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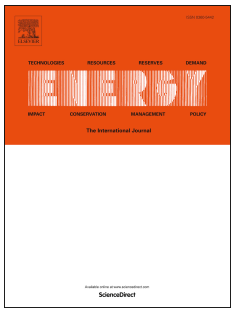

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PII: S0360-5442(18)31504-4

DOI: 10.1016/j.energy.2018.07.207

Reference: EGY 13472

To appear in: *Energy*

Received Date: 9 August 2017

Revised Date: 27 July 2018

Accepted Date: 31 July 2018

Please cite this article as: Shuai G, Lijun L, The extensible evaluation framework of urban green house gas emission reduction responsibility: A case of Shandong province in China, *Energy* (2018), doi: 10.1016/j.energy.2018.07.207.

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The Extensible Evaluation Framework of Urban Green House Gas Emission Reduction Responsibility: A Case of Shandong Province in China

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Abstract: In order to carry out the emission reduction commitment, China's cities must take the responsibility of reducing greenhouse gas (GHG) emission. However, some problems may inhibit the implementation. First, existing criteria are too macroscopic to analyze the industrial GHG emission characteristics, which will cause the inequality in GHG emission reduction responsibility among different cities. Second, the commonly used evaluation methods are lack of universality, which is mainly manifested in two aspects: ①the evaluation data in different forms of expression must be converted into the data in the same form of expression, which may cause information loss. ② when new criteria come, we must reassign the weights and recalculate the result, which increases the complexity degree. In addition, independent assumption problem and compensatory problem should be also taken into consideration. The innovation of this work can be summarized into 4 points. First, a framework was established to analyze the cities' industrial characteristics; second, the social choice function was used in the framework to increase the universality of evaluation method; third, a fuzzy measure was used to avoid independent assumption problem; fourth, compensatory problem was solved based on the idea of

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