

## Realization of Town Development to Overcome Disruption of Energy Supply in the Event of a Disaster

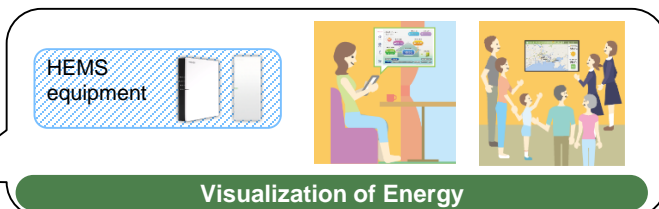
Region	Ishinomaki City, Miyagi Prefecture	Important Aspects to Realize “Better Reconstruction”	Development of Disaster Management Facilities Integrated in Town Development
<b>Overview of Efforts</b>	<ul style="list-style-type: none"> <li>Ishinomaki City promoted the introduction of an energy system combined with solar power generators, storage batteries, and BEMS to elementary and junior high schools within the city and in Shin-Hebita District where disaster public housings were concentrated. The city aimed to build a town that could secure the power generated by renewable energy in the event of a disaster, while utilizing the power generated by renewable energy in the peacetime. The city also created mechanisms to foster environmental awareness through the “visualization” of electricity.</li> <li>Since disaster management bases, which will become shelters in time of emergency, will be equipped with solar generators and storage batteries, electricity can be used without any problem, even when the power supply from the power company is interrupted. Also, the city has energy information on each facility. The city is considering to use electric vehicles (EV) for the transfer of power to a facility that is short of power from other facilities that have power surplus.</li> </ul>		
<b>Points of Efforts</b>	<div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> <ol style="list-style-type: none"> <li> <b>1. Designing Specifications of Power Supply Based on Actual Disaster Situations</b> <ul style="list-style-type: none"> <li>The solar generators, storage batteries, and BEMS that have been installed in schools and nurseries within the city do not have over-specifications which deviate from the needs, as they have been installed with a concept to secure a minimum amount of energy required, based on the actual experiences and lessons learned at the time of the earthquake disaster.</li> <li>Also, various methods were devised. For example, by taking account of the flooding records by tsunami, storage batteries and cogeneration systems are installed on the second floor or higher, or installation locations are raised higher.</li> </ul> </li> <li> <b>2. Promotion of Commercialization by Referencing Initiatives of Multiple Entities</b> <ul style="list-style-type: none"> <li>In the commercialization of smart community of Ishinomaki City, a group of private businesses (Toshiba, Tohoku Electric Power, etc.) who conducted projects by utilizing budgets provided by the Ministry of Economy, Trade and Industry (METI) and the Ministry of the Environment and a group of universities (Tohoku Next-generation Energies for Tohoku Recovery (NET), etc.) who conducted projects by utilizing budgets provided by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) were involved. Each group proposed its own idea and referenced efforts of each other. At the end they built an optimal business model which met the needs of the region and was also highly cost effective.</li> </ul> </li> <li> <b>3. Provision of Opportunity to Encourage Interests in Disaster Management and the Environment and Participation of Citizens</b> <ul style="list-style-type: none"> <li>In the peacetime, digital signage showing energy information is actively used as a communication tool with users on disaster management and the environment.</li> <li>For example, liquid crystal panels installed in elementary schools to project BEMS information, display information on school events and “disaster prevention quiz” to enhance awareness of disaster prevention, besides energy information. At Ishinomaki Higashi Nursery School, a tour to see the solar panels installed on the rooftop of the school is organized at the time of briefing session on school admission. The tour is utilized as a method to appeal the safety and security of the school, in consideration of the citizens’ awareness of disaster prevention which increased after the earthquake disaster.</li> </ul> </li> </ol> </div> <div style="width: 35%;"> <p><b>Major Events</b></p> <ul style="list-style-type: none"> <li>March 11, 2011 Great East Japan Earthquake occurred. Power outage lasted nearly one month until April 8.</li> <li>Oct. 7, 2011 Council of Cooperative Project for Rebuilding Ishinomaki established</li> <li>Dec. 22, 2011 Basic Plan for Post-Earthquake Disaster Reconstruction of Ishinomaki City developed</li> <li>July 17, 2012 NET Project adopted by MEXT.</li> <li>Oct. 9, 2012 Project for Introduction and Promotion of Smart Community adopted by MEIT.</li> </ul> </div> </div> <div style="text-align: center; margin-top: 20px;"> <p><b>Organization for Promotion of Smart Community in Ishinomaki</b></p> <p>The diagram illustrates the organizational structure for promoting a smart community in Ishinomaki. At the top is Ishinomaki City (石巻市), which coordinates with the Smart Community Promotion Project (スマートコミュニティ推進事業) and the Smart Community Introduction Project (スマートコミュニティ導入事業). Below this, a central box represents the Smart Community (スマートコミュニティ) itself, which is managed through BEMS (Building Energy Management System) and includes various energy-related activities such as green energy procurement, renewable energy introduction, and smart meter installation. This central box is supported by several key areas: 'Energy Green Procurement Support' (エネルギーのグリーン購入促進のための支援・補助), 'Renewable Energy Introduction' (再生可能エネルギー導入), and 'Smart Meter Introduction' (スマートメーター導入). The diagram also shows the role of 'Visible Information' (見える化) and 'Demand Response' (デマンドレスポンス) in providing environmental information and reducing energy demand. At the bottom, the diagram shows the involvement of the Tohoku Recovery Next-Generation Energy Research Institute (東北復興次世代エネルギー研究開発機構) and the Tohoku Next-Generation Energy Research Institute (東北復興次世代エネルギー研究開発機構プロジェクト (NET)), which are supported by the University of Miyagi (宮城大学).</p> </div> <p style="text-align: right;">Source: Ishinomaki City, provided document</p>		

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## Project for Introduction and Promotion of Smart Community

### Shin-Hebita District (Smart Community Model District)

A new town capable of supplying electricity during power outage is developed.



Source: Ishinomaki City, provided document

### Disaster Management Base (33 places within Ishinomaki City)

Information on school events & "Disaster prevention quiz" to enhance awareness are projected.



学校サイネージ画面イメージ (©TOSHIBA Corporation)

Source: City Newsletter Ishinomaki, Sept. 15, 2014

防災クイズ画面イメージ (©TOSHIBA Corporation)

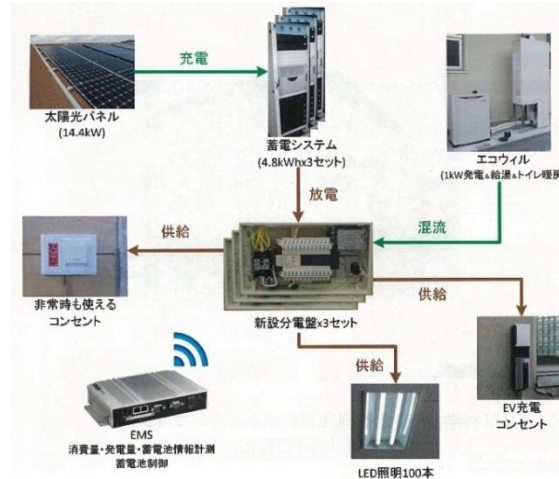


Source: JEITA, IT & Electronics & Regional Revitalization Top 100

## Tohoku Next-generation Energies for Tohoku Recovery (NET) Project

### Kazuma Elementary School

A system capable of supplying power necessary for the shelter even at power outage is introduced.



Source: Tohoku Next-generation Energies for Tohoku Recovery (NET), provided document

### Ishinomaki Higashi Nursery School

Storage battery



Electrical outlet usable at power outage



Visualization of electric power by digital signage

