

# WIND ENERGY OPPORTUNITIES IN JAPAN



Nunobiki Plateau Wind Farm

*Worldview Report – May 2012*

# Contents

1	Executive Summary.....	3
2	Market Structure.....	4
2.1	Energy Market .....	4
2.2	Wind Energy Market.....	6
2.3	Key Players in the Market.....	8
2.4	Challenges in the Market.....	9
2.5	Market Potential.....	11
3	Opportunities for New Zealand.....	12
3.1	New Zealand's Value Proposition.....	12
3.2	Potential Benefits.....	12
3.3	Investment in Japan.....	13
3.4	Global Opportunities .....	14
4	Conclusion.....	14
5	Resources and Contacts.....	15
6	About Worldview.....	16
6.1	Mission .....	16
6.2	Service Offer .....	16
6.3	Who we are.....	17
6.4	Contact Us .....	17
7	End Notes.....	18

# 1 Executive Summary

Last year's devastating earthquake, tsunami and nuclear meltdown have sparked a radical rethink of Japan's energy policy. Nuclear energy is on the way out and renewable energy, including wind, is on the way in. Given the strong momentum building around wind energy development, it is timely for New Zealand companies to consider wind investment opportunities in Japan.

## **Key issues:**

- Following Fukushima, Japan has shut all 54 of their nuclear reactors and is maintaining its energy balance with expensive thermal generated electricity;<sup>i</sup>
- Japan is heavily dependant on imported energy sources, and is looking to increase energy security, decrease fossil fuel consumption and cut its reliance on atomic energy - renewable energy has become a new national focus;
- Wind technical potential is estimated to be 1.9 TW (including 1.6 TW offshore), compared with a current installed capacity of 2,501 MW;
- With a challenging typography (mountainous and densely populated), Japan is looking towards expanding its offshore wind capacity;
- Japan's purchasing of wind turbines and parts, and maintenance services is forecast to grow from an estimated 300 billion yen (NZ\$4.5 billion) a year currently to 500 billion yen (NZ\$7.6 billion) in 2030;<sup>ii</sup>
- The government is looking at making wind development more attractive to investors - including a Feed-in Tariff and subsidies;
- New Zealand wind generation expertise could be of great value to Japan, including wind modelling, construction, transmission and operation and maintenance of wind farms;
- Japan's substantial investment in making floating offshore wind a viable technology could also present an excellent learning opportunity for New Zealand.

## 2 Market Structure

Japan is the third largest economy in the world with a GDP of 500 trillion yen (US\$5.9 trillion) and an affluent population of 127 million.

The March 2011 earthquake devastated the country, with the Japanese economy initially plummeting, then slowly recovering. The adverse economic impacts were primarily focused on the affected area (which accounts for 2.5% of Japan's economy in terms of industrial production).<sup>iii</sup> A massive rebuild of this area is now underway, with the government and opposition committing US\$230 billion in rebuilding funds over the next five years.<sup>iv</sup>

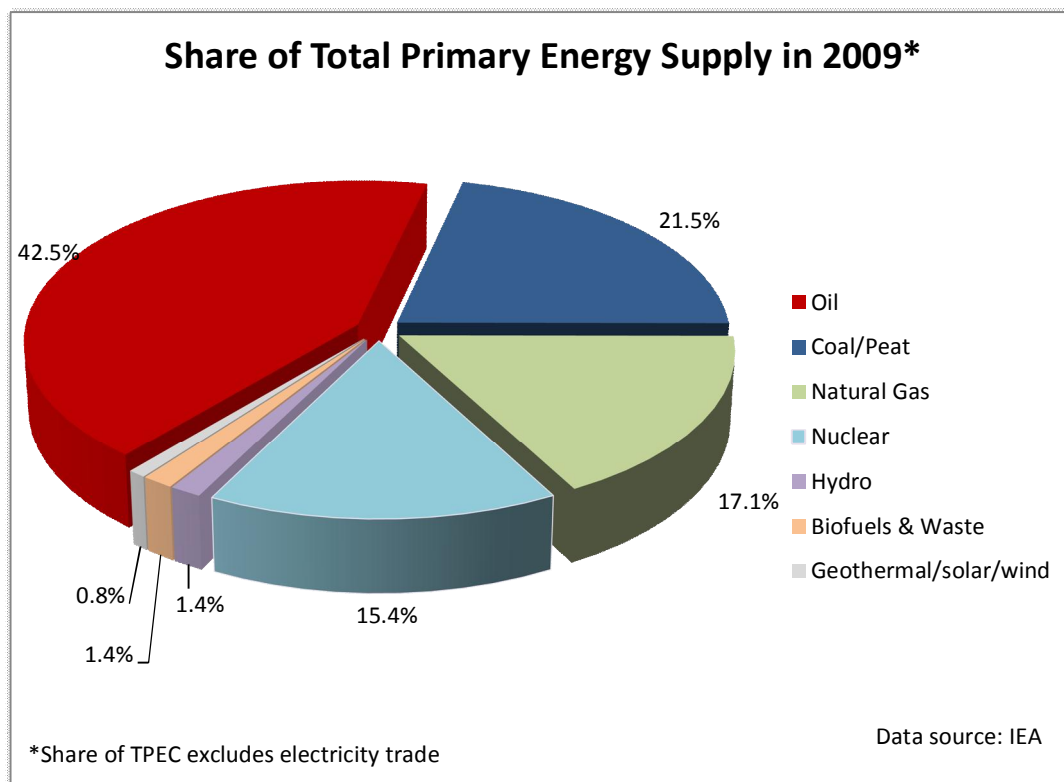
In addition to the rebuild of the tsunami-damaged area, economic challenges for Japan's future include an aging and shrinking population and high levels of public debt. Currency appreciation is also a concern, which has led to recent intervention by the Bank of Japan to stem the rise of the yen.<sup>v</sup>

Japan is New Zealand's fourth largest trading partner with exports to Japan totalling NZ\$3.5 billion (in the year to June 2011) and imports from Japan valued at \$3.0 billion. It is a complementary trading relationship with New Zealand supplying industrial inputs and agricultural products to Japan, and Japan exporting finished industrial goods and machinery.<sup>vi</sup> In November 2011, Japanese Prime Minister Yoshihiko Noda announced Japan's intention to begin consultation with the nine Trans-Pacific Partnership (TPP) participating countries (including New Zealand) towards joining the TPP Free Trade Agreement. As Japan is renowned for its protectionist trade policies, New Zealand would seek to benefit from Japan's membership of the TPP.<sup>vii</sup>

### 2.1 Energy Market

Japan's total energy production is 937,600 GWh (2011 est.), which is ranked third largest in the world after China and the USA. This compares to New Zealand's total production of 42,000 GWh (2009 est).<sup>viii</sup> Japan is also ranked third after the US and China for its total installed electricity generating capacity of 284 GW (2009), compared to New Zealand's installed capacity of 9 GW (2009).<sup>ix</sup>

Resource poor Japan is heavily dependent on an imported primary energy supply. Oil is the leading source of energy (42.5%), followed by coal (21.5%), natural gas (17.1%), nuclear (15.4%), hydro (1.4%), biofuels and waste (1.4%), and geothermal/solar/wind (0.8%). While wind makes up 0.4% of Japan's power supply, it contributes about 5% of New Zealand's electricity supply.



The Strategic Energy Plan of Japan<sup>x</sup> (revised 2010) set out the country's long term objectives for increasing energy self sufficiency, reducing dependence on oil imports, and reducing carbon emissions. The plan aimed to raise Japan's energy independence ratio from 38% to about 70% by 2030 (compared to the average rate of 70% amongst OECD countries). It also sought to reduce domestic energy related CO<sub>2</sub> emissions by 30% or more in 2030 compared to the 1990 level.

The expansion of nuclear energy was a key component of Japan's energy plan. This included an objective to build 9 new or additional nuclear plants by 2020 and more than 14 new plants by 2030.

Japan's experience of the March 2011 earthquake, tsunami and Fukushima nuclear meltdown has prompted a major review of the country's energy policy. The Fukushima disaster installed in the population widespread fear and distrust about the safety of nuclear power, and the disruption of energy supplies revealed the vulnerability of Japan's energy system.

Japan's revised energy policy is due in mid-2012. It will include four pillars of power generation:<sup>xi</sup>

1. Safety of Nuclear Energy
2. The Environmental Challenge of Fossil Fuels
3. The Practical Use of Renewable Energy (new pillar)
4. The Potential of Energy Efficiency (new pillar)

In October 2011, a Government White Paper confirmed that "Japan's dependency on nuclear energy will be reduced as much as possible in the medium-range and long-range future."<sup>xii</sup> On 5 May 2012, Japan's final nuclear reactor went off-line for maintenance, which is the first time in four decades that none of Japan's energy is derived from a nuclear power source. The government has yet to announce a date for the first re-start of a nuclear reactor.<sup>xiii</sup>

Japan's nuclear disaster has hurt the credit worthiness of their electric utilities sector, and there is uncertainty over regulation of nuclear power plants and increasing costs to operate them. Nuclear power plant operators may also be required to contribute to the Tokyo Electric Power Company's (TEPCO) compensation payout for damage that the disaster caused.<sup>xiv</sup>

Energy security has become a major focus following the March 2011 events. Nobuo Tanaka, Former Executive Director of the International Energy Agency (IEA) and Special Advisor, Institute of Energy Economics observed that while petroleum stockpiling constituted energy security in the 20th century, the stable supply of electric power represents energy security in the 21st century.<sup>xv</sup>

One of Japan's key challenges is the reinforcement of power grid alignment between electric power companies, and especially between eastern and western Japan. Japan is quite unusual among developed nations, with different frequencies between the East (50Hz) and West (60Hz). As discovered in March last year, this proved to be a serious power outage risk in an emergency. Japan may consider interconnecting grids internationally between neighbouring South Korea or with Russia by deploying DC high-voltage transmission technology.<sup>xvi</sup>

Nobuo Tanaka has identified a number of urgently needed reforms for Japan to create a fair, efficient and open energy market. These include separation between power generation and transmission, the consolidation of electric utilities and promoting entry of operators employing renewable energy sources.

## **2.2 Wind Energy Market**

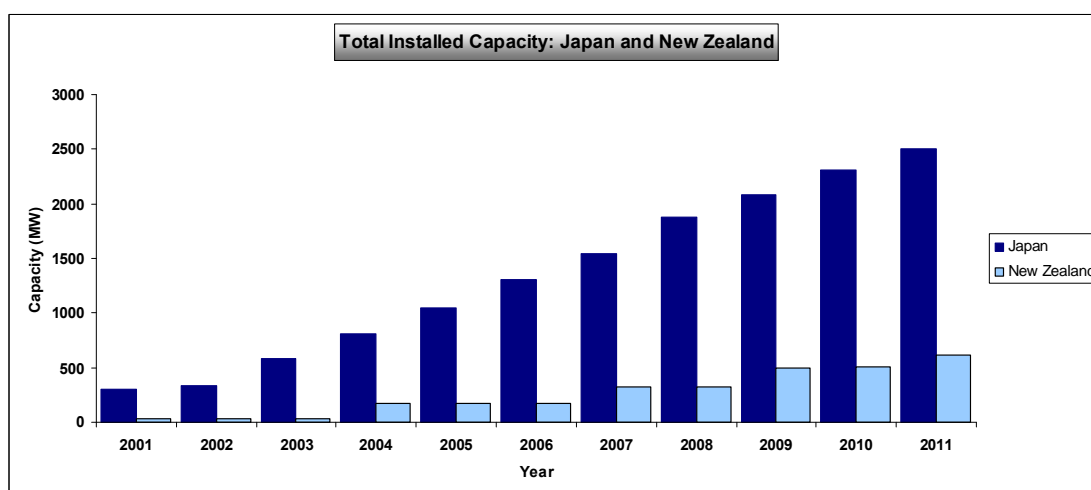
A country renowned for manufacturing innovation, Japan's Mitsubishi Heavy Industries developed an early wind turbine in 1978. The team had a limited budget and time, and so innovated, using a tower found at the shipyards and blades from a helicopter at Nagasaki airport. In 1980, they completed a 40kW wind turbine. Over time, Mitsubishi developed its wind turbine manufacturing operations, but lacked a significant domestic market and so focused its efforts offshore.<sup>xvii</sup>

Following the 1970s oil crisis, there was minimal interest in renewable energy. Japan's energy policy was focused on securing stable oil supplies, promoting the development of nuclear power and encouraging energy conservation.

Over the past decade, a growing awareness of climate change and the need to reduce greenhouse gas emissions has prompted an interest in renewable energy. Japan's first wind farm, Tomamae Green Hill Wind Park, began operating in Hokkaido in 1999.

Japan's wind energy industry has steadily grown, with installed capacity increasing from 136 MW at the end of 2000, to 2,501 MW in 2011. This compares to New Zealand's current capacity of 615 MW. In 2010, there were 1,742 wind turbines in Japan, and 195 wind farms (compared to 459 wind turbines and 16 wind farms in New Zealand). Japan's largest wind farm, Shin Izumu, has 26 turbines and 78 MW capacity (while New Zealand's largest, Tararua wind farm, has 134 turbines and 161 MW capacity).<sup>xviii</sup>

**Wind energy total installed capacity** (Source: Global Wind Energy Council)



Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
<b>MW Japan</b>	302	338	580	809	1,049	1,309	1,538	1,880	2,085	2,304	2,501
<b>MW NZ</b>	36	36	36	168	168	171	322	325	497	506	615

## 2.3 Key Players in the Market

In Japan, the electricity market is divided up into ten regulated companies:

- Chugoku Electric Power Company (CEPCO)
- Chubu Electric Power (Chuden)
- Hokuriku Electric Power Company (HEPCO)
- Hokkaido Electric Power Company (Hokuden)
- Kyushu Electric Power Company (Kyuden)
- Kansai Electric Power Company (KEPCO)
- Okinawa Electric Power Company (Okiden)
- The Tokyo Electric Power Company (TEPCO)
- Tohoku Electric Power (Tohokuden)
- Shikoku Electric Power Company (Yonden)

These privately-owned, integrated power companies act as regional monopolies, accounting for about 85 percent of the country's total installed generating capacity. Industrial facilities generate the remainder. The largest of the power companies is the Tokyo Electric Power Company (TEPCO), which accounts for 27 percent of Japan's total power generation.

**J-Power** ([www.jpowers.co.jp/english/index.html](http://www.jpowers.co.jp/english/index.html))

J-Power is Japan's largest wholesale electricity provider, supplying electricity to Japan's ten major electric power companies. J-Power built and operates 67 power plants (total output capacity of 16,992.5 MW). The company also operates a transmission network of about 2,400 km of power lines throughout Japan. J-Power has a strong offshore presence, and since 1960 has carried out 318 consulting service projects with 63 countries and regions. As at March 2011, J-Power was engaged in 29 Independent Power Producer (IPP) scheme projects in 6 countries and regions (total gross capacity of approximately 15,000 MW (ownership share approx 3,000 MW).

**Eurus Energy Japan** ([www.eurus-energy.com/en/index.html](http://www.eurus-energy.com/en/index.html))

Japan's leading wind farm developer is Eurus Energy, which is jointly owned by Toyota Tsusho (60%) and Tokyo Electric Power Company (40%). Eurus Energy developed Japan's first major wind farm, Tomamae Green Hill in 1999 and Japan's largest wind farm, Shin Izumu (26 turbines and 78 MW capacity). The Eurus Energy Group currently operates 22 wind farms in Japan (537.06 MW - over 20% of Japan's total capacity). They also operate projects in Europe (820 MW), Asia (141 MW), and USA (631 MW), - a total of 2,131 MW worldwide.



## Eurus Energy Wind Farms

Wind Farm	Region	In operation	Capacity
Tomamae Green Hill	Hokkaido	Nov 1999	20 MW
Hamatonbetsu	Hokkaido	Dec 2001	3.97 MW
Enbetsu	Hokkaido	Dec 2001	2.97 MW
Soya misaka	Hokkaido	Nov 2005	57 MW
Date	Hokkaido	Nov 2011	10 MW
Iwaya	Aomori	Nov 2001	32.5 MW
Shitsukari	Aomori	Oct 2003	19.25 MW
Mameda	Aomori	Oct 2003	10.5 MW
Odanosawa	Aomori	Oct 2004	13 MW
Eurus Hitz Katanosawa Cliff	Aomori	Dec 2007	12 MW
Noheji	Aomori	Feb 2008	50 MW
Kamaishi	Iwate	Dec 2004	42.9 MW
Tashirotai	Akita	Nov 2002	7.65 MW
Nishime	Akita	Nov 2004	30 MW
Takine Ojiroi	Fukushima	Dec 2010	46 MW
Satomi	Ibaraki	Dec 2006	10.02 MW
Aridagawa	Wakayama	Dec 2009	13 MW
Shin Izumo	Shimane	Apr 2009	78 MW
Okawara	Tokushima	Feb 2009	19.5 MW
Seto	Ehime	May 2009	8 MW
Kihoku	Kagoshima	Feb 2004	20.8 MW
Kunimiyama	Kagoshima	Mar 2011	30 MW

### Original Equipment Manufacturer Market

In addition to Mitsubishi Heavy Industry (MHI, 2.4 MW), there are three other Japanese wind turbine manufacturers: Fuji Heavy Industry (2MW), Japan Steel Works (JSW, 2 MW) and Komai Tekko (300 kW). While many of their turbines are exported, the three largest manufacturers had around a 50% share in the Japanese market from 2005-2010. Foreign manufacturers such as Vestas, GE and Enercon also have a significant presence in this market.<sup>xix</sup>

## 2.4 Challenges in the Market

Japan's development of its wind energy potential is limited by its topography (with far less flat land than the US or Europe) and a high population density. Many of the most suitable wind farm sites are located in rural, mountainous

terrain where energy demand is low, there is a lack of grid connections and installation costs are high.

The country is susceptible to extreme weather conditions, such as typhoons, lightning strikes and high turbulence. Japan is surrounded by extremely deep water, which also makes offshore wind farms a costly option. As last year's earthquake and tsunami demonstrated, there is also a risk of major natural disasters (although Japan's wind farms coped well in the disaster).

Given its unique meteorological and geographic conditions, Japan's safety standards differ from the International Electro Technical Commission (IEC) standards. For this reason, integration of the Japanese Industrial Standards (JIS) and IEC standards is important.<sup>xx</sup>

Regulations have also restricted growth. The Japanese building code, effective in June 2007, defines a wind turbine 60m or taller as a building. Government approval is required prior to construction, which is a complicated, time consuming and expensive process.<sup>xxi</sup>

Another piece of legislation that threatens to restrict future growth is Japan's Environmental Impact Assessment (EIA) Law. The EIA law was introduced in 1999, but wind farms were not originally included. Following a public campaign opposed to wind turbine noise, the environmental law will be extended to include wind farms from October 2012. The obligatory EIA is complex, expensive and lengthy (it could take up to four years).<sup>xxii</sup>

Obtaining local public support is an essential requirement for wind farm development. In the case of offshore wind farms, this includes cooperation with local fishing industries. In light of the strong anti-nuclear sentiment in Japan, there is a growing public appetite for renewable resources, including wind energy.

The Industry Ministry, METI is planning to offer subsidies, tax breaks and other financial incentives to expand the power grids for wind power generation. METI will initially focus on the Tohoku region, which was hit by the tsunami, and includes sites favourable for wind power generation.<sup>xxiii</sup>

A new Feed-in-Tariff (FIT) Scheme for Renewable Energy will start on July 1st, 2012, following the Diet's (Japanese parliament's) approval of the "Act on Purchase of Renewable Energy Sourced Electricity by Electric Utilities". Electric utilities will need to purchase electricity from renewable energy sources based on a fixed-period contract with a fixed price.<sup>xxiv</sup> Details about the pricing structure are not yet finalised, but the GWEC believes that most forms of renewable energy are likely to attract a payment between 15 and 20 yen (NZ\$0.23-0.30) per kWh for a duration of 15-20 years. A premium is likely to be set for offshore wind and the FIT may also be applied to existing turbines.<sup>xxv</sup>

## 2.5 Market Potential

There are differing views on the potential of Japan's wind energy resources. The Global Wind Energy Council estimates the technical potential of Japan's wind energy at 1.9 TW, including 300 GW onshore and 1.6 TW in offshore wind power.<sup>xxvi</sup> The Japan Wind Power Association estimates Japan's potential at 144 GW onshore and 608 GW offshore.<sup>xxvii</sup>

While land-based development is limited by Japan's mountainous terrain, offshore wind developments could be a viable option in the windy seas that surround the long coastline of Japan. Given the limited amount of shallow water available, Japan is exploring the feasibility of floating wind farms. However, installing floating wind turbines is significantly more expensive than onshore wind development, and presents considerable engineering challenges. Such challenges include ensuring the stability of buoyancy mechanisms and getting fixed lines to the sea floor which can be extended to depths of 200 meters.

Japan currently has three offshore wind farms: Setana (2 turbines, with a total installed capacity of 1.32 MW), Sakata (8 turbines, 3 of which are onshore, each with a total capacity of 2 MW), and Kamisu (7 turbines, total installed capacity of 14 MW). These are all situated close to shore.<sup>xxviii</sup>

A 2010 study conducted by the University of Tokyo examined the offshore wind energy potential in the supply area of Tokyo Electric Power Company. It found that an offshore bottom mounted foundation in shallow waters close to shore would limit potential to 0.21TWh/year to 11.51TWh/year, while a floating foundation in deeper waters would significantly increase the available potential to 80.4TWh/year, even for the most conservative scenario. A slightly less conservative scenario with a capacity factor of more than 30% and 12,255 wind turbines over 6,622 km<sup>2</sup> assessed the floating foundation potential at 100.59TWh/year. This corresponds to 35% of the annual demand of TEPCO (bearing in mind that TEPCO accounts for 27% of Japan's total electricity generation).<sup>xxix</sup>

Japan is stepping up its research and development into offshore wind energy, increasing funding from 200 million yen (NZ\$3 million) in 2008 to 5.2 billion yen (NZ\$80 million) this year. Over the next five years, Japan reportedly plans to spend 10 to 20 billion yen (NZ\$155-309 million) to install six or more floating turbines off the northeast coast. After the initial five-year programme, the trade ministry hopes that by 2020, an offshore wind farm will be developed with a capacity of around 1,000 MW.<sup>xxx</sup>

According to the Japan Wind Power Association, Japan's purchasing of wind turbines and parts, and maintenance services is forecast to grow from an estimated 300 billion yen (NZ\$4.5 billion) a year currently to 500 billion yen (NZ\$7.6 billion) in 2030.<sup>xxxi</sup>

## 3 Opportunities for New Zealand

This report has outlined both the potential and challenges of Japan's wind energy market. It has explored how these challenges are being overcome in the post-Fukushima environment, which may create viable opportunities for New Zealand companies in Japan's wind energy market.

### 3.1 New Zealand's Value Proposition

As New Zealand shares a number of commonalities with Japan, our onshore wind energy expertise would be highly applicable. Like Japan, New Zealand is an island nation, surrounded by windy oceans, mountainous, and susceptible to earthquakes. As in Japan, a large proportion of our land is protected within national parks. Our wind farms meet rigorous environmental standards under New Zealand's Resource Management Act, which would be very relevant to Japan.

New Zealand's main areas of strength include:

- Onshore feasibility assessments, including wind modelling and environmental mitigation;
- Construction experience (onshore);
- Transmission connection experience (onshore);
- Operations and maintenance experience, including forecasting, optimisation in high-winds and logistics (onshore)

### 3.2 Potential Benefits

#### Development of New Skills and Expertise

Japan's floating offshore wind project may be a useful opportunity to develop insights into a potential future energy source. New Zealand has the fifth largest Exclusive Economic Zone (EEZ) in the world, followed by Japan, with the sixth largest EEZ. Due to New Zealand's steep sloping and narrow continental shelf, the water surrounding New Zealand gets very deep, very quickly. As a result, like Japan, the potential sites for fixed offshore wind farms in New Zealand are limited.<sup>xxxii</sup> However, if floating offshore wind farms became commercially available and economically viable, then this could be a significant potential future energy source for New Zealand.

Given the cutting-edge nature of Japan's development of floating offshore wind farms, there could be a useful opportunity for New Zealand companies to participate in Japanese pilots, learn new skills, and apply the knowledge back in New Zealand.

Japanese engineers will be tackling the considerable engineering challenges associated with floating offshore wind turbines, and Japanese manufacturers such as Mitsubishi Heavy Industries will be developing gear that is not currently used in commercial electricity production.

While New Zealand companies may have an interest in Japan's offshore wind IP, Japan would be interested in New Zealand's on-shore wind IP. There could be an opportunity for New Zealand companies with expertise in this area to trade wind IP for mutual benefit. This could also provide a low-risk entry into Japan's wind energy industry.

### **3.3 Investment in Japan**

Japan actively encourages inward investment and supports foreign companies setting up businesses in Japan. The government is offering incentives for direct investment in the areas damaged by last year's earthquake. This includes reducing corporate tax to zero percent for the first five years and providing subsidies for private companies newly investing in the disaster area that create employment. One foreign company looking to invest in the affected region is a Canadian solar energy company.<sup>xxxiii</sup>

#### **Sovereign Risk**

Following last year's earthquake, Japan would be assessed as at high risk of natural disasters with a large impact. The Japanese economy is vulnerable to rises and falls in global demand and the country has a huge debt burden (which exceeds 200% of GDP).<sup>xxxiv</sup> However, the Japanese economy is the third largest in the world, with high rates of savings, a strong yen and large economic reserves. Overall, there is very low sovereign risk at present, however, the world will be watching Japan's recovery and future development with interest.

#### **Investment Structure**

In entering the Japanese Market, New Zealand companies would need to consider whether to participate as an asset owner, a service provider or both. The advantages of an asset owner include alignment of interests between the investment partners and increased control over the investment duration (as opposed to a services contract which may be abandoned if undercut or no longer in favour). The advantages of entering the market as a service provider include less capital outlay and therefore less risk, the ability to

provide services to all market participants, and (depending on the deal structure) greater likelihood of being paid upfront.

### **3.4 Global Opportunities**

Japan's domestic energy crisis may also open unexpected global opportunities for New Zealand companies. Prior to the earthquake, low growth rates were predicted for domestic demand for electric power (J-Power predicted an annual growth rate of around 1%). This encouraged Japanese companies with limited growth opportunities at home to strengthen their offshore operations. However the earthquake and nuclear disaster has created a sudden surge in domestic demand for power. If Japan decreases its nuclear production and increases its energy security through building domestic production of alternative energy sources, then Japanese companies may focus their attention on their home market rather than global operations. This could create opportunities for New Zealand companies in markets which may otherwise have been pursued by Japanese companies. In its 2011/2012 report, J-Power stated that it intended to concentrate on its key markets of Thailand, China and the USA, while actively developing new markets.<sup>xxxv</sup> Developments in Japan over the past year may result in quite a different growth strategy than companies like J-Power had originally intended.

## **4 Conclusion**

While ultimately New Zealand companies will make a decision on whether to invest in Japan's wind energy market, this report has provided an overview of Japan's wind sector and the potential opportunities which firms may wish to explore further.

Developments in Japan's wind energy sector are moving fast. Over the past year, wind power has been revived from a "forgotten" energy source, to a central focus for a country looking towards non-nuclear and non-fossil fuel emitting power sources.

Over the next few months we can expect to see the introduction of Feed-in-Tariffs for renewable energy, and progress on the pilot floating wind turbines off the coast of Fukushima. Other future developments in Japan's broader energy sector include reinforcing the power grid alignment between energy companies, the separation between power generation and transmission, the restart of nuclear reactors and Japan's revised Energy Policy (due mid-2012).

We would welcome the opportunity to provide your company with regular updates on developments in Japan, or could provide research on any other international topic of interest.

## 5 Resources and Contacts

Association/Organisation	Description	Weblink
Ministry of Economy, Trade and Industry (METI), Japan	Lead government agency on energy policy.	<a href="http://www.meti.go.jp/english">www.meti.go.jp/english</a>
Ministry of the Environment, Japan	Lead government agency on environmental policy including climate change and natural parks.	<a href="http://www.env.go.jp/en">www.env.go.jp/en</a>
New Energy and Industrial Technology Development Organisation (NEDO)	Government agency promoting new energy, energy conservation and industrial technologies.	<a href="http://www.nedo.go.jp/english/">www.nedo.go.jp/english/</a>
Japan External Trade Organisation (JETRO)	Lead government-related agency on trade promotion and investment (Auckland Office).	<a href="http://www.jetro.go.jp/newzealand/">www.jetro.go.jp/newzealand/</a>
Japan Renewable Energy Foundation	Foundation created after the events of March 2011 to promote the accelerated deployment of renewable energy in Japan.	<a href="http://www.jref.or.jp/en/">www.jref.or.jp/en/</a>
Japan Wind Power Association (JWPA)	Industry association	<a href="http://www.jwpa.jp/index_e.html">www.jwpa.jp/index_e.html</a>
Japan Wind Energy Association (JWEA)	Industry association	<a href="http://www.jwea.or.jp/">www.jwea.or.jp/</a>
Global Energy Policy Research	Energy policy think tank founded in 2010, and based in Tokyo.	<a href="http://www.gepr.org">www.gepr.org</a>
NZ Ministry of Foreign Affairs and Trade	Lead NZ government agency on TPP (Mark Sinclair, Trade Negotiations Division).	<a href="http://www.mfat.govt.nz">www.mfat.govt.nz</a> E: <a href="mailto:mark.sinclair@mfat.govt.nz">mark.sinclair@mfat.govt.nz</a>

## 6 About Worldview

### 6.1 Mission

The mission of Worldview is to lift New Zealand's international engagement through rigorous analysis of global issues and their 'NZ dimension'. Worldview aims to provide value to its clients through:

- consolidating and interpreting public material on international issues;
- providing concise, accessible and informative analysis;
- highlighting international trends and themes of direct relevance to NZ.

Our reports may help a company decide on whether to explore a new export market, could assist a government department develop a new policy based on international models of best practise, or might provide an organisation with a snapshot of global trends in their sector.

Through its website: [www.worldview.co.nz](http://www.worldview.co.nz), Worldview also aims to provide a platform for debate on global issues. We look at world events through a national lens and consider the impact of international issues on New Zealand. We also reverse the telescope and provide a New Zealand perspective on key global concerns.

### 6.2 Service Offer

Worldview has three service offerings:

Service Offer	Service Offer Detail
Country Sector Level Reports	These reports collate and analyse key publically available political, economic and social information as it relates to a target sector within a particular country. These reports aim to supply NZ companies with sector specific insights into current trends and emerging themes in an offshore market. This report is an example of this type of service offering.
Global Trends Reports	These reports provide quarterly, six-monthly or annual updates on global trends in a target sector. They focus on recent developments and forecast upcoming issues across multiple key countries.
Customised Reports	These reports will analyse a sector and / or foreign market according to the specification asked for by the client.



## 6.3 Who we are

Worldview is a start-up company founded by Amy and Simon Prebble



**Amy Prebble** has a Masters (MPhil) from Cambridge University and ten years experience in the New Zealand diplomatic service. During this time she served as a diplomat in Paris and Canberra, was Private Secretary to the Minister of Foreign Affairs and Trade, Phil Goff, and worked in strategy, trade and Europe divisions of MFAT. Amy has visited Japan as New Zealand's Japan Airlines (JAL) Scholar, as part of a ministerial delegation, and as an independent traveller.



**Simon Prebble** has an MBA majoring in corporate strategy from HEC Paris and a commercial background in the power and telecommunications sectors. Simon has worked for Telecom NZ, Deloitte and Meridian Energy in Wellington and Schneider Electric in Paris. He has specialised in contract management and is currently a Senior Commercial Manager at Chorus.

## 6.4 Contact Us

If you would like further information, to discuss a report, or make a suggestion please do not hesitate to contact us at:

Amy Prebble  
Worldview Ltd  
PO Box 25080  
Wellington 6146  
T: +64 21 120 7407  
E: amy.prebble@worldview.co.nz  
[www.worldview.co.nz](http://www.worldview.co.nz)

## 7 End Notes

- 
- i Reuters, "Japan switches off last nuclear power plant: will it cope?", [www.reuters.com/article/2012/05/04/us-japan-nuclear-idUSBRE8430BO20120504](http://www.reuters.com/article/2012/05/04/us-japan-nuclear-idUSBRE8430BO20120504), 4 May 2012
- ii According to the Japan Wind Power Association, Bloomberg News, "Floating Windmills in Japan Help Wind Down Nuclear Power", 30 March 2012, [www.businessweek.com](http://www.businessweek.com)
- iii Japan's Ministry of Economy, Trade and Industry, "Japan's Challenges", 8 March 2012, [http://www.meti.go.jp/english/earthquake/nuclear/japan-challenges/pdf/japan-challenges\\_c.pdf](http://www.meti.go.jp/english/earthquake/nuclear/japan-challenges/pdf/japan-challenges_c.pdf)
- iv JETRO, "Opening remarks by Mr Yoshinori Suematsu, State Secretary for Reconstruction", 23 March 2012, [http://www.reconstruction.go.jp/english/topics/OpeningRemarks%20SSR\\_Suematsu\\_JETRO\\_20120323.pdf](http://www.reconstruction.go.jp/english/topics/OpeningRemarks%20SSR_Suematsu_JETRO_20120323.pdf)
- v MFAT, "Japan Country Paper", <http://www.mfat.govt.nz/Countries/Asia-North/Japan.php#economic>
- vi As above
- vii Members of the TPP include New Zealand, Singapore, Chile, Brunei, US, Australia, Malaysia, Peru, Vietnam. New Zealand's Ministry of Foreign Affairs and Trade is leading negotiations on the TPP.
- viii CIA World Factbook, [www.cia.gov/library/publications/the-world-factbook/geos/ja.html](http://www.cia.gov/library/publications/the-world-factbook/geos/ja.html)
- ix US Energy Information Administration, <http://205.254.135.7/cfapps/ipdbproject/iedindex3.cfm?tid=2&pid=alltypes&aid=7&cid=JA,&syid=2004&eyid=2009&unit=MK>
- x Japan's Ministry of Economy, Trade and Industry, "The Strategic Energy Plan of Japan," revised June 2010, [http://www.meti.go.jp/english/press/data/pdf/20100618\\_08a.pdf](http://www.meti.go.jp/english/press/data/pdf/20100618_08a.pdf)
- xi Japan's Ministry of Economy, Trade and Industry, "Japan's Challenges", 8 March 2012, [http://www.meti.go.jp/english/earthquake/nuclear/japan-challenges/pdf/japan-challenges\\_c.pdf](http://www.meti.go.jp/english/earthquake/nuclear/japan-challenges/pdf/japan-challenges_c.pdf)
- xii Japan Atomic Industrial Forum, 11 November 2011, [http://www.jaif.or.jp/english/news\\_images/pdf/ENGNEWS01\\_1320640517P.pdf](http://www.jaif.or.jp/english/news_images/pdf/ENGNEWS01_1320640517P.pdf)
- xiii Reuters, "Japan switches off last nuclear power plant: will it cope?", [www.reuters.com/article/2012/05/04/us-japan-nuclear-idUSBRE8430BO20120504](http://www.reuters.com/article/2012/05/04/us-japan-nuclear-idUSBRE8430BO20120504), 4 May 2012
- xiv Electric Power Development Co. Ltd, Reuters, 29 March 2012, [www.reuters.com/article/2012/03/29/idUSWLA550820120329](http://www.reuters.com/article/2012/03/29/idUSWLA550820120329)
- xv Global Energy Policy Research, Nobuo Tanaka, "Reflecting on Japan's Energy Policy Review", <http://www.gepr.org/en/contents/20120116-01/>
- xvi As above
- xvii Harvard Business School, May 2011, [www.hbs.edu/research/pdf/11-112.pdf](http://www.hbs.edu/research/pdf/11-112.pdf)
- xviii IEA, [www.ieawind.org](http://www.ieawind.org); NZ Wind Energy Association, [www.windenergy.org.nz](http://www.windenergy.org.nz)
- xix GWEC, [www.gwec.net/index.php?id=123&L=0](http://www.gwec.net/index.php?id=123&L=0), IEA, [www.ieawind.org](http://www.ieawind.org)
- xx GWEC, [www.gwec.net/index.php?id=123&L=0](http://www.gwec.net/index.php?id=123&L=0)
- xxi As above
- xxii [www.businessweek.com/news/2012-03-29/floating-windmills-in-japan-help-wind-down-nuclear-power-energy](http://www.businessweek.com/news/2012-03-29/floating-windmills-in-japan-help-wind-down-nuclear-power-energy)
- xxiii The Asahi Shimbun, 'METI to financially support Wind Power Industry', 1 February 2012, [www.ajw.asahi.com](http://www.ajw.asahi.com)
- xxiv Japan's Ministry of Economy, Trade and Industry, Feed-In Tariff Scheme for Renewable Energy", [http://www.meti.go.jp/english/policy/energy\\_environment/renewable/pdf/summary201109.pdf](http://www.meti.go.jp/english/policy/energy_environment/renewable/pdf/summary201109.pdf)
- xxv GWEC, "Ambitious long-term wind target needed in Japan", 03/10/2011, [www.gwec.net](http://www.gwec.net)
- xxvi GWEC, [www.gwec.net/index.php?id=77&L=0&tx\\_ttnews\[backPid\]=76&tx\\_ttnews\[pointer\]=4&tx\\_ttnews\[tt\\_news\]=308&cHash=44fd644229](http://www.gwec.net/index.php?id=77&L=0&tx_ttnews[backPid]=76&tx_ttnews[pointer]=4&tx_ttnews[tt_news]=308&cHash=44fd644229)
- xxvii [www.businessweek.com/news/2012-03-29/floating-windmills-in-japan-help-wind-down-nuclear-power-energy](http://www.businessweek.com/news/2012-03-29/floating-windmills-in-japan-help-wind-down-nuclear-power-energy)
- xxviii Lindoe Offshore Renewables Center, [www.lorc.dk](http://www.lorc.dk)
- xxix University of Tokyo, "An Assessment of the Available Offshore Wind Potential using Mesoscale Modelling and Geographic Information System", [www.windeng.t.u-tokyo.ac.jp/ishihara/proceedings/2010-8\\_paper.pdf](http://www.windeng.t.u-tokyo.ac.jp/ishihara/proceedings/2010-8_paper.pdf)
- xxx Reuters, "Japan plans floating wind power for Fukushima coast", 13 September 2011, [www.reuters.com/article/2011/09/13/us-japan-wind-idUSTRE78C41M20110913](http://www.reuters.com/article/2011/09/13/us-japan-wind-idUSTRE78C41M20110913)
- xxxi [www.businessweek.com/news/2012-03-29/floating-windmills-in-japan-help-wind-down-nuclear-power-energy](http://www.businessweek.com/news/2012-03-29/floating-windmills-in-japan-help-wind-down-nuclear-power-energy)
- xxxii NZ Wind Energy Association, <http://windenergy.org.nz/documents/factsheets/community.pdf>
- xxxiii JETRO, "Opening remarks by Mr Yoshinori Suematsu, State Secretary for Reconstruction", 23 March 2012, [http://www.reconstruction.go.jp/english/topics/OpeningRemarks%20SSR\\_Suematsu\\_JETRO\\_20120323.pdf](http://www.reconstruction.go.jp/english/topics/OpeningRemarks%20SSR_Suematsu_JETRO_20120323.pdf)
- xxxiv CIA, "The World Factbook, Japan", <https://www.cia.gov/library/publications/the-world-factbook/geos/ja.html>
- xxxv J Power, Corporate Brochure, 2011-2012, [www.jpowers.co.jp/english/company\\_info/about/kaisya/pdf/e2011.pdf](http://www.jpowers.co.jp/english/company_info/about/kaisya/pdf/e2011.pdf)

---

**Disclaimer:**

*This report was compiled from publically available information and while we have aimed to ensure accuracy and reliability of sources, Worldview accepts no liability for any errors or omissions expressed. The information expressed in this report is general, and you would be advised to conduct your own independent assessment of the opportunities in this market.*