

**JAPAN-US JOINT STUDY REPORT ON ENERGY SECURITY, CLIMATE  
CHANGE, INTERACTIONS BETWEEN INTERNATIONAL ENERGY  
MARKETS AND FINANCIAL MARKETS  
(EXECUTIVE SUMMARY)**

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**1. Purpose and Significance of the Study**

International affairs surrounding energy are entering a new era. A number of new issues, such as record-high energy prices, climate change issues, and increasing interactions between financial markets and energy markets, have emerged as challenges and risks to the world. These interrelated risks need to be addressed by developing consistent and comprehensive solutions based on an accurate understanding of international trends. With this awareness, the Institute of Energy Economics, Japan (IEEJ) conducted a joint study with the James A. Baker III Institute for Public Policy of Rice University (BIPP). We reviewed the current issues concerning energy security, climate change, and interactions between financial markets and energy markets, and identified ways to address the emerging challenges and risks in these three areas.

**2. Summary of report**

**(1) Energy security**

Energy is vital for human life and the smooth functioning of society and the economy. International affairs surrounding energy are drastically changing, and new risks and threats are emerging. These include record-high energy prices, growing global demand for energy (particularly in China) and tightening market conditions, intensifying competition for energy resources, geopolitical risks, reemergence of resource nationalism, market power of energy suppliers, and concerns of supply constraints caused by these factors. The strategic importance of energy is increasing, and therefore energy issues greatly affect international affairs and the world economy. Furthermore, climate change and deepening interactions between financial markets and energy markets have emerged as new challenges and risks to energy security.

Our first countermeasure must be to achieve the best energy-mix for Japan. This requires raising the share of nuclear energy, which also reduces greenhouse gas emissions, promoting renewable energy, and using Japan's strengths in R&D. Energy conservation is also necessary, for although Japan now leads the world in the energy efficiency of its economy, it must raise that efficiency further to build a more resilient energy demand structure. It is also important to deepen diplomatic ties with oil- and gas-producing countries because oil and gas will continue to be major energy sources for Japan. We must therefore understand what these countries want from Japan, strengthen diplomacy towards these countries, and coordinate and solidify government and private-sector efforts. To reduce the opacity of market transactions, we should strive to integrate energy producers such as Russia and emerging countries such as China with

energy markets by increasing the transparency and internationalization of energy markets. To Asian energy-consuming countries, and particularly China and India, whose energy demands have soared in recent years, international cooperation in energy conservation and environmental technologies will be crucial.

## **(2) Climate change**

The IPCC's Fourth Assessment Report and international negotiations on preventing climate change stress the importance of sharing awareness of the need for long-term reductions of GHG emissions worldwide, including the United States. In building an effective multilateral post-Kyoto framework to reduce GHG emissions, we must first recognize that because climate change is global by nature and related to the whole of humankind, long-term continuous countermeasures are mandatory. Reducing GHG is essentially a question of how to share the burden of "negative public goods."

In building the post-Kyoto multilateral framework, it is necessary to share GHG reduction targets and the reduction process, ensure the participation of all countries, share the burden equitably, achieve sustainable development, and develop a system for efficiently implementing reduction measures. Such reduction measures must be based on scientific findings and objective data, and must effectively address the externalities of climate change. IEEJ recommends that a hybrid approach using available options such as a sectoral approach, pledge and review system, carbon pricing, and regulation. In the opinion of IEEJ, an equitable benchmark on which to allocate emission allowances is CO<sub>2</sub> emissions per capita, because it can be broken down as a product of three useful benchmarks: the degree of economic development (GDP per capita), energy efficiency (energy consumption per GDP), and carbon intensity of energy consumption (CO<sub>2</sub> emissions per energy consumption). The joint study concludes that, as a multilateral framework, it may be effective to provide parallel tracks so that all countries at different stages of economic development can participate and accelerate their reduction efforts as their economies develop. IEEJ recommends that the following framework, for instance, is more likely to be acceptable: (i) for developed countries, setting quantitative reduction targets and providing a reduction system based on carbon pricing, (ii) for emerging countries such as China, introducing a pledge and review system first with specific reduction measures and their evaluations, and then stepping up the requirement of (i), and (iii) for developing countries excluding the emerging nations of (ii), introducing a non-binding pledge and review system first and then stepping up to (ii) appropriately. Both IEEJ and BIPP conclude in their joint study that climate change is inherently linked to energy selection and must be consistently discussed with the outlook for world energy consumption. Thus, IEEJ and BIPP emphasize that the key to a solution is innovative R&D, and a consistent R&D support system has to be developed to maximize the benefits of public support and private initiatives.

## **(3) International energy markets and financial markets**

Linkages between international energy markets and financial markets are deepening,

primarily due to excess liquidity in financial markets resulting in large inflows of funds into energy markets. Energy markets in particular are attracting money because of tightening market fundamentals, geopolitical risks, and stagnant conventional financial markets (such as stocks and foreign exchange) caused by problems such as the sub-prime mortgage crisis. In today's world economy, countries' economies as well as financial and commodity markets are strongly and deeply linked, so there seems to be an increasingly serious problem taking place in an important but fragile link that could trigger a chain reaction among other markets and economies.

It is also important to monitor how petrodollars that have accumulated thanks to high oil prices circulate in international financial markets. In the last few years, sovereign wealth funds (SWFs) of emerging and energy producing countries have drawn attention. In energy consuming countries, these SWFs' investments in the downstream energy sector may threaten economic security and cause friction between energy producing and consuming countries. As for the carbon market regarded as an encouraging means to reduce GHG emissions, financial players may be needed to build the framework of the carbon market, and their role cannot be ignored in this area.

The biggest problems in considering the implications of the interactions between energy and financial markets are that the real figures and impacts of such interactions are still not well understood. First, information must be gathered and the unknowns must be clarified. Analyses on the behavior of influential players such as SWFs should also be continued, and coordination with regulatory bodies, policy-planners, and practitioners in both the energy and financial sectors must be deepened.

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