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Study on the underground energy network in Yaesu, Kyobashi and Nihonbashi area

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Abstract

Due to the ongoing active redevelopment in this area, the energy demand is expected to soar. In addition, there is an issue of energy procurement in response to the DCP (District Continuity Plan), etc. for the time of a disaster. Therefore, we need to hasten the conversion to renewable energy and natural energy. In FY2012 the authors reviewed the underground artery energy network utilizing exhaust heat generated in the Chuo Incineration Plant and reported the result at ACUUS2014. To create a regional underground energy network based on this artery energy network, taking into consideration the redevelopment project in the area, we examined optimal underground energy networks in the area as well as the possibility of completion of such a regional underground energy network. Especially, we considered whether it is possible to develop a regional underground conduit technically, legally and economically in the area where the underground has already been utilized densely and complicatedly.

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1. Introduction

The Yaesu, Kyobashi, Nihonbashi Subcommittee Meeting of the Urban Underground Space Center of Japan reviewed in FY2012 the underground artery energy network utilizing exhaust heat generated in the Chuo Incineration Plant and reported the result at the last meeting. Based on this artery energy network, we studied the underground energy network and issues to be resolved for realizing it, taking into consideration the redevelopment project in the target area shown in Figure 1. Especially, we considered whether it is possible to develop a regional conduit technically, legally and economically, and report the results here.

2. Problems with Energy Demand and Importance of Regional Use

2.1. Characteristics of This Area

The target area includes the Yaesu-Kyobashi-Nihonbashi District (approximately 70 ha) surrounded by the Shuto Expressway and Sotobori Street and the Nihonbashi District (approximately 27 ha) surrounded by the Shuto Expressway and Edo Street. This area, which is the center of traffic and communication in Japan, plays a major role in urban tourism as the face of Tokyo with the concentration of visitors from all over Japan and the world. With a convenient location adjacent to Tokyo Station, this area is recently undergoing vigorous large-scale building renovation, city block redevelopment and other projects. It is particularly desirable to create a safe and comfortable area with low-carbon urban development resistant to disasters including earthquakes and energy independence.

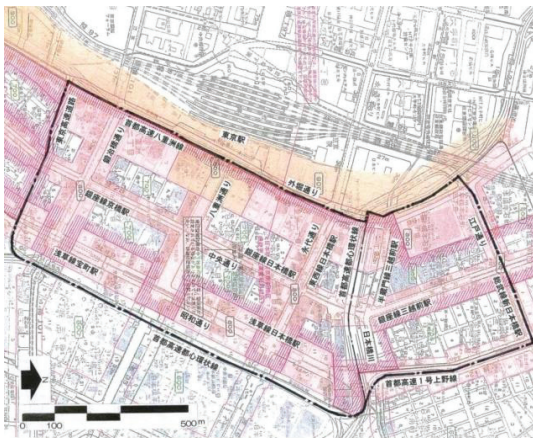


Fig. 1. Map of target area.

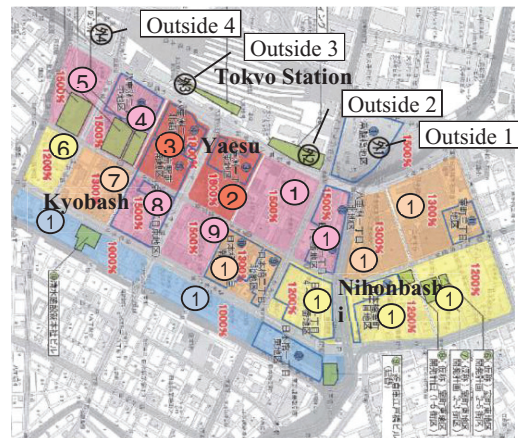


Fig. 2. Yaesu-Kyobashi-Nihonbashi area city block numbers.

2.2. Positioning of the Area in the Upper-level Plan

2.2.1. Overview of Guidelines for Urban Development in Areas around Tokyo Station 2014

For building the center area of the Tokyo Metropolis, a world-class international city, we aim at building a town with appeal in terms of culture, environment and exchange as well as in the economic, industrial and technical aspects by integrating functions and strengthening the urban infrastructure while combining land and consolidating city blocks into larger areas.

We also intend to actively work to strengthen commercial functions that have existed since the Edo period and introduce international operation and commercial functions to build a town full of vigor and appeal.

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