hazards that might arise from ionizing radiation. The rapid development of measuring instruments and their wide availability, however, has brought with it new problems: one can see highly sophisticated instruments being used in many places where a simpler instrument would be sufficient, for example multichannel analyzers might be used where a single-channel analyzer would serve.

All things considered, radiation measuring instruments have given man the ability to characterize his environment at levels of precision that even a few years ago would have been considered impossible. For many elements, sensitivity has reached the level of parts per billion - very much smaller concentrations than have ever before been accessible to any measurements.

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ABOUT ELECTRIC POWER SAFETY IN THE XXI

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The electric power industry is a leading industry in the world.It is important not only in the economy of any industrialized country, but even for the underdeveloped countries of the world.Advantages of electric power are the following:light transmission over long distances, conversion into other kinds of energy.Featureof electricity is in its generation and consumption.It is a universal, technically and economically effective form of energy.

Power plants are always a danger. The degree of danger depends on thepower installation, pressure and coolant temperature, spin speed, electrical parameters (voltage, current), coolants, etc.

According to the Federal Law dated 21.07.1997 № 116-FZ "On industrial safety" in the category of dangerous industrial facilities there is includedpower equipment installed in the computer rooms of thermal power plants (TPP). Ensuring the safety of hydroelectric power plants (HPP) is provided by the Federal Law dated 21.07.1997 № 117-FZ "Hydraulic structuressafety."

Changes of electric power in the Russian Federation are resulted in a delay of the technical re-equipment of electric power and in the increase in the share of power with

a high wear degree.In these circumstances, the technical condition of electrical equipment has become important for the electric power safety.

In the Russian electric power, the safe operation is the possibility of operating in the lifetime excess.Priority Safety Challenge is an exception of sudden destruction of high-load structural equipment elements. Usually factors causing such destruction are manufacturing defects andequipment breach.

The main provisions of the electric power state, which are relevant now, are as follows:

- Sustainable development of modern society is impossible without reliable supply of it with all kinds of energy: thermal, electrical, mechanical, intermediate;
- The main criterion for determining the possibility of power generation is the safe operation of power equipment, i.e. the exclusion of sudden destruction of its highly stressed components;
- These factors causing failure (crash) are usually fabrication defects and human factors;
- Accidents may result in termination of the consumers supply with electricity and heat, which leads to the emergence of new hazards associated with impaired functioning of the human community.

Energy production from primary resources (oil, gas, coal, nuclear fuel and others.) Is a consequence of the negative impact of production on the environment, life and health of the population.There is a need to consider the factors of ecological safety of these processes.

Today an important component in the safety of electric power is so called information security.For benefit and exclusion the human factor on the power plants are set up more and more computers.Computers must follow the work of each link on the plants. There is a danger of distant network attacks, the result of which violation may occur in the enterprise.

The next importantthing of the modern state of the Russian power sector is an objective reduction of reliability and safety of the RussianUnified Energy System, due to the emergence of new, independent market entities of thermal and electric energy.To concentrationprocedures with the market requirements of reliability and safety are required as uniform rules of market relations and the mandatory requirements for the electric power facilities and power receiving installations consumers.Thus, to ensure the safety and reliability of electric power at work in the new environment there is requiredto develop a new regulatory framework and the creation at the governmental level single point of taking responsibility for technical regulations in the electrical industry.

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THE SOLAR CHIMNEY

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Introduction

Nowadaysthere is a growing awareness that some alternative energy sources could have an important role to play in the electricity generation.However,only the solar energy represents totally nonpolluting inexhaustible energy resource that can be widely used in the future. There are lots of methods of applying the solar energy and the Solar Chimney is one of them [5].

Parts of the Solar Chimney

The Collector

Collector is a part of the solar chimneythat is used to produce hot air via green-house effect. It is usually 5-6 meters high and covers a very large area about thousands of m².Since glazing increases the mass of the roof, the glazed collectors must have powerfulframe[1].

• There is no limitation for the surface area. The larger the area, the more energy is generated by the chimney.

• There should be slightly increasing height towards the chimney in order to obtain minimum friction loss.

• Covering materials may be different, such as; glass or plastic film.The most efficient one is a glazed collector.It can convert up to 70% of irratiated solar energy into heat. Also, with proper maintenance, its life span can easily be 60 years or more.

Turbines

Turbinesare used to convert the obtained current of air to the mechanical energy.Turbines are placed horizontally in chimney and vertically in the collector.In order to obtain maximum energy from the warmed air,turbine blades should cover all the cross-sectional area of the chimney.To do this,one big turbine or a few small turbines should be used in the chimney [3].

The chimney

The most important part of the plant is the chimney. It acts as a thermal engine because there is nearly no friction loss in the chimney as it’s a pressurized tube.

• The longer the chimneys height is the more energy is produced from the chimney.

• The efficiency of the chimney doesn’t depend on the amount of the temperature rising, but it depends on the outside temperature.