



#### 10. Project Status:

- Feasibility study available? Yes  No
- Required land provided? Yes  No
- Legal permissions (establishment license, environment, etc) taken? Yes  No
- Partnership agreement concluded with local/foreign investor? Yes  No
- Financing agreement concluded? Yes  No
- Agreement with local / foreign contractor(s) concluded? Yes  No
- Infrastructural utilities (electricity, water supply, telecommunication, fuel, road, etc) procured? Yes  No
- List of know-how, machinery, equipment, as well as seller / builder companies defined? Yes  No
- Purchase agreement for machinery, equipment and technology concluded? Yes  No

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#### Financial Structure

##### 11. Finance

Description	Local Currency Required			Required Foreign Currency (Thousand Dollar)	Total in Thousand Dollar
	Million Rials	Rate	Equivalent in Thousand Dollar		
Fix Capital	44,229	87000 Rials for each Dollar	508	0	508
Working Capital	5,431		13	0	13
<b>Total Investment</b>	<b>45,402</b>		<b>521</b>	<b>0</b>	<b>521</b>

- Value of local equipment/machinery: 44 thousand dollars
- Value of foreign equipment/machinery: ..... thousand dollars
- Value of foreign technology: ..... thousand dollars
- Value of local technology: ..... Million dollars
- Net Present Value (NPV): **45,422** Million Rials for 10 Year, discount rate: 20%
- Internal Rate of Return (IRR): **39,33%**
- Payback Period (PP): **50%**

#### General Information

12. Project Type: Establishment  Expansion and completion

##### 13. Company Profile:

- Name (legal /natural persons):
- Current activity of company:
- Address:

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-Tel: Fax:  
-E-mail: Web site:  
-Legal structure of company: private sector  public sector  other

*Please attach follow documents if available*

- Pre-feasibility study
- Feasibility study
- Legal permissions (establishment license, foreign currency quota, environment, etc)

## **Plan name: Manufacture of radiant heater**

### **Product introduction**

The aim of this plan is establishment of production factory of radiant heaters to use in aviculture and green houses in Lorestan province.

Product ISIC Code is 2919512453 from construction group of non-categorized machinery and equipment group in somewhere else (29) and subgroups of construction of machinery with general application (2919), all kinds of pleasant ventilator (2919312301), industrial heating system (2919412452).

Radiant heater is imported and exported under the control of subsection of tariff 8514, customs regulations called electrical, industrial or laboratory furnace and ovens (also those which operate by inducing or losing dielectric), other industrial or laboratory systems for processing materials with heat by induction or dielectric loss, are imported or exported by this sub tariff, 85141090.

Entry requirements of the products with the code of 85141090 are having permission from the Ministry of Commerce and the Ministry of Industry, Mine and Trade and paying 10% of importing salary in year of 2018 (customs 4% and commercial interest 6%).

### **Introduction of product applications**

Suppling the required heat for aviculture and greenhouses saloons is one of the application of regarded product.

### **Proposed places for plan**

According to benefits of establishment in industrial estates and areas, industrial estates of Lorestan province are suggested for conducting the project.

## Raw ,auxiliary,Consuming materials

Main pieces of radiant heaters include torch, reflector, fire pipes, electric fan that task of each one is as follows:

- Torch creates flame with pre mix of fuel and air, and by help of a fan, guides it to inside the pipes.
- Radiant pipes: that heat of combustion is guided in form of infrared waves to transfer the heat.
- Reflector: for reflection of heating from pipes to downward.
- Electric fan: it guides heat from torch to pipes.

The torch used in radiant heater is a special one that unfortunately some of its main pieces such as electric tap, air pressure security sensor, electric board and so on, are not produced in Iran and they must be purchased from foreign companies representations, and finally must be assembled inside the factory.

To manufacture electric fan, the electro- motor of the fan must be purchased and assembled inside the factory.

All belongings including chain, press hose, carabin, stabilizers of gas are purchased and assembled inside the factory.

Radiant pipes are purchased in eighty 6-meter branches and steel sheets with alloy 304 are purchased for manufacturing reflectors.

Since desired heater has been designed for aviculture and greenhouses saloons and temperature changes are so important in these places, so one thermostat is inserted beside this system which is purchased separately.

### Raw materials price

No	Raw materials	Unit	Consumption rate per year	Spoilage	Sum of raw and consumin g materials	Unit price	Annual cost (m/r)
1	electric faucet	number	1,000	0	1,000	3,800,000	3,800
2	security pressure sensor	number	1,000	0	1,000	300,000	300
3	steel sheet (reflector)	sheet	70	0	70	3,500,000	245
4	electromotor	number	1,000	0	1,000	3,600,000	3,600
5	main pipe	number	1,000	0	1,000	81,250	81

No	Raw materials	Unit	Consumption rate per year	Spoilage	Sum of raw and consumin g materials	Unit price	Annual cost (m/r)
6	electronic board	number	1,000	0	1,000	4,000,000	4,000
7	thermostat	number	1,000	0	1,000	800,000	800
8	accessories (chain, press hose, carabin, gas stabilizer)	complex	1,000	0	1,000	1,500,000	1,500
<b>9</b>	<b>Total</b>	-	-	<b>0</b>	-	<b>17,581,250</b>	<b>14,326</b>

### Sales plan

Sales price just outside of the factory is as follows. Regarding local needs and little share of production of factory from total production of the country, it is supposed that manufactured goods are marketable in the country.

#### Sales plan

Description	First year	Second year	Third year	Forth year	Fifth year
<b>Production percent</b>	<b>70</b>	<b>80%</b>	<b>90%</b>	<b>90%</b>	<b>90%</b>
<b>radiant heater (capacity/ number)</b>	<b>700</b>	<b>800</b>		<b>900</b>	<b>900</b>
<b>radiant heater (sale/ m.r)</b>	<b>38500</b>	<b>4400</b>	<b>49500</b>	<b>49500</b>	<b>49500</b>

### Annual nominal and practical capacities

Annual production capacity of this unit, based on 300 working days, is planned 1000 sets in year. In terms of number of working shifts, it is necessary to explain that in regard to production process of radiant heater, 2 shifts are required for machinery.

Practical capacity of this plan, regarding the unpredicted factors of stop working and also repair and maintenance, is considered 900 sets with 90% efficiency of nominal capacity.

## Production method and desired technology

One radiant heater is composed of 4 main sections that description of each section is as follows:

Combustion system ( special gas-burner torch): In this torch, gas and air are combined with stoichiometry ratio (full combustion) and combustion is occurred by a spark and the resulted flame is spread in radiator pipe. Also, the flame resulting of combustion can be extended to 5 meters in radiator pipe. Required air for combustion regarding the amount of ventilation of space can be either supplied from inside space or outside air. Three main pieces for torch include electric board (smart control), pressure security sensor and electric gas valve, these pieces for torch used in radiant heater are purchased from countries such as Italy and in factory are assembled inside a torch box which is purchased inside the country.

Fire pipe: Radiant energy of radiator systems are radiated from radiated and fire pipe surface. Temperature is about 420°C near the torch and is about 180°C in near sucker fan. Diameters of these pipes are generally 70 to 100 mm and their material depend on their positions which are made of steel or stainless steel with aluminum or titanium coating. Average of their lengths is about 5 meters that can be connected together by special clamps and radiator length can be increased about 15meters. Manufacturing companies use different methods for connecting pipes together.

Required pipes are purchased inside the country and in factory are cut by cutting machine in desired dimensions and are connected together by special clamps to cover required dimensions of aviculture and greenhouses which are about 13meters.

Reflector : Radiant energy of radiator is radiated with the help of one reflector to required space for heating. The material of these reflectors are so polished stainless steel or aluminum and their length is about 3 meters. To manufacture the reflector, press and bending machines are used to form the sheets in desired curve.

Sucker fan: Available electro- motor is purchased for electric fan an is assembled in factory.

## The plan investment costs

The fixed plan investment costs is estimated to be 44,229 million Rials and the working capital is estimated to be 1,173 million Rials.

**The plan investment costs**

Description	Required				Total (million rials)
	currency (dollar)	rial equivalent	rial (m.r)	required total	
Land	0	0	2,800	2,800	2,800
Landscaping	0	0	976	976	976
Building	0	0	28,840	28,840	28,840
Machinery and equipment	0	0	3,857	3,857	3,857
Installations	0	0	2,339	2,339	2,339

Description	Required				Total (million rials)
	currency (dollar)	rial equivalent	rial (m.r)	required total	
Laboratory equipment and supplies	0	0	12	12	12
Vehicles	0	0	600	600	600
Workshop equipment	0	0	91	91	91
Service and administrative equipment	0	0	952	952	952
Unexpected and miscellaneous	0	0	2,023	2,023	2,023
<b>Total fixed assets</b>	<b>0</b>	<b>0</b>	<b>42,490</b>	<b>42,490</b>	<b>42,490</b>
Pre-exploitation costs	0	0	1,740	1,740	1,740
<b>Total fixed investment costs</b>	<b>0</b>	<b>0</b>	<b>44,229</b>	<b>44,229</b>	<b>44,229</b>
Working capital	0	0	1,173	1,173	1,173
Other assets	0	0	0	0	0
<b>Total plan investment costs</b>	<b>0</b>	<b>0</b>	<b>45,402</b>	<b>45,402</b>	<b>45,402</b>

### The plan production costs

The annual production costs are estimated to be 28245,52 million Rials.

**Table 1. Production costs**

No	Description	Cost (million rials)	cost in practical capacity (million rials)
1	Raw, auxilary and packing materials	14326,25	12893,63
2	Production salary and wage	5887,60	5710,97
3	Water, electricity, fuel and communication	447,80	411,98
4	Insurance	77,19	77,19
5	Repair and maintenance	1209,99	1113,19
6	Marketing and ads	2750	2530,00
7	Production unpredicted and miscellaneous	438,98	403,86
8	Depreciation	3107,71	3107,71
<b>Total</b>	<b>-</b>	<b>26248,52</b>	<b>28245,52</b>

## Economic indices

Table 2. Economic indices

Description	Value-measurement scale
NPV (net present value)	45422 million rials
IRR(internal rate of return)	39,33%
PBP (period of return of capital)	2 years

Ministry of Economic Affairs and Finance  
Organization for Investment Economic and Technical Assistance of Iran  
(OIETAI)  
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