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## **Taking the lead in the biomass gas and oil revolution with natural resources and technology**

### **Eight-point regional growth strategy centering on renewable energy**

Japan Economic Research Institute

#### Overview

1. The Great East Japan Earthquake has brought about a drastic rethink of the importance of renewable energy. Located in the temperate monsoon zone, Japan is blessed with an abundance of sunshine and water that has yielded a vast richness of natural resources, and the technology to utilize these resources and biomass for highly efficient gas and oil conversion started to appear in the aftermath of that disaster. Biomass energy programs require a large initial investment, but with adequate write-off within ten years, we can now expect these programs to become highly profitable. With an abundance of natural resources and advanced technology, Japan can aspire to become a world leader in a sustainable biomass gas and oil revolution.

— The oil equivalent reserves of Japan's forest resources, which account for just under 70% of Japan's national land, are 2.2 billion tons (about 11-12 years' worth of oil imports), and are growing by 40 million tons every year. In addition to this, raw garbage and other waste biomass, whose disposal has been a substantial financial burden on government administration, can produce the equivalent of ten million tons of oil with the emergence of highly efficient gasification technology. Biomass resources of 50 million tons a year from these two sources is equivalent to 10% of Japan's total annual energy needs (about 500 million tons of oil equivalent), and can lead to a 10% reduction in CO<sub>2</sub> emissions.

2. Roughly 90% of Japan's national land is rural where depopulation remains a serious problem. If, however, these areas can be turned into "gas fields" and "oilfields", a radical transformation will take place in regional growth strategies. An annual income of ¥30 million for hard-worked forestry operators engaged in thinning operations of 8t/day would no longer be merely a dream with payments of ¥20/kg for the timber from forest thinning. Similar to the case of fishery operators in Norway who are leaders in aquaculture technology, the phenomenon of 150 days' work a year bringing in more pay than in other industries and no shortage of successors can also occur in Japan. Regions as a whole will also enjoy assured growth by increasing self-reliance in energy demand and an increase in net outgoings by shifting from energy imports to local generation. As well as the development of general industries, including the transition of agriculture, forestry, livestock and fishery industries into energy producers, and the creation of high added value, this will also deliver new jobs for agricultural corporations, JA and business operators in all regions in other renewable forms of energy and energy supply and energy saving services incorporating IT.

3. The government is drawing up integrated ministry policies that go beyond the traditional concepts, including promoting renewable energy, development of biomass industrial cities, regional capacity creation, and development of low-carbon communities. In particular, support for regional renewable energy business operators appropriated by the Ministry of Environment in the fiscal 2013 budget is quite groundbreaking in that it is not simply traditional subsidies, but also actively utilizes investment means. Dialogue takes place with private-sector financial institutions that think in terms of both operating surplus (P/L) and capital accounts (B/S) through double-accounting standards, leading to the formation of effective regional growth strategies that combine project profitability and returns to the region.

4. Regional financial institutions that by necessity have to operate with a leaning toward national bonds and other securities investment due to the drop in borrowers will be able to offer assured growth financing with the advent of biomass gas and oil projects that are achievable with credit periods of under ten years. And because these projects are quite tangible for local residents, the development of revenue bonds through which local governments repay principal with business earnings, such as those widely used in the US, will also come into consideration.