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**ENERGY INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

NB/T 20580.5-2021

**Budget estimation norm of nuclear power plant construction
project works - Part 5: Electrical equipment installation
engineering for nuclear island**

核电厂建设工程概算定额 第5部分：核岛电气设备安装工程

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Foreword

This document was issued on 7 January 2021 by the National Energy Administration of the PRC and takes effect on 1 July 2021.

It is a NB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 01.040.27, Chinese classification F 02.

This document has been drafted in accordance with the rules given in GB/T 1.1-2020, Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents.

This document is Part 5 of NB/T 20580, Budget estimation norm of nuclear power plant construction project works. The following parts of NB/T 20580 have already been issued:

Part 1: Civil construction engineering for nuclear island;

Part 2: Mechanical equipment installation engineering for nuclear island;

Part 3: Piping installation engineering for nuclear island;

Part 4: Ventilation and air conditioning installation engineering for nuclear island;

Part 5: Electrical installation engineering for nuclear island;

Part 6: Instrumentation, control and communication installation engineering for nuclear island;

Part 7: Building engineering for conventional island;

Part 8: Thermal equipment installation engineering for conventional island;

Part 9: Electrical equipment installation engineering for conventional island.

This document was proposed by the Energy Industry Nuclear Power Standardization Technical Committee.

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Fascicle Explanation - 1 Scope

This norm specifies the norm for nuclear island electrical equipment installation engineering within the budget estimation norm of nuclear power plant construction project works.

This norm applies to the nuclear island works of new construction and expansion projects of pressurized water reactor nuclear power units, and to those sub-items with nuclear safety requirements in BOP works, such as the nuclear island radioactive liquid waste tank building, the conventional island radioactive liquid waste tank building, the auxiliary building for radioactive solid waste treatment, the solid waste interim storage, the radioactive machinery repair shop and the decontamination shop. Other reactor types and nuclear engineering works may use it for reference.

Fascicle Explanation - 2 General Explanation

1. This norm shall be implemented together with the Fee norm for nuclear island building and installation works of nuclear power plant construction projects and the Machine-shift fee norm for machinery of nuclear power plant construction projects.
2. The norm is the basis for preparing the budget estimate of preliminary design works; it is the reference basis for preparing tender control prices and tender quotations at the preliminary design stage; it is the basis for formulating investment control plans, for technical and economic analysis and comparison, and for controlling the construction drawing budget; it is also the basis for preparing budget estimate indexes.
3. The norm has been prepared, under normal natural conditions and environment, on the basis of a construction organization design rational for the construction stage, a rational allocation of construction machinery, rational parallel and cross operations being taken into account, as well as the relevant technical standards of pressurized water reactor nuclear

power plants, the construction and acceptance codes, the quality outline and safe operating procedures, and the requirements for civilized construction on site and for environmental protection.

4. The consumption of labour, materials and construction machinery in the norm reflects the technical level and the organizational level of nuclear power plant construction at the present stage. Except where the norm expressly allows adjustment, no adjustment of the norm shall be made on the grounds that the construction organization, the working method or the material wastage of a project differs.

5. The labour cost of the norm is specified as follows:

5.1) The labour input of this norm is expressed in comprehensive labour days, without distinguishing work trade or skill grade, each comprehensive labour day being counted on the basis of an eight-hour working system.

5.2) The comprehensive unit price of this norm is implemented at a labour cost of 135.00 yuan per labour day for production workers, which includes the basic wage, wage-type allowances, auxiliary wages, staff welfare expenses and labour protection expenses.

6. This norm has been prepared under the following normal construction conditions:

6.1) Equipment, materials, finished products, semi-finished products and components are complete and undamaged, comply with the quality standards and the design requirements, and are accompanied by certificates of conformity and test records; the supply of goods satisfies the installation progress requirements.

6.2) Cross operations between the installation works and the civil works are normal, and the civil works do not affect the normal construction of the installation works.

6.3) The installation location, the buildings and structures, the equipment foundations and the embedded holes and openings comply with the design standards and satisfy the installation requirements.

6.4) The site installation conditions comply with the design requirements and satisfy the technical conditions.

6.5) The water supply and the power supply both satisfy the normal use of the installation construction.

6.6) The geographical environment and the climatic conditions do not affect the normal operation and the physical health of the installation workers. For construction in a special environment, the expenses shall be calculated separately in accordance with the relevant provisions.

7. The material cost is specified as follows:

7.1) The materials in this norm include the main materials, the auxiliary materials and the

sundry materials directly consumed in the installation work content; the material consumption includes the quantity used directly in the installation work content, the spreading and laying quantity, and the specified wastage quantity.

7.2) The material wastage includes: the transport wastage from the factory warehouse, the site centralized stacking place or the site processing place to the installation place, the construction operation wastage and the site stacking wastage.

7.3) Materials in this norm for which no unit price is indicated are main materials; their price is not included in the base price and shall be calculated on the basis of the quantity used as listed and the actual price.

7.4) Materials used in very small quantities in this norm, sundry materials having very little influence on the base price, are merged into the other material cost and are listed in the material cost calculated with the yuan as the unit.

7.5) For the main material consumption rates of installation works, see the relevant chapters of the norm and of the construction drawing budget norm.

7.6) The material unit prices of this norm are kept consistent with the material prices of the construction drawing budget norm; material unit prices are taken at the material warehouse price, and the material transport and miscellaneous charges are 2.5 percent.

8. The construction machinery use fee is specified as follows:

8.1) The construction machinery use fee in the norm is expressed by the machine-shift usage of the machinery.

8.2) The construction machinery of the norm has been determined comprehensively on the basis of a rational machinery allocation for normal construction and of the mechanization equipment level of the construction enterprise; where the actual situation does not agree with the norm, no adjustment shall be made unless otherwise stated in the individual chapters.

8.3) In the norm sub-items only the consumption of the main equipment, machines, tools, instruments and meters is listed; machinery used in very small quantities and having very little influence on the base price is merged into the other machinery cost and is listed in the machinery cost calculated with the yuan as the unit.

8.4) Tools and appliances whose unit value is within 2000 yuan and whose service life is within two years, which do not constitute fixed assets, do not enter the norm; they are taken into account in the Fee norm for nuclear island building and installation works of nuclear power plant construction projects.

9. Concerning horizontal and vertical transport, the following is specified:

9.1) Equipment: the horizontal and vertical transport from the designated stacking place on the installation site to the installation place is included; the horizontal and vertical transport