



JAPAN

Japan is a country of clean energy contradictions. The country placed 15th among the G-20 in 2009 investments with just under \$1 billion but remained a solar leader and now has more than 2.6 GW installed capacity. Japan's terrain and large population make large-scale projects costly. Nevertheless, the country is a hotbed of rooftop PV installations and has said it aims to eventually garner as much as 28 GW in solar capacity by 2020. Japan is also still a technology development center and has made big moves into the biomass and wind energy sectors, with installed capacities of 2 GW each. In the enhanced policy scenario, the cumulative investment potential in Japan from 2010 to 2020 is projected as \$66 billion, which would leverage installation of 35 GW of renewable energy generating capacity.

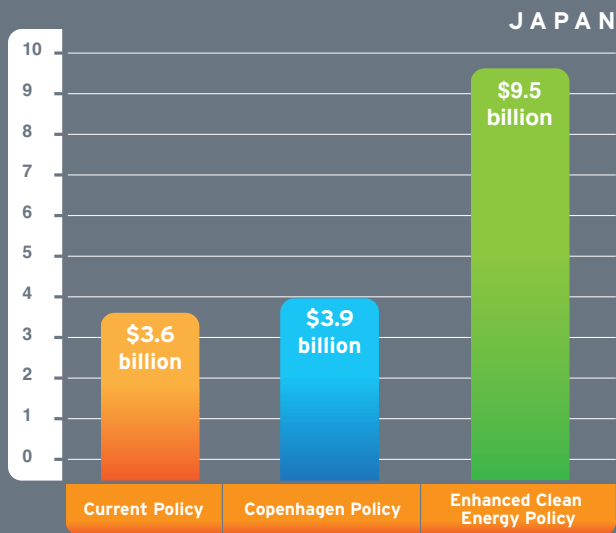
To see any kind of clean energy investment growth over the next decade, Japan must adopt strong clean energy policies. Under an enhanced policies scenario, investments rise 125 percent to \$9 billion, of which two-thirds will go toward solar power. Absent additional policies, renewable energy asset financing in Japan will be modest over the next 10 years.

With high hopes of rebuilding a strong, growing and low-carbon economy, Japan has started to shape and implement its clean energy strategy. A subsidy for residential photovoltaic (PV) solar installations of \$777 per kilowatt-hour of equipment and a surplus PV electricity buyback program of \$0.53 per kilowatt-hour has created a boom, attracting foreign manufacturers into Japan.

Japan's recently adopted solar feed-in tariff boosted domestic shipping 138 percent and 98 percent in the second and third quarters of 2010, respectively, results so impressive that the government has said it may extend the program to other sectors, possibly as soon as 2012. The federal renewable electricity standard requires 13.4 GW of renewables by 2014 – a target Japan is well on track to meet. The government intends to replace their renewable electricity standard with an extended feed-in tariff program. The government is also considering establishing a target 25 percent reduction in emissions from 1990 levels by 2020 in place of a goal to lower emissions to 1990 levels by 2020.

Along with long-term, legislated renewable energy targets and carbon reduction requirements, the government needs to focus on how to integrate vast distributed energy resources. In terms of technology, the government in collaboration with industry has committed more than \$1.5 billion for "smart community" pilot experiments from 2010 to 2014. Already Japanese manufacturers such as Panasonic and Hitachi can provide technological solutions from the generation side, all the way down to the end consumer, however the existing regulatory framework does not provide any incentive for Japanese utilities to deploy such technologies. As such, Japan's success within this area is less a matter of technology and more a question of having favorable regulatory reform.

FIGURE 35. INVESTMENT IN RENEWABLE ENERGY ASSETS, 2020 (BILLIONS OF \$)



NATIONAL CLEAN ENERGY POLICIES	
Carbon Cap	
Carbon Market	
Renewable Energy Standard	✓
Clean Energy Tax Incentives	✓
Auto Efficiency Standards	✓
Feed-in Tariffs	✓
Government Procurement	
Green Bonds	✓

FINANCE AND INVESTMENT (2009)*	
Total Investment	\$800 million
G-20 Investment Rank	15
Percentage of G-20 Total	0.7%
5-Year Growth Rate	51.1%

INSTALLED CLEAN ENERGY (2009)	
Total Renewable Energy Capacity	12.9 GW
Total Power Capacity	1.3%
Percentage of G-20 Total	5.2%
5-Year Growth Rate	4.2%
Key Renewable Energy Sectors	
Biomass	3,100 MW
Solar	1,700 MW

KEY CLEAN ENERGY TARGETS (2020)	
Wind	5,000 MW
Solar	28,000 MW

KEY INVESTMENT INCENTIVES	
Solar	Residential feed-in tariff
Energy Efficiency	Energy bank: Fund for energy efficiency and CO ₂

*Includes investments in venture capital and public markets, and asset finance for all clean energy technologies including biofuels and energy efficiency.