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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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Medium and high power biogas generating sets

中大功率沼气发电机组

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules. The standard proposed by China Electrical Equipment Industrial Association. This standard by the national gas reciprocating internal combustion power generation equipment Standardization Technical Committee (SAC/TC372) centralized. This standard by the Chinese CNPC Jinan Diesel Power Plant is responsible for drafting. New Energy Co., Ltd. Zibo Zi Cai Jiang Su

Shengyuan gas power machine Mechanical Co., Ltd. Zhejiang Yiwu Power Equipment Co., Ltd., Zhengzhou Jinyang Electric Co., Ltd. participated in the drafting. The main drafters of this standard. Li Li, Li Shusheng, Wang Anzhong, Wang Ling gold SOCIETY OF First quarter Xiao, Tang Honghui, Shiqing Chen, Liu Gencheng, Zhang Hongbin, Chen Junmin, Yang Qing race. High-power gas turbine

1 Scope

China's national standard for medium and high power generating sets fuelled by biogas. It specifies the requirements, the testing, the inspection rules and the marking, packaging, storage and transport for the sets driven by a reciprocating internal combustion engine on biogas, and it applies to sets of rated power not less than 250 kW at 50 Hz or 60 Hz, using biogas with a methane content of not less than 30 per cent as the main fuel. Biogas is produced by anaerobic digestion - of manure on a livestock farm, of sludge at a sewage works, of food and agricultural waste, or of the organic fraction of municipal waste in a landfill. In every one of those cases the gas is produced whether or not anyone uses it, and it has to be dealt with: vented it is a potent greenhouse gas, flared it is wasted, and burned in an engine it is electricity and heat for the site that produced it. A digester or a landfill that generates its own power is the ordinary configuration rather than an unusual one. The engine's problem is the same as the mine gas engine's and worse in one respect. Biogas is roughly half methane and half carbon dioxide, so its calorific value is little more than half that of natural gas and the engine loses output accordingly; the composition varies with the feedstock and the digester's condition; and it carries hydrogen sulphide, siloxanes and water. Hydrogen sulphide becomes sulphuric acid in the crankcase; siloxanes, which come from landfill and sewage gas, burn to silica and deposit an abrasive glassy layer on the pistons, valves and turbocharger. So the standard specifies the tolerance to gas quality, the requirements on the fuel and its treatment, the performance, the emissions, the safety and the tests. Issued on 7 February 2013 and in force since 1 July 2013.

This standard specifies the high-power gas turbine (hereinafter referred to as "units") requirements, testing, inspection rules, marking, packaging and storage Transportation and so on. This standard applies to the rated frequency of 50Hz or 60Hz, power is not less than 250kW, biogas (methane content of not less than 30%) of The main fuel reciprocating internal combustion engine driven alternating current frequency generators.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB 146.1 standard gauge railway rolling stock clearance

GB 146.2 standard gauge railway locomotive construction clearance

GB/T 191 Packaging - Pictorial signs

GB/T 2820.1 reciprocating internal combustion engine driven alternating current generating sets - Part 1. Application, ratings and performance

GB/T 2820.3 reciprocating internal combustion engine driven alternating current generating sets - Part 3. Generator with alternator

GB/T 2820.4 reciprocating internal combustion engine driven alternating current generating sets - Part 4. Control and switchgear

GB/T 2820.5-2009 Reciprocating internal combustion engine driven alternating current generating sets - Part 5. Generator Part 9

GB/T 2820.9 reciprocating internal combustion engine driven alternator group. Measurement and evaluation of mechanical vibrations

GB/T 2820.10 Reciprocating internal combustion engine driven alternating current generating sets - Part 10. Measurement of noise (enveloping surface method)

GB 3836.1 explosive atmospheres - Part 1. General requirements for equipment

GB 4556 Reciprocating internal combustion engines fire

GB/T 6072.1 reciprocating internal combustion engine performance - Part 1. Test method calibration and power, fuel and lubricating oil consumption Additional requirements for engines for general law

GB/T 8190.1 Reciprocating internal combustion engines - Exhaust emission measurement - Part 1. Test - bed measurement of gaseous particulate emissions Steady-state test cycles for different engine applications.

3 Terms and Definitions

GB/T 6072.1, GB/T 2820.1, GB/T 2820.5 and as defined in the following terms and definitions apply to this document.

3.1 Biogas biogas The organic material was a combustible gas to produce microbial degradation under anaerobic conditions, the main component is methane, carbon dioxide, as well as