



# Improving the general and ecological image of nuclear power

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## Abstract

The purpose of this publication is to familiarize a wide range of experts with effective ways to improve the image of nuclear power installations in Russia. The negative attitude towards such installations is explained not by the danger actually posed by them but by the insufficient effectiveness of the activities for the formation of public opinion and by the already formed implicit memory. There is a traditionally negative stereotype people have about increased dangers caused by nuclear power plants. It is suggested that passive information struggle between the advocates of and opponents to the evolution of nuclear power should be replaced by active efforts to destroy the negative stereotype existing in public consciousness. The objective of active image-making is to form people’s psychological attitude regarding the importance of nuclear power evolution as a life improving factor. Ways for the practical application of active image-making methods have been proposed. It is recommended to conduct an integrated analysis of the population’s mass frustrations and deprivations with respect to the moral, economic and environmental aspects of social life. A conclusion has been made on the necessity of the state’s participation in improving the image of nuclear power installations.

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**Keywords:** Nuclear power; Stereotype; Image; Implicit memory; Psychological frustration; Psychological deprivation; Active and passive image-making.

## Problem statement

Nuclear power is one of few industries in the Russian Federation that has not only avoided a decline over the two recent decades, but has been developing successfully. While continuing to fulfill its tasks inside the country, it was improving its competitiveness in the international market. One of the obstacles to the implementation of nuclear power projects is the absence of their adequate image. This issue requires increased attention for the further successful evolution of the industry. The problem became especially important after the Fukushima Daiichi NPP accident. Paradoxically, these tragic events have been actively used to discredit Russian nuclear power. Many publications include comparisons with the Chernobyl NPP accident [1–3]. Among other things, an artificially distorted background image is created in order to mitigate

the impression of the events in Japan. This dictates the need for systemic work to improve the image of Russian nuclear power and to develop innovative methods based on an interdisciplinary approach to problem solving.

The above goal is difficult to achieve also because of the *persistent* popular *stereotype* about the absolute danger posed by the evolution of nuclear power [4]. And this is taken as given. Practically no one wonders why exactly such stereotype has emerged. We shall try to look, without bias, at the problem which is “obvious” to many. We shall find out how exactly and when such “obviousness” was formed. Undoubtedly, the fear of a nuclear catastrophe inherited by people from the cold war times played a major role in this. There is a persistent association: a “nuclear power installation poses a risk, if not particularly of a nuclear explosion, but of at least radioactive contamination of the environment” [5,6]. This fear was actively used in many works of literature and films making them greatly popular. To a large extent, it was fuelled by the veil of real and fake secrecy around the operation of all nuclear power sites. Thus, for instance, most people have just an elementary understanding of the hydropower or heat power plant operation principles. On the contrary, those not working

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at NPPs have a very faint idea of it. All this *has contributed to the image of nuclear power installations having very little in common with reality.*

Nevertheless, an image is the notion of anything existing in people's minds. An image may be complete creating so a *general image of the object* or it may be formed with respect to only one of its aspects. For example, the *ecological image* of a nuclear power installation is the system of notions existing in the collective consciousness of society regarding the environmental safety of its operation.

The degree of the image conformity to the real object may vary greatly. But it is exactly this image that shapes the society's attitude to it. Even the safest of installations, having a negative image, will be viewed by population as posing a real danger. Therefore, an improvement in the population's attitude towards such installations requires their overall and ecological image to be improved.

### Image-making areas

As the activity for the target image shaping, *image-making* may be both passive and active [7]. *Passive image-making* consists in responses to the information circulating in the society. This is the position adhered to by most nuclear experts dealing with the public. Their efforts are mainly aimed at mitigating the society's negative attitude towards NPPs.

*Active image-making* requires target formation of collective consciousness. Its purpose is the creation of the desired image, not necessarily positive. It is not uncommon to witness the creation of a negative image as an effective tool of competitive struggle. This is fully applicable to nuclear power as well. For example, one can compare the attitude formed with respect to the accidents at the Chernobyl NPP in the USSR and at Fukushima Daiichi NPP in Japan [3,8,9]. The former was covered in the world media as negatively as possible, while the latter, on the contrary, was given a tint of a heroic struggle and a premonition of a rapid victory over the fatal turn of events. It was as if there were no guilty parties in the event of Fukushima Daiichi and there were only heroes capable to perform any impossible mission. Besides, there is an idea that, if the Fukushima accident cannot be classified as of the highest hazard (category VII on the INES scale), then it is absolutely necessary to assign retrospectively an even higher hazard category to the Chernobyl accident. Thus, the public image of an object is formed exactly based on the information disseminated by the media, while the conclusions made in more serious sources are perceived already after being interpreted in a tendentious manner.

However, let us turn back to active image-making, the purpose of which in our case is target formation of a positive public image of nuclear facilities. A natural question arises: Is it really possible to achieve this goal? To answer it, one *shall rethink in principle the key components of the existing image.* Its major features are the risk of a threat to life and the risk to the environment. Indeed, such risks undoubtedly exist as particular probabilities but let us compare their actual values against other activities having a fundamentally different im-

age. Thus, according to calculations, the probability of one's death in a traffic accident is  $1.9 \cdot 10^{-4}$  even for people living permanently in the NPP area, while the probability of dying as the result of the NPP operation (including a potential accident) is  $2 \cdot 10^{-8}$ , i.e. 10,000 times as low [10]. The contents of carcinogens and mutagens released into the air in cities with car exhausts and the dynamics of oncologic diseases and birth defects in children are not comparable with the number of similar cases caused by nuclear accidents. However, this is a point of concern only for limited expert communities. For the general population, motor vehicles are the essential component of normal life. A car's model and condition are some of the indicators of the owner's social status. A car creates a certain level of comfort. The operation of an NPP, specifically the cheap electricity it generates, contributes to comfortable conditions to no less extent. Still, people will be displeased by the production of a popular car model being stopped or its import banned, while many may vote for the closure of an NPP or will approve of such decision. One example: after the Fukushima accident, A. Merkel, the chancellor of the FRG, had her popularity grown greatly as the result of the populist promise to shut down all NPPs in the country.

### Methodology of active image-making

So what is the reason for such a disparate attitude of society towards the products of car making and nuclear power industries? In the image, particularly in the ecological image, this is the wrong understanding of the role nuclear power plays in the lives of ordinary people. What needs to be done to fundamentally change the overall and ecological images of nuclear power installations?

First of all, this requires switching from passive to active image-making. This is not the release of finely colored booklets or publication of formalized environmental policies on the NPP websites. A change in the mass conscience requires an in-depth analysis of people's actual needs. Statements that nuclear sites are introducing environmental management systems and undertake ecological audits do not have anything to do with people's real lives. In our case, efficient formation of a positive image is possible only through using the frustrations and deprivations prevailing in the society [11]. *Frustration* is the psychological state of tension, alarm and despair arising when a person encounters with insurmountable obstacles (real or imagined) on his or her way to significant goals [12]. *Deprivation* is the lack of satisfaction felt by an individual or a group about the conditions of life based on the disparity between expectations and opportunities. If not controlled, these processes inevitably lead to the destabilization of society. Contrarily, the enthusiasm of a large part of the USSR's population involved in the construction projects during the first several five-year plans was explained by the break of frustrations and deprivations. The people were building "a brighter future", unattainable earlier. And they felt they had the right to a "better life".

For the problem in question, it is *moral, economic and ecological frustrations and deprivations* that are of the most

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