



Islamic Republic of Iran

Ministry of Economic Affairs and Finance

General Department of Economic Affairs and Finance of North Khorasan

Fixed Dual Temperature Fridge In AbbasAbad Esfarayen Industrial Park

Center of Investment Services of North Khorasan

2021 April

Summary of Technical-Economical Pre-Feasibility Study

The name: Fixed Dual Temperature Fridge

Sector: Agricultural

Subsector: Services

ISIC Code: 6302612311

The owner of:

Organization of Economic Affairs and Finance (North Khorasan)



The ADDRESS:

Iran, North Khorasan, Esfarayen

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1 Abstract

1.1 Project Profile - Summary Sheet

Table 1: Summary Sheet

Project Introduction			
Project Title	Fixed Dual Temperature Fridge		
Sector	Agricultural		
Sub Sector	Services		
Location	Iran, North khorasan, Esfarayen		
The County	Esfarayen		
Products / Services	Warehousing and storage of food in a fixed dual temperature fridge		
Annual Nominal Capacity	3000	Ton's	
The Raw Material	This project is a service.		
Employment	15	Person	
Land Area	5,000	m ²	
Floor Area	2,700	m ²	
Energy and Water Consumption	Water Consumption	9,000	m ³ in year
	Electricity Consumption	345	KW
	Gas Consumption	1,300,000	m ³ in year
Fixed Capital	207,463	Million Rial	
Working Capital (The First Year)	2,525	Million Rial	
Payback Period	3.33	Year	
Net Present Value (NPV)	275,690	Million Rial	
Internal Rate of Return (IRR)	48	%	
Modified Internal Rate of Return (MIRR)	27	%	
Break Even Point	30	%	
The Exchange Rate (Dolar)	240,000	Rial	
Description	In this project, the market study of Warehousing and storage of food in a fixed dual temperature fridge are examined.		

Table 2: Legal Authorizations

Licensure Status	
Descriptions	Issuance Status
Principal Agreement (Establishment licensure)	☒
Land Allocation	☒
Environmental Inquiry	☒
Possibility of Water Supply	☒
Possibility of Electricity Supply	☒
Possibility of Electricity Supply	☒
Possibility of Gas Supply	☒

Table 3: Total Investment

Descriptions	Local Currency Required			Foreign Currency Required (Million Euro)	Total (Million Euro)
	(Million Rial)	Rate	Equivalent in (Million Euro)		
Fixed Capital	207,463.16	240,000	0.86	0.86	0.86
Working Capital	2,524.9		0.01	0.01	0.01
Total Investment	209,988.06		0.87	0.87	0.87

- Value of foreign equipment / machinery: 0Million Euro
- Value of local equipment / machinery: 0.29 Million Euro
- Net present value (NPV): 1.15 Million Euro in 15 years
- Internal Rate of Return (IRR) (for 10 years): 48%
- Payback period:3.33 years

Table 4: General Information

Company Profile	
Project Type	Establishment <input checked="" type="checkbox"/>
Company Name	North Khorasan Organization of Agriculture Jihad
Contact Person (Name and Position)	Mr Rezvan Nikbakht
Email	et.1383@yahoo.com
Mobile	+989379094738
Tel	+9858-32257990
Website	http://portal.nkj.ir
Address	North Khorasan Province, Bojnurd, Chehelodometri Kamarbandi Blvd, North Khorasan Organization of Agriculture Jihad
Company's Legal Structure	Government <input checked="" type="checkbox"/>

2 Project Location

2.1 Province: North khorasan

2.2 The County: Esfarayen

Esfarayen is a city and capital of Esfarayen County, North Khorasan Province in Iran. This project will be construct in part 701 with coordinates (547800,4081619) in AbbasAbad Esfarayen Industrial Park. Location of project is shown in Figure 1.



Figure 1: Location of Proposed Land in AbbasAbad Esfarayen Industrial Park

2.3 The Project: Fixed Dual Temperature Fridge

2.4 Access to the Infrastructures

Table 5: Access to Infrastructures

No.	Needed Infrastructures	Distance to the Project	The Supply Infrastructures
1	Water	0	is provided
2	Electricity	0	is provided
3	Gas	0	is provided
4	Telecommunications	0	is provided
5	High way	<1 km	is provided
6	Sub way	0	is provided
7	Airport	93	is provided
8	Amirabad Port (Behshahr)	507	is provided
9	Bandar Abbas Port	1,399	is provided
10	Rail way station of Joveyn	75	is provided
11	Rail way station of Jajarm	138	is provided

3 Technical Specifications of Plan

3.1 Product

Table 6: Project Specifications Based on ISIC Code

The Project	ISIC Code	Customs Tariff	Environmental Category
Warehousing and Storage of Food in a Fixed Dual Temperature Fridge	6302612311	Service	1

In this project, the market study of Warehousing and storage of food in a fixed dual temperature fridge are examined.

Today, with the expansion of transportation and new methods of storage of products, various types of food and fruits have been made available to the people so that after a long time since their production, they still retain their freshness. Looking around, it can be seen that most of these materials are produced in distant lands or other seasons of the year. There are several ways to store food, but one of the most convenient and widely used is to store food by refrigerating it. Foodstuffs stored in refrigerators are classified into two main categories: above zero including (fruits, vegetables), which are kept short-lived foods at temperatures above freezing, and below zero including (fresh meat) which are stored frozen.

According to studies on refrigeration products, the capacity of dual-circuit refrigerators is on the rise by 2,025; And from 2,020 to 2,023, about 120,000 tons can be added to the country's capacity. Now, if we assume that factories with physical progress (above 75%) reach production; The country's demand shortage will be around 100,000 tons.

It should be noted that the capacity of the factory is 3,000 tons, so it can be claimed that the capacity of the refrigerator is used without concern. Also, in North Khorasan province, there are three active two-circuit cold stores (2 units in Bojnourd and one unit in Shirvan), with a capacity of 21,400 tons and there is no two-circuit cold store under construction in this province, and there is no cold store in Esfarayen city. According to the Jihad and Agriculture Organization of North Khorasan Province, there is a need for a capacity of 50,000 tons in the near future.

According to studies on the demand of two-circuit cold stores the need to build this type of cold storage from 2,021 to 2,025 will have an increasing trend that reassures new investors.

Undoubtedly, the most important reasons for justifying a project are based on its economic considerations. Gaining a suitable share of the domestic or foreign market, expanding the target market, and having appropriate financial and economic indicators (NPVR, IRR), and so on are among the most important goals of an economic enterprise to create or develop an industrial plan. In addition, the national and macroeconomic aspects of the project should be considered.

Also, the study of the effect of project implementation on social and cultural indicators at the national and regional levels such as unemployment, labor migration, cultural effects, and finally the political considerations of the feasibility study, both nationally and internationally, can justify the necessity of implementing a project. Getting out of dependence on the outside, increasing domestic production, etc. can be studied and analyzed in this section.

3.2 Project's Requirements

The growth and development of the world's industries are largely due to competition between industrial units. In this regard, each industrial unit by increasing the quality of its products, tries to gain more market share and this trend over time has improved the quality of products and as a result the quality growth of industrial communities. Quality control is necessary to determine the accuracy of the production operation, according to the technical specifications specified for the product. This operation prevents the loss of capital while reducing the production of defective products and reduces the cost of the product.

In general, quality control objectives can be summarized as follows:

- Maintaining the set standards
- Detection and improvement of deviations in the production process
- Identify and improve products outside the standard

3.3 Space and Infrastructure Required

Table 7: Land Purchase Costs (Million Rial)

Specifications	Area (m^2)	Price per m^2	Cost		
			Paid Cost	Needed Fund	Total
A piece of land in Esfarayen	5,000	0.3	0	0	1,500

Table 8: Site Preparation and Development Costs (Million Rial)

Description	Working Capacity	Unit	Unit Price	Paid Cost	Needed Fund	Total
Excavation	2,222	cm	0.3	0	0	666.6
Wall Construction and door	750	Sm	9	0	0	6,750
(5% of the amount of land)					0	
Green space and Lighting (1% of the amount of land)	250	Sm	7	0	0	1,750
Total				0		9,566.6

Table 9: Civil Works, Structures and Buildings Costs (Million Rial)

Description	Area (m^2)	Unit Price	Paid Cost	Needed Fund	Total
Production Hall (Cold store)	2,010	25	0	50,250	50,250
Loaders in front of the halls	250	25	0	6,250	6,250
Facilities, and engines room	130	30	0	3,900	3,900
Office and welfare building	150	45	0	6,750	6,750
Guardroom, and freight car scale	40	45	0	1,800	1,800
freight car scale foundation	120	25	0	3,000	3,000
Total			0	71,950	71,950

Table 10: Infrastructures

No	Description	Unit	Annual Consumption	Unit Cost (Rial)	Total (Million Rial)
1	Water consumption	m^3	9,000	7,000	63
2	Electricity consumption	Kw	1,300,000	1,100	1,430
3	Gas consumption	m^3	18,000	1,200	21.6
4	Gasoline	$Litr$	30,000	3,000	92
Total					1,679.6

3.3.1 Equipment and Machinery

Table 11: Plant Machinery and Equipment Costs (Million Rial)

Description	Unit Cost	Costs Required				Total
		Local Costs	Costs of Currency		Cost to Complete	
			Rate	(Million Euro)		
compressor, Screw unit- HIESTAGE	8,100	16,200	240,000	0.06	0	16,200
LOWESTAGE (30/+36^C)	8,100	8,100		0.03	0	8,100
Evaporator with 2 fans (63 cm)	730	5,840		0.02	0	5,840
Evaporator with 4 fans (63 cm)	750	9,000		0.03	0	9,000
evaporative condenser	4,100	4,100		0.01	0	4,100
cold store circuit, and valves	86	2,064		0.01	0	2,064
Electrical panel	250	3,000		0.01	0	3,000
Sandwich panel (10 cm double-sided galvanized sheet)	2.35	14,184.6		0.059	0	14,184.6
Separator tank (-10^C)	1,420	1,420		0	0	1,420
Separator tank (-30^C)	430	430		0	0	430
Corridor evaporator (twin)	350	700		0	0	700
Thermo-siphon tank	350	350		0	0	350
Receiver tank	720	720		0	0	720
Sliding door (10 cm with a height of 207 and a width of 190 cm)	31	186		0	0	186
Hinged door (10 cm)	15.5	62		0	0	62
Pallet box	2	2,880	0.01	0	2,880	

Description	Unit Cost	Costs Required				Total
		Local Costs	Costs of Currency		Cost to Complete	
			Rate	(Million Euro)		
Oil-receiver tank	120	240		0	0	240
Total cost of machinery		69,476.6		0.29	0	69,476.6

The exchange rate is: 1 € = 240,000 Rial

3.3.2 Raw material and intermediate components

Table 12: Raw Material and Intermediate Components (Million Rial)

Description	Unit	Total Consumption of the Raw Material	Price per Unit of Raw Material	Annual Cost of Providing Material
Raw material & Packaging	ton	-	-	190
Salary	Rial	-	-	1,860
Energy costs (fuel, electricity and water)	L/KW/CM	-	-	1,679.6
Repair and maintenance	Rial	-	-	9,718.8
Total				13,448.4

3.3.3 Management and Human Resources

Table 13: Salary of Administrative Staff (Million Rial)

No	Position	Number of Shifts	Personnel per Shift (No.)	Total Staff (People)	Monthly Salary (per Person)	Annual Salary
1	manpower (in Administrative sector)	-	-	5	78	4,680
2	manpower (in Production sector)	-	-	10	54	6,480
Total				15		11,160

4 Market Study and Competition

4.1 Examining Supply and Demand Trends

The amount of fixed dual temperature fridge capacity based on production licenses (according to the information of the ministry of industry, mine and trade) from 2015 to 2020 is as follows.

Table 14: The Amount of Fixed Dual Temperature Fridge Capacity

Year	Nominal Capacity (Ton)
2015	1,578,573
2016	1,767,499
2017	1,854,691
2018	2,026,799
2019	2,139,033
2020	2,184,718

The real amount of fixed dual temperature fridge capacity of active units in 2015 up to 2020 is shown in Table 15.

Table 15: The Real Production Capacity of Active Units in 2015 up to 2020

Year	Nominal Capacity (Tons)
2015	455,508
2016	510,024
2017	535,184
2018	584,847
2019	617,233
2020	630,416

The following chart shows the prediction of production according to the Table 15 based on linear regression.

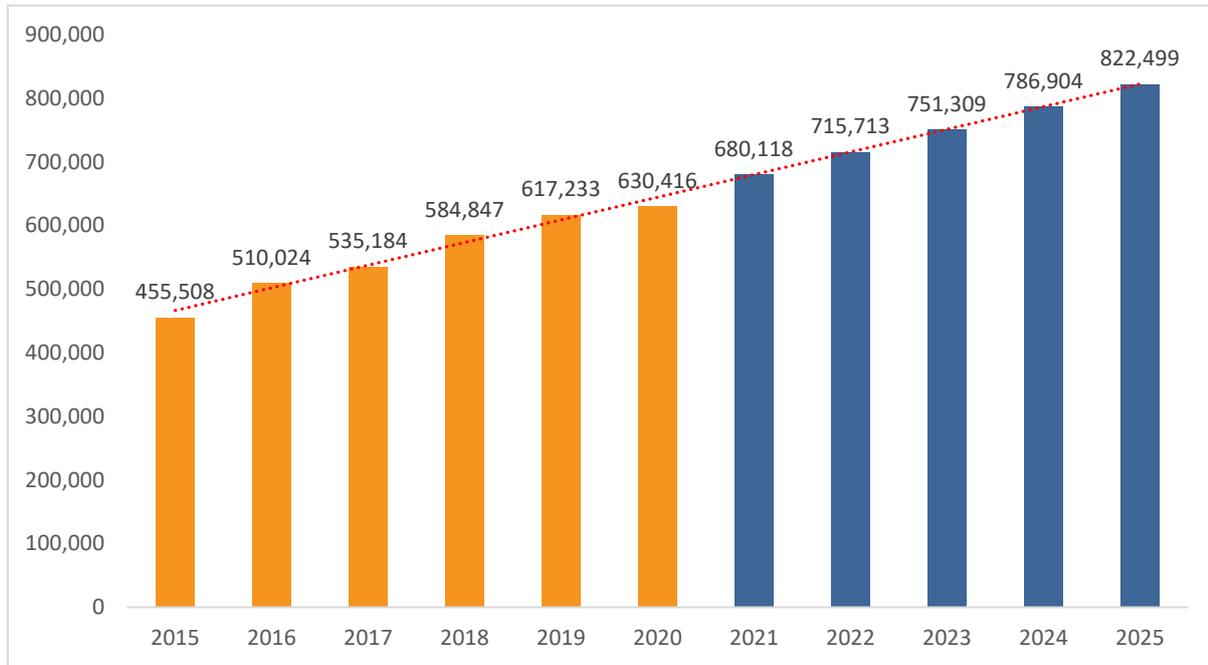


Figure 2: The Prediction of Production

As the Figure 2Error! Reference source not found. shows, the amount of production is increasing. Considering that this factory is a service, it has no customs tariff, so import and export analysis is removed. In the Table 16, the information of the units that have obtained license is presented based on the amount of progress.

Table 16: The Information of The Units that have Obtained License

Progress Percent	Capacity (Tons)
0% - 25%	305,800
25% - 50%	61,500
50% - 75%	39,000
75% - 100%	18,150

5 Financial Projection

5.1 The Cost Estimate

Table 17: Total Investment (Million Rial)

No.	Subject	Cost
1	Fixed Capital	207,463.16
2	Working Capital	2,524.9
Total Investment		209,988.06

Table 18: Fixed Capital (Million Rial)

Subject	Paid Cost	Cost Required			Total cost	
		Local Cost	Foreign Exchange Cost			Needed Fund
			Rate	(€)		
Land Purchase	0	1,500	240,000	0	0	1,500
Landscaping	0	9,566.6		0.04	0	9,566.6
Building	0	71,950		0.3	0	71,950
Equipment and Machinery	0	69,476.6		0.29	0	69,476.6
Laboratory and Workshop Supplies and Equipment	0	5,350		0.02	0	5,350
Facilities	0	11,165		0.04	0	11,165
Transportation	0	18,025		0.07	0	18,025
Office and Services Equipment	0	530		0	0	530
Pre-Operation Costs	0	1,039.68		0	0	1,039.68
Unforeseen (10% Of The Above Items)	0	18,860.28		0.07	0	18,860.28
Total Fixed investment	0	207,463.16			0.86	0

Table 19: Working Capital (Million Rial)

Subject	Day	Total
Packaging material (2 months raw materials and packaging)	60	190
Salary (2months salary)	60	1,860
Imprest fund (15 days of water, electricity, fuel and repair costs)	15	474.9
Total		2,524.9

Table 20: Fixed and Variable Costs

No.	Production Cost	Fixed Cost		Variable Cost	
		%	Cost	%	Cost
1	Raw material	0	0	100	1,140
2	Energy & utility	20	336	80	1,343
3	Repair & Maintenance	20	1,944	80	7,775
4	Production salary	70	7,812	30	3,348
5	Depreciation	100	18,040	0	0
Total production costs			28,131		13,606

5.2 Break-Even Analysis

Table 21: Break-even Analysis

Period	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Break-even ratio (%)	29.80	28.06	26.49	25.05	23.66	20.34	19.47	18.67	17.94	17.28

5.3 Sensitivity Analysis of IRR

Table 22: Sensitivity Analysis of IRR

Variation (%)	Sales Revenue	Increase in Fixed Assets	Operating Costs
-20.00%	36.71%	58.08%	50.08%
-16.00%	38.94%	55.62%	49.60%
-12.00%	41.15%	53.38%	49.13%
-8.00%	43.34%	51.33%	48.65%
-4.00%	45.53%	49.44%	48.18%
0.00%	47.70%	47.70%	47.70%
4.00%	49.87%	46.09%	47.22%
8.00%	52.03%	44.59%	46.75%
12.00%	54.18%	43.19%	46.27%
16.00%	56.33%	41.88%	45.79%
20.00%	58.47%	40.66%	45.31%

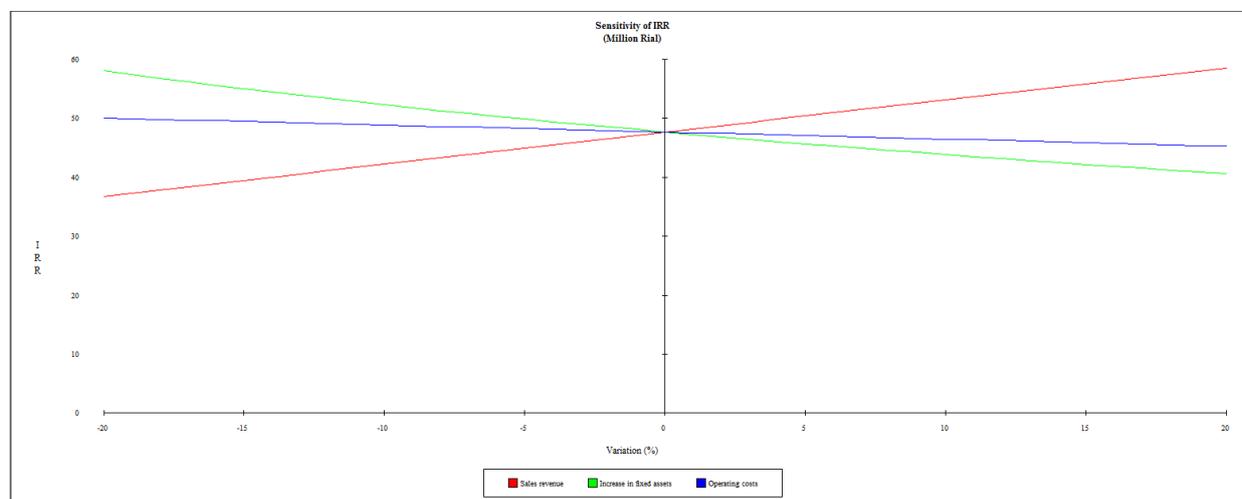


Figure 3: Sensitivity Analysis of IRR

6 Duration of Project Operation

The time of doing early stages and completing its process is about 17 months.

Table 23: Action Plan and Implementaion Schedule

Description	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Land Purchase	█																								
Constructing Buildings	█	█	█	█	█	█	█	█	█																
Execution of Facilities							█	█	█	█															
Order, Purchase of Machinery										█	█	█	█	█											
Landscaping										█	█	█	█	█	█										
Machinery Strat-up and Trial Production															█	█	█								

7 Incentives, Features And Advantages of Project

North Khorasan Province is a province located in northeastern Iran. Bojnord is the capital of the province. This province contains many historical and natural attractions, such as mineral water springs, small lakes, recreational areas, caves and protected regions, and various hiking areas. Advantages of the agriculture of this province involves favorable and diverse climatic conditions and other parameters affecting growth.