land use. The innovation is scalable, adaptable to various sizes of agricultural operations, from small greenhouses to large-scale commercial farms, with potential applications in urban farming environments.

2. Market Analysis

The global agrivoltaics market, which combines agriculture and solar power generation, is experiencing rapid growth. According to a report by Allied Market Research, the global agrivoltaics market was valued at \$3.6 billion in 2021 and is projected to reach \$9.3 billion by 2031, growing at a CAGR of 10.1% from 2022 to 2031. This growth is driven by the increasing demand for renewable energy sources and the need for sustainable agricultural practices.

In Jordan, the agricultural sector faces significant challenges, including water scarcity and limited arable land. The integration of solar technology into agriculture offers a practical

solution to these issues. Jordan's high solar insolation levels make it an ideal location for solar energy projects. The Jordanian government has also been supportive of renewable energy initiatives, aiming to generate 50% of its energy from renewable sources by 2030.

AGRISOL's target market includes farmers, greenhouse operators, agricultural cooperatives, and urban gardeners in Jordan and other regions with similar environmental conditions. The addressable market is significant, given the widespread need for sustainable energy and efficient agricultural practices ¹.

On a global scale, the trend towards renewable energy and sustainability is promoting the adoption of agrivoltaics systems. Locally, there is an increasing interest in integrating technology into agriculture to enhance productivity and resource efficiency.

AGRISOL faces competition from traditional PV manufacturers, conventional greenhouse technologies, and other solar solutions for agriculture. However, the combination of transparent PV panels and agricultural applications offers a distinct advantage, positioning AGRISOL favorably in the competitive landscape.

I Business Model

AGRISOL will operate on a business-to-business (B2B) and business-to-consumer (B2C) model, offering a range of products and services designed to integrate solar energy generation with agricultural practices. The business model focuses on providing customizable transparent PV panels, installation services, maintenance, and subscription services for energy management and consultancy. AGRISOL will initially import transparent photovoltaic (PV) panels from leading manufacturers in China and Germany and may later partner with local companies like Philadelphia Solar in Jordan to ensure quality and availability.

The following streams will generate revenues for AGRISOL:

- **Sales of Transparent PV Panels:** AGRISOL will sell customizable transparent PV panels tailored to the specific needs of various agricultural operations, including greenhouses and open-field setups. Panels are offered in different sizes and specifications to cater to small family-owned farms as well as large commercial farms.
- **Installation and Maintenance Services:** Comprehensive installation and ongoing maintenance services are provided to ensure proper setup and integration of the PV panels with existing agricultural infrastructure. Services include system design, engineering, setup, and regular maintenance.
- **Subscription Services:** Subscription-based energy management and consultancy services are offered, providing ongoing support and optimization for agricultural operations. These services include real-time monitoring, data analysis, and automated adjustments to enhance energy efficiency.

The revenue projections for AGRISOL over five years demonstrate substantial growth across all product lines: PV panel sales, installation and maintenance services, and subscription services. Overall, AGRISOL's total revenue is projected to grow from JOD 114,500 in Year

¹ Energy strategy 2020 — 2030, The Jordan Times

1 to JOD 327,250 in Year 5. This growth is driven primarily by the increasing sales of PV panels, complemented by the steady rise in revenue from installation and maintenance services, as well as subscription services. The combination of these revenue streams positions AGRISOL for sustained growth in the agrivoltaics market.

Table 1: Revenue Projection

Description / Year	1	2	3	4	5
PV Panel Sales (unit)	1,000	1,500	2,000	2,500	3,000
Price / Unit PV Panel Sales (JOD)	100	100	100	100	100
Sub-total PV Panel Sales (JOD)	100,000	150,000	200,000	250,000	300,000
Installation and maintenance (unit)	200	250	300	300	350
Price / Unit Installation and maintenance (JOD)	35	35	35	35	35
Sub-total Installation and maintenance (JOD)	7,000	8,750	10,500	10,500	12,250
Subscription Services (unit)	75	100	120	140	150
Price / Unit Subscription Services (JOD)	100	100	100	100	100
Sub-total Subscription Services (JOD)	7,500	10,000	12,000	14,000	15,000
Total Revenues (JOD)	114,500	168,750	222,500	274,500	327,250

In Year 1, AGRISOL is projected to sell 1,000 PV panels, generating JOD 100,000 in revenue. This figure is expected to grow to 3,000 units by Year 5, with revenue increasing to JOD 300,000. PV panel sales contribute significantly to total revenue, accounting for approximately 87.3% in Year 1 and 91.6% by Year 5. Installation and maintenance services are projected to begin with 200 projects in Year 1, generating JOD 7,000. By Year 5, the number of projects is expected to rise to 350, with revenue increasing to JOD 12,250. Despite being a smaller portion of total revenue, these services provide a steady growth trajectory, contributing about 6.1% in Year 1 and 3.7% in Year 5. Subscription services start with 75 clients in Year 1, bringing in JOD 7,500. This number is projected to double to 150 clients by Year 5, with revenue reaching JOD 15,000. The contribution of subscription services to total revenue is relatively consistent, ranging from 6.5% in Year 1 to 4.6% in Year 5.

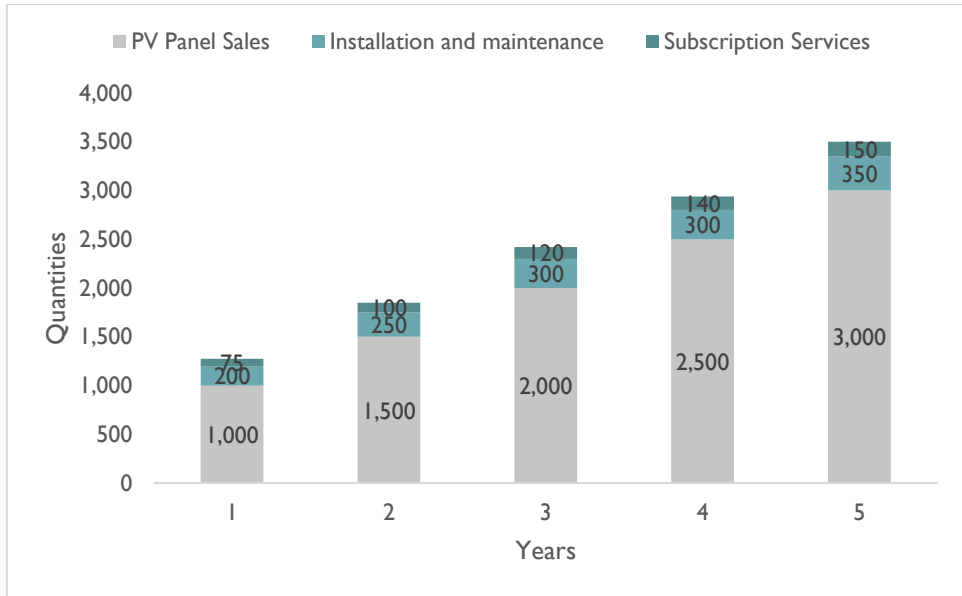


Figure 1: Product Mix by Quantity

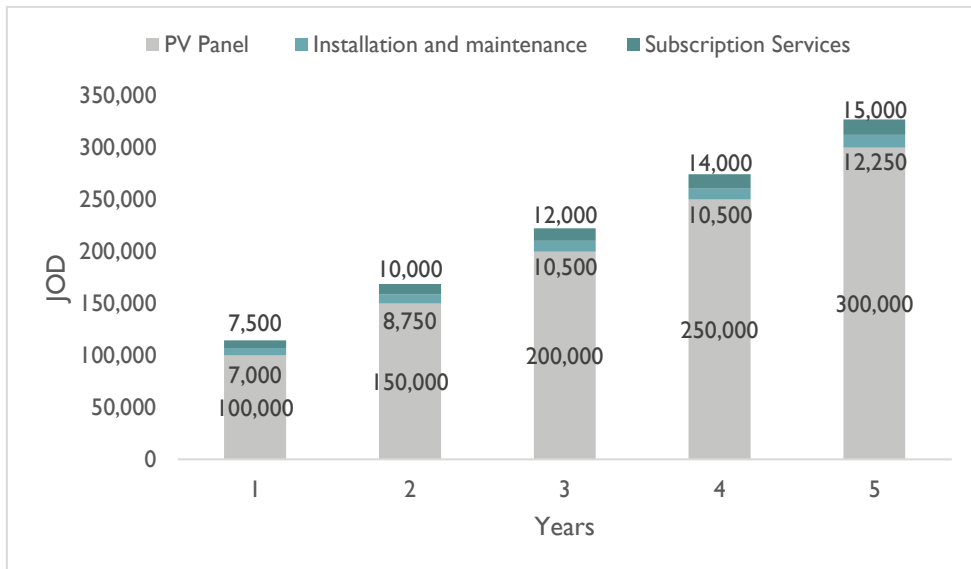


Figure 2: Product Mix by Revenue

3. Technical Analysis

The Cost of Goods Sold (COGS) for AGRISOL over the next five years provides a clear picture of the expenses associated with each product line: PV panel sales, installation and maintenance services, and subscription services.

For PV panel sales, the projected demand starts at 1,000 units in Year 1 and grows to 3,000 units by Year 5. The COGS per unit remains consistent at JOD 40, resulting in sub-total COGS increasing from JOD 40,000 in Year 1 to JOD 120,000 in Year 5. This steady unit cost

reflects consistent pricing strategies and procurement efficiencies. The substantial increase in total COGS for PV panels aligns with the anticipated growth in sales volume.

Installation and maintenance services begin with 200 projects in Year 1, increasing to 350 projects by Year 5. The COGS per unit is consistently at JOD 20, with sub-total COGS rising from JOD 4,000 in Year 1 to JOD 7,000 in Year 5. The consistent unit cost for installation and maintenance services ensures predictable expense management as the number of projects scales. The total COGS for this category shows steady growth, reflecting the increased demand and service delivery.

For subscription services, the projected demand starts with 75 units in Year 1 and grows to 150 units by Year 5. The COGS per unit remains steady at JOD 40, leading to sub-total COGS increasing from JOD 3,000 in Year 1 to JOD 6,000 in Year 5. Subscription services maintain a stable unit cost, which supports scalable growth in the client base. The increase in total COGS reflects the anticipated expansion of subscription service clients.

The total COGS for AGRISOL is projected to increase from JOD 47,000 in Year 1 to JOD 133,000 in Year 5. This rise is primarily driven by the growth in sales volume across all product lines. The consistent per-unit COGS for each category indicates stable cost structures, allowing for predictable financial planning and profitability analysis. The steady increase in total COGS aligns with the company’s expansion and increased market penetration, ensuring that AGRISOL can meet the growing demand while maintaining control over its production and service costs.

Table 2: Cost of Goods Sold – Five Year Projection

Description / Year	1	2	3	4	5
Projected Demand (Quantity) PV Panel Sales	1,000	1,500	2,000	2,500	3,000
COGS / Unit PV Panel Sales (JOD)	40	40	40	40	40
Sub-total PV Panel Sales (JOD)	40,000	60,000	80,000	100,000	120,000
Projected Demand (Quantity) Installation and maintenance	200	250	300	300	350
COGS / Unit Installation and maintenance (JOD)	20	20	20	20	20
Sub-total Installation and maintenance	4,000	5,000	6,000	6,000	7,000
Projected Demand (Quantity) Subscription Services (unit)	75	100	120	140	150
COGS / Unit Subscription Services (JOD)	40	40	40	40	40
Sub-total Subscription Services (JOD)	3,000	4,000	4,800	5,600	6,000
Total COGS (JOD)	47,000	69,000	90,800	111,600	133,000

AGRISOL's manpower plan outlines the staffing approach over five years. In Year 1, the team includes the Founder/CEO, a Solar Technology Engineer, and a technician, totaling three employees. This foundational team sets up the company's operations.

In Year 2, a Sales & Marketing Specialist is added, increasing the headcount to four. This addition supports sales growth and market expansion. Years 3 and 4 maintain this structure, focusing on operational stability.

By Year 4, an additional Technician is hired, bringing the total to five employees, addressing the increased demand for installation and maintenance services. The team remains stable in Year 5, reflecting a lean but effective workforce. This plan ensures AGRISOL has the necessary human resources to support its growth efficiently.

Table 3: Manpower recruitment plan – five-year projection

Title / Year	1	2	3	4	5
Founder/CEO	1	1	1	1	1
Solar Technology Engineer	1	1	1	1	1
Technician	1	1	1	2	2
Sales & Marketing Specialist	0	1	1	1	1
Total Cumulative HR	3	4	4	5	5

AGRISOL's manpower costs are projected to increase steadily over the five-year period. In Year 1, the total HR salaries amount to JOD 29,400, with additional social security and health insurance costs bringing the total HR cost to JOD 34,490. As the team expands, these costs rise correspondingly. In Year 2, the addition of a Sales & Marketing Specialist increases the total HR salaries to JOD 38,220, and the overall HR cost to JOD 44,866. By Year 3, salaries grow to JOD 40,131, with total HR costs reaching JOD 47,050. Year 4 sees a significant jump in costs due to the hiring of an additional Technician, resulting in total HR salaries of JOD 50,241 and overall HR costs of JOD 58,900. By Year 5, the total HR salaries are projected to be JOD 52,753, with total HR costs of JOD 61,770.

This planned increase in manpower costs reflects AGRISOL's growth and the need to support expanding operations while maintaining a balanced and effective workforce.

Table 4: Manpower total cost – five-year projection

Title / Year	1	2	3	4	5
Founder/CEO	14,000	14,700	15,435	16,207	17,017
Solar Technology Engineer	8,400	8,820	9,261	9,724	10,210
Technician	7,000	7,350	7,718	16,207	17,017
Sales & Marketing Specialist	-	7,350	7,718	8,103	8,509
Total HR Salaries (JOD)	29,400	38,220	40,131	50,241	52,753
Social Security Cost (JOD)	4,190	5,446	5,719	7,159	7,517
Health Insurance Cost (JOD)	900	1,200	1,200	1,500	1,500
Total HR Cost (JOD)	34,490	44,866	47,050	58,900	61,770

AGRISOL's operating expenditure (OpEx) are projected to increase steadily over the five-year period, reflecting the company's growth and expanded activities.

In Year 1, the total OpEx is JOD 43,460, with major expenses including rent (JOD 3,000), legal and accounting fees (JOD 800), and R&D (JOD 500). These foundational costs remain consistent, with electricity, water, stationery, maintenance, telecommunication, website charges, advertising, and cleaning material costs staying stable. By Year 2, total OpEx rises to JOD 54,875, primarily due to increased R&D costs and other minor adjustments. Year 3 sees a slight increase to JOD 57,057, maintaining similar cost structures with incremental growth. In Year 4, total OpEx increases significantly to JOD 70,422, driven by additional R&D investments and rising other costs. This trend continues into Year 5, with the total OpEx reaching JOD 73,799, reflecting continued investment in R&D and scaling operational activities. The operating expenses listed below include manpower costs as well.

Table 5: Operational Expenditures – five-year projection

Description / Year	1	2	3	4	5
Electricity	300	300	300	300	300
Water	30	30	30	30	30
Rent	3,000	3,000	3,000	3,000	3,000
Stationary	30	30	30	30	30
Maintenance	100	100	100	100	100
Telecommunication	100	100	100	100	100
Website Charges	10	10	10	10	10
Advertising	100	100	100	100	100
Cleaning Material & Consumables	50	50	50	50	50
Research & Development	500	500	500	800	1,000
Legal & Accounting Fees	800	800	600	600	600
Sub-total OpEx	39,510	49,886	51,870	64,020	67,090
Other Costs	3,951	4,989	5,187	6,402	6,709
Total OpEx (JOD)	43,460	54,875	57,057	70,422	73,799

AGRISOL's capital expenditure (CapEx) focus on crucial investments to support the company's technological and operational growth.

In Year 0, an initial investment of JOD 40,000 is allocated to establish the manufacturing line. This foundational expense is critical for setting up the production capabilities required for AGRISOL's transparent PV panels. Additionally, JOD 10,000 is allocated for research and development (R&D) in PV technology in Year 1. This investment aims to enhance product efficiency and innovation, ensuring AGRISOL remains competitive in the agrivoltaics market.

Further investments in the manufacturing line are planned for Year 2 and Year 4, with JOD 10,000 allocated each year. These periodic investments support the scaling of production capacity to meet increasing demand as AGRISOL expands its market presence.

Overall, the CapEx plan reflects AGRISOL's commitment to continuous improvement and capacity building, ensuring sustainable growth and technological advancement. These strategic investments are essential for maintaining product quality and meeting the anticipated rise in market demand.

Table 6: Capital Expenditures Cost – five-year projection

Description / Year	0	1	2	3	4	5
R&D for PV Technology	10,000					
Manufacturing line	40,000			10,000		10,000

4. Financial Analysis

6.1 Financial Study Assumptions

The feasibility study is based on the following key assumptions:

Discount Rate: The study employs a conservative discount rate of 14%, reflecting a cautious approach to valuation.

Financing Structure: The project is entirely financed by equity. This conservative approach avoids the financial leverage and thus underestimates project value, given the lower cost of debt compared to equity.

Terminal Value: The project assumes a zero-terminal value at the end of year five, aligning with the study's conservative outlook.

Cash Flow Projection: Cash flows beyond year five are excluded from the analysis, focusing on the initial project phase.

Tax Rate: The assumed tax rate of 0% complies with Jordan's income tax law.

Depreciation Rate: Capital expenditure (CapEx) is depreciated at an annual rate of 20%. Any deviation from this rate may impact projected profitability but not project feasibility, as depreciation is a non-cash expense.

Working Capital Assumptions

Operational liquidity requirements are guided by the following assumptions:

- **Cash Reserves:** The project will maintain cash equivalent to 30 days of projected annual operational expenses, ensuring robust liquidity management.
- **Accounts Receivable (A/R) Collection Period:** The average collection period for receivables is 45 days, reflecting expected credit sales conversion into cash.
- **Accounts Payable (A/P) Payment Period:** The average payment period for payables is 0 days, indicating the timeframe for settling supplier obligations.
- **Inventory Management:** Inventory levels will be maintained to cover an average of two months of sales quantity, ensuring optimal stock levels to meet demand efficiently.

Capital expenditures expected to be incurred in the first year were included as part of the initial costs of the project.

Provisions were made within the initial cost to cover any potential negative net free cash flow that may arise during the first five years of operation, if needed.

The annual salary structure comprises 14 payments per year instead of the conventional 12 payments.

6.2 Financial Study:

6.2.1 Projected Working Capital

This table shows that the net working capital needed for the project for the first year of operation is JOD 25,768, which has to increase steadily year over year to reach JOD 69,223 in the fifth year of operation. The steady increase in the working capital comes to cover the rapid increase in the project operations and mainly the increase in the projected revenues.

Table 7: Working capital projection (JOD)

Description/Year	1	2	3	4	5
Cash	3,622	4,573	4,755	5,869	6,150
Accounts Receivable (A/R)	14,313	21,094	27,813	34,313	40,906
Inventory	7,833	11,500	15,133	18,600	22,167
Accounts Payable (A/P)	-	-	-	-	-
Net Working Capital	25,768	37,167	47,701	58,781	69,223
Changing in Working Capital		11,399	10,534	11,080	10,442

6.2.2 Project Initial Cost

The project's initial cost is projected to be JOD 75,768, comprising JOD 50,000 as CapEx, and JOD 25,768 as net working capital.

Table 8: Initial Cost Summary (JOD)

Description/Year	JOD
CapEx	50,000
Net Working Capital	25,768
Total Initial Cost	75,768

6.2.3 Projected Income Statement

The projected income statement shows the project will generate a profit of JOD 14,040 in the first year of operation. Moreover, the net profit is expected to grow yearly, reaching JOD 106,451 in the fifth year.

Table 9: Projected Income Statement (JOD)

Description/Year	1	2	3	4	5
Total Revenues	114,500	168,750	222,500	274,500	327,250
COGS	47,000	69,000	90,800	111,600	133,000
Gross Profit	67,500	99,750	131,700	162,900	194,250
OpEx	43,460	54,875	57,057	70,422	73,799
Net Profit Before Tax and Depreciation	24,040	44,875	74,643	92,478	120,451
Depreciation	10,000	10,000	12,000	12,000	14,000
Net Profit Before Tax	14,040	34,875	62,643	80,478	106,451
Tax Expense	-	-	-	-	-
Net Profit	14,040	34,875	62,643	80,478	106,451

The project is expected to generate a positive net profit margin in the first year of operation of 12.3%. However, the net profit margin will continue to grow over the course of the study. In the fifth year of operations, the net profit margin is expected to reach 32.5%.

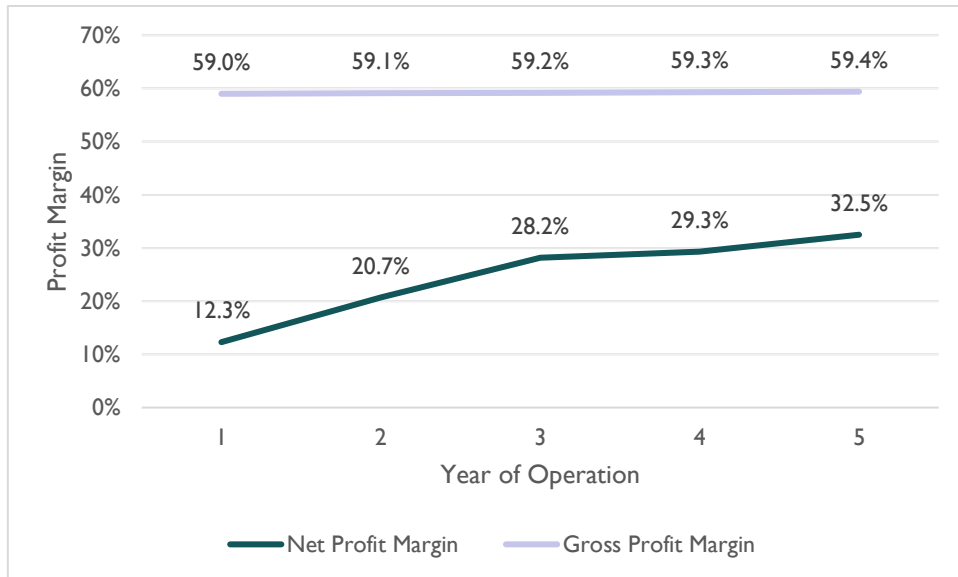


Figure 3: Gross vs Net Profit Margin

On the asset management side, the study shows that the return on investment will increase steadily from 18.5% in the first year of operation to 111.2% in the fifth year.

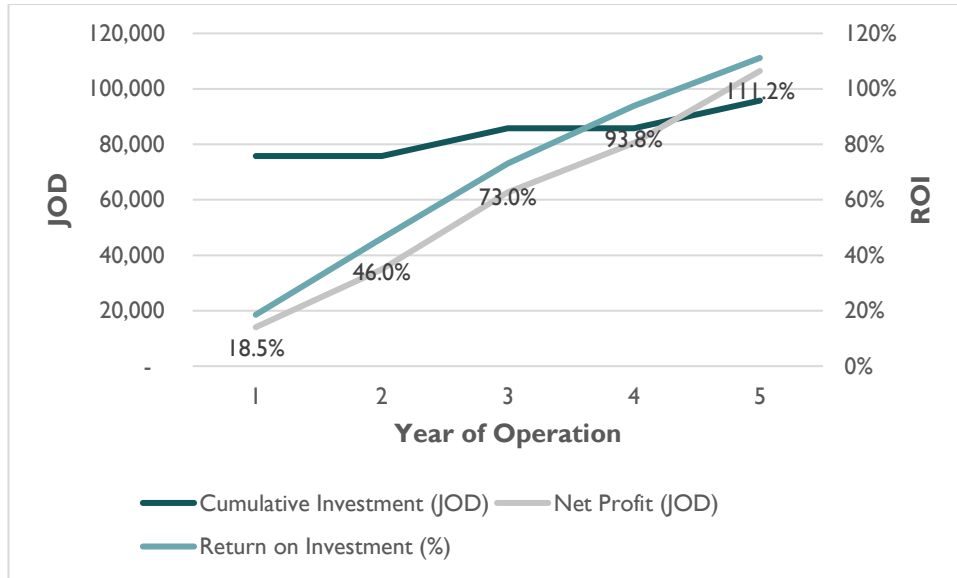


Figure 4: Return on Investment

6.2.4 Projected Free Cash Flow Statement

The table below demonstrates that the project will generate a positive free cash flow for the first year of operation, JOD 24,040. Moreover, due to the projected expansion in business operations, the project is expected to generate a steady positive net free cash flow growth in the following years. By the end of your five, the projected free cash flow will reach JOD 100,009.

Table 10: Free Cash Flow (FCF) Projection (JOD)

Description/Year	0	1	2	3	4	5
Cash-in Flow						
Net Profit		14,040	34,875	62,643	80,478	106,451
Depreciation		10,000	10,000	12,000	12,000	14,000
Injected Capital	75,768					
Total Cash-in Flow	75,768	24,040	44,875	74,643	92,478	120,451
Cash-out Flow						
Initial Cost	75,768		-	10,000		10,000
Changes in Working Capital			11,399	10,534	11,080	10,442
Total Cash-out Flow	75,768	-	11,399	20,534	11,080	20,442
Free Cash Flow(.DD)	-	24,040	33,476	54,109	81,397	100,009

Based on these results, the project's feasibility indicators demonstrate its viability, with a net present value of JOD 107,735.9 and a profitability index of 2.42. Moreover, the project's internal rate of return (IRR) is expected to be 50.28%.

Feasibility Indicators	
Net Present Value (NPV)	107,736
Profitability Index (PI)	2.42
Internal Rate of Return (IRR)	50.3%

6.3 Sensitivity Analysis

To assess the project's sensitivity to market conditions, a sensitivity analysis was conducted involving six unfavourable scenarios:

- Decrease projected revenues by 5% while keeping other variables constant.
- Decrease projected revenues by 10% while keeping other variables constant.
- Increase operational expenditure by 5% while keeping other variables constant.
- Increase operational expenditure by 10% while keeping other variables constant.
- Increase initial costs by 5% while keeping other variables constant.
- Increase initial costs by 10% while keeping other variables constant.

Table 11: Sensitivity analysis outcomes

Sensitivity Scenario	Net Present Value (NPV)	Profitability Index (PI)	Internal Rate of Return (IRR)
Original case	107,736	2.42	50.28%
Drop in revenues by 5%	72,088	1.95	39.36%
Drop in revenues by 10%	36,440	1.48	27.54%
Increase in OpEx by 5%	97,528	2.28	46.97%
Increase in OpEx by 10%	87,319	2.15	43.65%
Increase in initial cost by 5%	103,948	2.31	47.82%
Increase in initial cost by 10%	100,159	2.20	45.53%

The sensitivity analysis shows that the project is feasible and not sensitive to unfavourable market conditions. Under all the above-mentioned sensitivity scenarios, the project feasibility indicators show it is feasible and viable. The drop in revenues has a more dramatic impact on the project viability than the increase in the OpEx or initial cost by the same magnitude. It is recommended that investors check and further study the market to ensure that the projected revenues are achievable within the thresholds of the proposed initial cost and operational expenditures.

5. Integration with Other Sectors

AGRISOL's agrivoltaics solutions hold significant potential for integration with various sectors, enhancing its utility and marketability. This integration can drive innovation and efficiency in several ways:

Data gathered by AGRISOL can assist government agencies in monitoring agricultural practices, ensuring compliance with environmental regulations, and managing resources more efficiently. This data can be crucial for policy development, especially in areas related to water usage and crop rotation practices, which are critical in arid regions like Jordan.

The precise application of fertilizers and water, enabled by AGRISOL's technology, can significantly reduce runoff and pollution. Environmental agencies could use this data to track

the impact of farming on local ecosystems and develop better strategies for sustainable agriculture.

Universities and research institutions can utilize the detailed data provided by AGRISOL for various studies, such as the effects of climate change on crop yields, pest behavior, and crop disease patterns. This collaboration can also lead to the development of new agricultural technologies and practices.

By integrating with tech companies specializing in AI and data analytics, AGRISOL can enhance its data processing capabilities, providing even more detailed insights to farmers. This could include predictive analytics for crop yields and soil health monitoring, which would be groundbreaking in precision agriculture.

These integrations highlight the multifaceted applications of agrivoltaics technology in agriculture and beyond, presenting numerous opportunities for cross-sector collaboration that could amplify the benefits of AGRISOL's services across Jordan.

6. Entrepreneur Persona

The optimal entrepreneur for leading AGRISOL in Jordan should possess a unique blend of technical expertise in photovoltaic (PV) technology, a deep understanding of agricultural sciences, and strong entrepreneurial acumen. Ideally, this individual holds a degree in Energy Engineering, Agricultural Engineering, or a related field, with a focus on sustainability. Their background includes hands-on experience in designing, installing, and maintaining PV systems, particularly within agricultural settings, along with a solid grasp of crop management and environmental factors affecting agriculture. They excel in strategic planning, marketing, and financial management, with a proven ability to identify market opportunities and develop innovative solutions. This leader is adept at navigating regulatory frameworks, advocating for supportive policies, and building and managing cross-functional teams. Committed to sustainable development, they promote environmental conservation through effective technologies, embodying the vision to drive AGRISOL's mission of integrating renewable energy with sustainable agriculture.

7. Stakeholders

The success of AGRISOL in Jordan depends on engaging a diverse range of stakeholders, each playing a role in the ecosystem. Farmers and greenhouse operators, as primary users, will benefit from enhanced crop productivity and renewable energy generation. AGRISOL will educate them through workshops, training sessions, and pilot projects, and offer flexible financing plans.

Agricultural cooperatives can facilitate broader adoption and provide valuable feedback. AGRISOL can partner with these cooperatives for large-scale projects and offer group discounts. Engaging with government regulators and policymakers is essential for compliance and support. AGRISOL will build relationships with relevant authorities and advocate for favorable policies.

Investors provide necessary capital for scaling operations. AGRISOL will present a compelling business case and seek funding from venture capitalists and impact investors. Technology partners are vital for providing essential hardware and software. AGRISOL can collaborate with leading PV manufacturers and energy management firms to enhance its offerings.

Academic institutions and research bodies will conduct trials and validate technologies. AGRISOL can partner with universities for studies and educational programs. Environmental organizations can support AGRISOL’s mission through impact assessments and advocacy campaigns. By effectively engaging these stakeholders, AGRISOL can build support, foster partnerships, and ensure sustainable operations in Jordan.

9. Risk Assessment and Mitigation

Successfully deploying AGRISOL in Jordan entails navigating several risks:

Risk	Impact	Likelihood	Risk Mitigation Technique
Technological Malfunctions	High	Moderate	Implement rigorous testing protocols and maintain high-quality standards. Develop contingency plans for repairs.
High Initial Investment Costs	High	Moderate	Secure funding through grants, subsidies, and partnerships. Offer phased implementation to manage costs.
Technology Adoption Barriers	Moderate	Moderate	Conduct outreach and education programs to demonstrate benefits and provide training.
Regulatory Challenges	High	Moderate	Build strong relationships with regulatory authorities and stay informed about legislation changes. Advocate for supportive policies.
Market Adoption Rates	Moderate	Moderate	Implement targeted marketing campaigns and offer pilot projects to showcase benefits.

Competition	Moderate	Low	Establish a strong market presence early and continuously innovate. Highlight unique benefits.
Impact on Crop Growth Conditions	Moderate	Low	Conduct research and pilot projects to understand and mitigate any negative impacts on crops.
Supply Chain Disruptions	High	Low	Develop a robust supply chain with multiple suppliers and maintain an inventory buffer.
Economic and Political Instability	High	Low	Diversify market presence and monitor conditions closely to adjust strategies as needed.

Addressing potential risks proactively through strategic planning and contingency measures is crucial for AGRISOL's smooth operation and long-term sustainability. Engaging with regulatory bodies will be essential to navigate and influence the regulatory landscape for agrivoltaics systems, easing deployment across farms. Initiating pilot projects in various regions can showcase the technology's benefits, refine the business model with real-world data, and establish proof of concept for customers and investors. Building strategic partnerships with technology providers, universities, and government agencies will enhance technological capabilities and align AGRISOL with national agricultural goals.

Developing comprehensive marketing and educational campaigns is necessary to raise awareness about agrivoltaics technology, targeting farmers, agricultural cooperatives, and agribusinesses. Continuous investment in research and development will ensure that AGRISOL's technology offerings remain competitive amidst new advancements. To mitigate risks, AGRISOL should implement rigorous testing protocols, secure funding through grants and partnerships, conduct outreach and education programs, build strong relationships with regulatory authorities, implement targeted marketing campaigns, establish a robust supply chain, and diversify market presence. By addressing these risks strategically, AGRISOL can ensure sustainable growth and operational success in Jordan.

10. Conclusion

The feasibility study for AGRISOL in Jordan reveals a business opportunity driven by the potential for enhancements in agricultural productivity and sustainability through agrivoltaics technology. As Jordan faces unique challenges such as water scarcity and the need for efficient agricultural practices, AGRISOL's services are timely and relevant.

In conclusion, the project demonstrates promising feasibility indicators based on the assumptions formed during the development of this study. Nonetheless, entrepreneurs are

advised to conduct additional analysis on projected demand, initial costs, and operational expenses to mitigate potential risks associated with adverse market conditions that could jeopardize its validity.

Disclaimer

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Founders and investors considering this project are advised to conduct further analysis on projected adoption rates, development costs, and ongoing operational expenses. This additional scrutiny will help mitigate potential risks related to technology challenges, changes in regulations, market penetration, and competitive pressures.

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