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NB

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

NB/T 20358.4-2018

Replacing NB/T 20358.4-2015

**Cost estimation of nuclear power plant construction project -
Part 4: Mechanical equipment installation engineering for
nuclear island**

核电厂建设工程预算定额 第4部分：核岛工艺设备安装工程

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Foreword

This document was issued on 22 March 2018 by the National Energy Administration of the PRC and takes effect on 1 September 2018.

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 F02.

It replaces NB/T 20358.4-2015, which is superseded.

NB/T 20358 Cost estimation of nuclear power plant construction project, together with NB/T 20355 Cost quota for nuclear island civil and installation works of nuclear power plant construction projects, NB/T 20356 Cost quota for conventional island civil and installation works of nuclear power plant construction projects and NB/T 20357 Cost quota for machine shift of construction machinery of nuclear power plant construction projects, forms the series of nuclear power cost quota standards that supports budgeting and pricing of nuclear power construction projects.

NB/T 20358 Cost estimation of nuclear power plant construction project currently consists of 16 parts, made up as follows.

Part 1: Nuclear island civil engineering.

Part 2: Nuclear island decoration engineering.

Part 3: Nuclear island steel structure engineering.

Part 4: Nuclear island process (mechanical) equipment installation engineering.

Part 5: Nuclear island process piping installation engineering.

Part 6: Nuclear island ventilation and air conditioning installation engineering.

Part 7: Nuclear island electrical equipment installation engineering.

Part 8: Nuclear island automatic control instrumentation installation engineering.

Part 9: Nuclear island communication equipment installation engineering.

Part 10: Nuclear island anti-corrosion and thermal insulation engineering.

Part 11: Conventional island civil engineering.

Part 12: Conventional island thermal equipment installation engineering.

Part 13: Conventional island electrical equipment installation engineering.

Part 14: Commissioning engineering.

Part 15: Fabrication of modules and steel containment vessels.

Part 16: Assembly and erection of modules and steel containment vessels.

This part is Part 4 of NB/T 20358 Cost estimation of nuclear power plant construction project, namely NB/T 20358.4-2018 Nuclear island process equipment installation engineering (hereinafter referred to as this part). It was issued by Announcement No. 2 of 2018 of the National Energy Administration, approved on 22 March 2018 and put into implementation on 1 September 2018.

This part was proposed by the Nuclear Power Standardization Technical Committee of the energy industry.

This part is under the jurisdiction of the Standardization Research Institute of the Nuclear Industry.

Main drafting organizations of this part: China Nuclear Power Engineering Co., Ltd.; China Nuclear Power Engineering Co., Ltd. (CGN); China Power Engineering Consulting Group Corporation (Electric Power Planning and Design Institute); China Nuclear Industry No. 23 Construction Co., Ltd.; China Nuclear Industry Huaxing Construction Co., Ltd.; China Nuclear Industry No. 22 Construction Co., Ltd.

Main drafters of this part: Zheng Baojun, Shang Xin, Bo Meifang, Tang Qinghui, Li Wenan, Fa Dan, Yu Rong, Chen Lijuan, Nie Yi, Kong Liang, Zhu Jianping, Wang Bo, Fan Weiqiang, Wang Zhanyun, Zhu Guozhong, Jiang Shiming.

1 Scope

NB/T 20358.4-2018 is Part 4 of the Chinese budget quota series for nuclear power plant construction, and it prices the installation of process equipment in the nuclear island. A budget quota is not a technical specification: it is the official book of unit rates telling an estimator how much labour, machinery and consumable material a defined unit of work consumes, and it is what a Chinese reviewer checks a submitted price against. This part covers the heavy mechanical scope of the nuclear island - the reactor pressure vessel and its internals, steam generators, pressurisers, main coolant pumps, heat exchangers, tanks and vessels, filters and demineralisers, cranes and handling equipment, and the ventilation and air conditioning plant - together with the rigging, temporary supports, alignment, bolting and pressure testing that installation requires. Each quota item states the work content it includes, the unit of measurement, the labour hours by trade, the machine-shift

consumption by equipment type, and the material quantities with their waste allowances. The explanation at the front of the volume sets out the scope of the quotas, the general provisions on what each rate already includes, the adjustment coefficients for working conditions such as height, radiation area and confined space, and the rules for measuring quantities; the chapter notes then add the conventions specific to each group of items. It replaces the 2015 edition. Note that the Chinese title says process equipment specifically, where the printed English says only mechanical equipment.

This part specifies the quotas for nuclear island process equipment installation engineering within the budget cost quota for nuclear power plant construction projects.

This part applies to the nuclear island works of newly built and extended pressurized water reactor nuclear power units, and also to the sub-items subject to nuclear safety requirements within BOP works, such as nuclear island liquid waste tank buildings, conventional island liquid waste tank buildings, radioactive solid waste treatment auxiliary buildings, solid waste interim storage facilities, radioactive machine repair shops and decontamination workshops. Other nuclear power reactor types and nuclear projects may use it for reference.

2 Volume Description - General Provisions

1. This part is applied together with Cost quota for nuclear island civil and installation works of nuclear power plant construction projects (NB/T 20355) and Cost quota for machine shift of construction machinery of nuclear power plant construction projects (NB/T 20357).
2. This part is the basis for preparing construction drawing budgets, for making project payments and final settlement on completion, for tendering and bidding and for pricing bills of quantities; it is also the basis on which estimate quotas are compiled.
3. This part has been compiled on the basis of normal natural conditions and environment, of construction organization design and construction machinery allocation that are reasonable at the present stage, taking into account reasonable overlapping (cross) operations, and in accordance with the relevant technical standards, construction and acceptance codes, quality outlines and safe operating procedures for pressurized water reactor nuclear power plants, as well as the requirements for civilized and safe construction and environmental protection on site.
4. The labour, material and construction machinery consumptions in this part reflect the construction technical level and organizational level of nuclear power plant construction at the present stage. Except where the quota expressly permits adjustment, no quota may be adjusted because the construction organization, the working method or the material wastage of a project differs from that assumed.
5. Labour cost in this part is governed by the following rules.