

Main themes

# Thinking about the future of renewable energy

## The role to be played by the Mitsubishi Materials Group in its main business

In 2014, as in previous years, we held a stakeholders' meeting to utilize feedback received through dialog with outside experts in our CSR activities from a long-term perspective. At this year's meeting, our fifth to date, we exchanged views from a broad range of perspectives on the theme of renewable energy.

We identify "promoting communication with stakeholders" as a material issue and have held a stakeholders' meeting every year since 2010.

At this year's meeting, we focused on renewable energy, given heightened public scrutiny and expectations in the wake of the Great East Japan Earthquake. We invited experts in this field and explained to them about our geothermal, hydroelectric and mega-solar businesses and about the geothermal heat pump business of Mitsubishi Materials Techno. During the exchange of views, we received valuable opinions and recommendations on aspects such as issues to be addressed in the future and the role we must play in society.



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| ■ <b>Date</b>   | Tuesday, March 4, 2014, 13:00-16:00  |
| ■ <b>Venue</b>  | Conference Room at MMC Headquarters (Chiyoda-ku, Tokyo)  |
| ■ <b>Participants from the Mitsubishi Materials Group</b> |  |
| <b>Akira Takeuchi</b>                                     | Managing Director (in charge of CSR)   |
| <b>Hiroshi Kondo</b>                                      | Senior Executive Officer (General Manager of Mineral Resources & Recycling Business Unit)  |
| <b>Makoto Shibata</b>                                     | General Manager, Energy Business Division, Mineral Resources & Recycling Business Unit   |
| <b>Kazuharu Ariki</b>                                     | General Manager, Geothermal & Electric Power Dept., Energy Business Division, Mineral Resources & Recycling Business Unit                |
| <b>Yoshio Matsuno</b>                                     | General Manager, Sustainable Development Dept., Corporate Production Engineering Department  |
| <b>Toshiharu Hayashi</b>                                  | Assistant to the General Manager, Corporate Marketing & Overseas Business Development Dept., Corporate Strategy Division                 |
| <b>Yoshiaki Shibata</b>                                   | General Manager, Natural Resources, Environment and Energy Engineering Division, Mitsubishi Materials Techno Corporation                 |
| <b>Kazutoshi Sugiyama</b>                                 | General Manager, Drilling Dept., Natural Resources, Environment and Energy Engineering Division, Mitsubishi Materials Techno Corporation |
| <b>Kenji Shimamura</b>                                    | Executive Officer, General Manager, General Affairs Dept.  |
| <b>Toshinori Tamoto</b>                                   | General Manager, General Affairs & CSR Dept., General Affairs Dept.  |
|   | * The names of departments and titles are as of the date of the meeting.   |
| ■ <b>Facilitator</b>                                      |  |
| <b>Daisuke Goto</b>                                       | Representative Director, ideaship Inc.   |

### Expecting business strategies that anticipate changes in the electricity market structure and greater communication with local communities



**Mariko Kawaguchi**  
Chief Researcher, Research Division  
Daiwa Institute of Research Ltd.

Japan's electricity market is likely switch to a "two-tier structure" in the future. The "first tier" will be the existing large-scale power generation business of major power companies and the "second tier" will be community-based dispersed small-scale power generation. Business strategies that anticipate this multi-tiered market will probably be necessary in the future.

China's air and water pollution reminds us of the importance of water and air, which we have hitherto considered to be free of charge. However, around the world, efforts are being made to assess the value of such natural assets as "capital." MMC's renewable energy business would also be sure to garner more widespread empathy if you told the public how you are utilizing nature's blessings. Your ground-source heat pump technology would, I expect, also find more widespread application through creative marketing, targeting general households, including the formation of alliances with home builders.

In the renewable energy business, communication skills to achieve integration into local communities will no doubt become increasingly important. No matter how outstanding the technology may be, unless it is welcomed by the local community, continued business development will be difficult. Backed by a long history of involvement in hydroelectric power and geothermal power generation, MMC has built up a wealth of expertise in consultation. I recommend that MMC systemizes this into a business tool so that it can be harnessed in other businesses as well.

## Points we identified as important comments

- Interest in community-generated energy has increased in the wake of the Great Japan Earthquake, and this is also likely to bring changes to the structure of the electricity market. In the future, environmental value will be reflected in future electricity prices and the profitability of renewable energy is expected to improve. It is necessary to formulate business strategies from a medium- and long-term perspective based on this shift.
- In the renewable energy business which uses community resources, coexistence with the local community is vital. It is important to create a win-win situation, making sure that there are advantages of some kind for the community while also ensuring business profitability.
- Given the high percentage of energy consumption accounted for by "heat," reassessing renewable energy from the viewpoint of "effective utilization of heat" may hold the key to business expansion. The creation of internal synergies and creative marketing are also crucial for promoting use of renewable energy.
- Energy and the recycling of resources are closely linked. As a company that is involved in both fields, MMC must pursue further internal synergies through integrated initiatives.

Akira Takeuchi  
Managing Director  
(currently Executive  
Vice President)  
in charge of CSR



Hiroshi Kondo  
Senior Executive Officer  
General Manager,  
Mineral Resources &  
Recycling Business Unit

### Hopes for the future are pinned on the "sustainable sectors" that are essential for corporate sustainability. Further synergies between businesses are also important.



Hidefumi Kurasaka  
Professor, Graduate School of Humanities  
and Social Sciences, Chiba University

As illustrated by the nomination of the Japanese word *Gotochi Denryoku* (meaning "local energy") for the 2013 Vogue-word Grand Prix, support for community-based power generation is definitely growing. Though ecosystem-related businesses like renewable energy and forestry businesses that properly maintain local nature and exploit its blessings may not be businesses that generate high profits, we call these economic sectors "sustainable sectors" as opposed to "growth sectors," and we consider these to be essential business domains when it comes to corporate sustainability. Given that MMC's hydroelectric plants also have their origins in *Gotochi Denryoku*, that is, in supplying power to run a mine, MMC's business expertise in such locally produced, locally consumed energy is surely worthy of renewed attention.

Amid the general trend to move away from fossil fuels, geothermal heat pump technology is seen as an energy-saving trump card and further business expansion is expected. We believe there is also scope to examine new ways to promote use, including application in combination with MMC's geothermal power generation technologies.

Energy and the recycling of resources are closely linked and as a company that is involved in both, MMC is expected to implement integrated initiatives. Progress in the development of energy storage technologies to ensure a stable supply and the development of human resources through overseas expansion of hydroelectric and geothermal power generation is sure to open up new possibilities in the renewable energy business.

### Creating a win-win relationship with local communities in anticipation of medium- and long-term profitability. "Effective utilization of heat" holds the key.



Hidefumi Nakashima  
Director General, Member of the Board, Geothermal Resource Development Department,  
Japan Oil, Gas and Metals National Corporation

The Feed-in-tariffs (FIT) scheme sparked a mini-boom on the renewable energy market. MMC is the only other corporation besides the power companies that has a tradition of involvement in hydroelectric and geothermal power businesses and is active across the entire energy value chain, from development to power generation. In the medium-to-long-term, we will move into an era where environmental value is reflected in future electricity prices, and the profitability of the renewable energy business is likely to increase.

Further consideration for the local community will presumably be called for in the future. When using a community's resources, it is desirable to create a win-win business model with the local community. There is perhaps also scope for considering contributing in a manner that meets the local community's requirements such as using technical expertise to provide consulting services.

It is important to reassess energy from the viewpoint of "effective utilization of heat," including biomass power generation utilizing mountain forests. The utilization of heat accounts for an extremely high percentage of total energy consumption and, at the moment, fossil fuels are used to cover most of this. We believe that cost reductions achieved through the combination of ground-source heat technology with other heating equipment and the creation of synergies with other businesses may hold the key to future business expansion.

Finally, in the geothermal power generation business, where there has been no new plant construction for 20 years, the shortage of resources is a serious issue. Also, in the interests of future overseas expansion, we would like you to put effort into the development of human resources.