Project Title:

Presenting the technical, economic, financial and environmental justification report and the measurement and validation plan for the project of renovating and upgrading electric motors in energy-consuming industries using the legal capacity of article ۱۲ of the law on removing obstacles to competitive production and improving the country's financial system and related regulations

Department:	*Plan of "Transfer and development of knowledge and technology of high efficiency induction motors and drives"*	***Employer:***	*Niroo Research Institute*
Project/Program Manager:	*Zhaleh Mehdipour Dastjerdi*	***Executor:***	*Hasan Ebrahimi Rad*
Project Financial Code:	*PETPN10-5*	***Project Quality Code:***	۱۲۷۱۳۸
Type of Project/Program:	*Practical and developmental*	***Assistant:***	*Power generation*

Project Staff:

۱- Ashkan Nadimi, ۲- Ali Goldoust, ۳- Sohrab Amini Valashani, ٤- Hasan Ebrahimi Rad, ٥- Zhaleh Mehdipour Dastjerdi & ٦- Mehdi Hoseyni

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Keywords:

۱- Technical, economic, financial and environmental justification, ۲- Measurement and verification, ۳- Optimizing electric energy consumption, ٤- Renovation and upgrading, ٥- Electric motor, ٦- Energy consuming industries, ۷- Water cooler and ۸- Article ۱۲ of the law obstacles to competitive production and improvement of the country's financial system

Project Necessity:

The increase in electric energy consumption in the country, which has led to Exceeding the amount of electric energy consumption over the amount of electric energy production in the hot seasons of the year, has created many problems for electric energy consumers, regional power companies, and power plants. has done. On the one hand, the increase in power outages, especially in the tropical regions of the country, has caused an

increase in dissatisfaction at the level of the society, and on the other hand, the construction of new power plants in response to the increase in the amount of electrical energy consumption in the hot seasons of the year, from an economic point of view as well as from The environmental landscape is not justified.

In order to solve the aforementioned problem, reducing the consumption of electrical energy by using high-efficiency electrical equipment is a significant method for power companies and the government.

Project Goals:

The purpose of this project is to provide a plan to optimize the electric energy consumption of electric motors used in water coolers, using the legal capacity of article ۱۲ of the law on removing barriers to competitive production and improving the country's financial system. The implementation of this plan leads to the realization of the following goals.

- Saving electrical energy consumption
- Saving fossil fuel consumption
- Reducing the emission of greenhouse gases
- Participation of the private sector in the optimization of electric energy consumption
- Job creation

Abstract:

In this project, after collecting and reviewing the electric energy consumption statistics of electric motors used in water coolers, a plan to optimize electric energy consumption in this area, through the renovation and upgrading of ۲,۷ million electric motor devices used in water coolers, using the legal capacity Article ۱۲ of the Law on Removing Obstacles to Competitive Production and Improving the Country's Financial System is presented.

The assumptions and financial and economic indicators of the project are presented in the following tables.

Financial and economic assumptions of the plan

Row	Title	Value	Unit
۱	The value of each cubic meter of gas saved	۱۷	Cent dollar
۲	The amount of gas saved per kilowatt-hour of electricity saved at the point of consumption	۰,۳۲۵	Cubic meter
۳	Network loss rate	۱٤,٦٪	Percent
٤	Dollar exchange rate	۲۳۸۳٦۱	Rial
٥	Currency discount rate	۸٪	Percent
٦	Value added tax	۹٪	Percent
۷	The duration of resource allocation in article ۱۲ from the beginning of operation	۳	Year

Financial and economic indicators of the plan

Row	Title	Value	Unit
۱	The length of the evaluation period (equal to the length of the saving period)	۱۱	Year
۲	The amount of savings in the place of production	۱،۲۹۸,۰۹	Gigawatt-hours per year
۳	The amount of power reduction during the peak consumption period	٦۸۳	Megawatt

٤	Required fixed capital	٣١٧,٨	Million dollar
٥	The government's share of the repayment to the investor (article ١٢)	٣٤٪	Percent
٦	Ministry of Energy's share of advance payment/repayment to the investor	٣٣٪	Percent
٧	Share of people/industries from advance payment/repayment to investor	٣٣٪	Percent
٨	The return period for the investor	٣	Year
٩	The internal rate of return (IRR) of the project currency	١٦٦٪	Percent
١٠	The internal rate of return (IRR) of the project's currency for the government	Does not have	Percent
١١	The internal rate of return (IRR) of the project currency for the Ministry of Energy	١٤,٤٪	Percent
١٢	Net benefits from savings to the government	٥٨٨,٥	Million dollar
١٣	The reduction of greenhouse gas emissions	٨٢٤	Thousand tons per year

Steps and Methodologies:

The stages of the project are:

- Design studies

- Technical studies

- Measurement and validation (M&V)

- Financial and economic studies

Main Results (technical outputs, patents, papers, books, reports, etc.):

-Technical, economic, financial and environmental justification report and measurement and validation plan for the project of renovating and upgrading electric motors in energy-consuming industries using the legal capacity of article ١٢ of the law on removing obstacles to competitive production and improving the country's financial system and related regulations

- Draft plan of "Optimization of electric energy consumption in ٢،٧ million water coolers" to be presented in the Economic Council