On the Pricing of Contingent Claims in Tradable Permit Markets*

Masaaki Kijima[a], Akira Maeda[b], and Katsumasa Nishide[c†]

a *Graduate School of Social Science, Tokyo Metropolitan University*

b *Graduate School of Energy Science, Kyoto University*

c *Interdisciplinary Research Center, Yokohama National University*

(Preliminary version: April 18, 2008)

DO NOT CITE!

Abstract. In this paper, we construct a tradable permit market model and study the equilibrium prices in a general equilibrium framework. Applying Bühlmann (1980), we derive a pricing formula of any contingent claim in the market in the case that all agents have a CARA utility function. Our formula successfully illustrates how prices in the market are formed and determined. We also investigate the effect of permit banking and borrowing on the prices and other related topics.

JEL classification: Q56, G13, G38.

Keywords: Tradable permits, emission trading, price spike, permit banking.

---

*The authors would like to thank seminar participants at Kyoto University and Yokohama National University for helpful comments. All errors are, of course, of the authors. The first author appreciates the financial supports by Daiwa Securities Group Inc, and by the MEXT, Grand-in-Aid for Scientific Research (B) #18310104, 2006. The third author acknowledges the financial support by the Ministry of Education, Science, Sports and Culture (MEXT), "Special Coordination Funds for Promoting Science and Technology (JST-SCF)."

†Corresponding author. Interdisciplinary Research Center, Yokohama National University. 79-3 Tokiwadai, Hodogaya-ku, Yokohama, 240-8501 Japan.

TEL&FAX: +81-45-339-3698. E-mail: knishide@ynu.ac.jp