

## Proactively Expanding Wind Power and Other Clean Energy Projects

Humanity faces a number of critical issues including dwindling resources, stable supply of energy, and global warming. As an energy company, Cosmo Oil is helping to address these social issues by proactively pursuing renewable energy projects such as wind and solar power generation and providing clean, green energy generated in Japan.



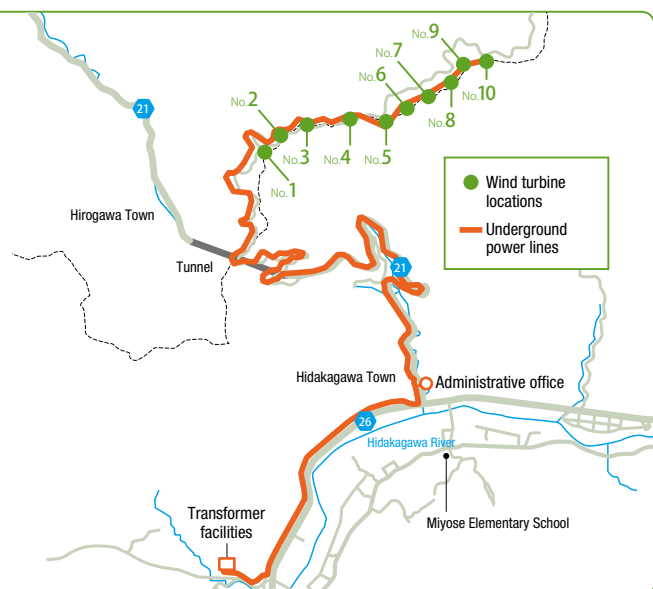
### New Wind Farm Goes Online

EcoPower Co., Ltd. was established in 1997, becoming the first Japanese company engaging in both maintenance and operation of wind power generation facilities. It joined the Cosmo Oil Group in 2010 and drives the Group's wind power business today. EcoPower has improved wind turbine operating rates to deliver more stable power and continues to build new, large-scale wind farms. In November 2014, the Hirogawa-Hidakagawa Wind Farm, the first wind farm it built since joining the Group, went into operation.

This wind farm is situated on a ridge of the Shirama mountains in Wakayama Prefecture. Based on environmental assessments done in the planning stages of the project, EcoPower took steps to mitigate the anticipated impact on the ecosystem, and also provided extensive information to community residents to gain their support. EcoPower will continue to supply clean wind power for a sustainable Japan.

#### Hirogawa-Hidakagawa Wind Farm

Project size	<b>2,000 × 10</b> turbines kW-class capacity each
CO <sub>2</sub> reduction	Approx. <b>19,000</b> tonnes/year
Annual generating capacity	Enough energy to supply Approx. <b>11,000</b> households for a full year
Equivalent crude oil reduction	Approx. <b>12,000</b> kl/year (60,000 drums)



## EcoPower's Wind Power Plants

Total power generating capacity: 182,510 kW  
Total number of wind turbines: 145

Wakkanai: 2,300 kW

Reuke: 2,960 kW

Rumoi: 2,400 kW

Atsuta: 900 kW

Oiwake-Souran: 800 kW

Matsumae: 800 kW

Hebiura: 400 kW

Noheji: 800 kW

Mutsu-Ogawara Wind Farm: 31,500 kW

Akitaaraya Wind Farm: 6,800 kW

Sakata Port: 1,500 kW

Tachikawa Wind Farm: 3,200 kW

Goto-Kishiku:  
1,200 kW

Ikata Wind Farm: 18,000 kW

Nemuro-Habomai: 750 kW

Iwaya: 800 kW  
Iwaya Wind Park: 27,000 kW

Sodeyama Heights:  
1,200 kW

Launched in February 2015

Aizuwakamatsu Wind Farm:  
16,000 kW

Hazaki: 1,200 kW

Hazaki Wind Farm: 15,000 kW

Choshi Wind Farm: 10,500 kW

Sodegaura: 1,500 kW

Iwata Wind Farm: 15,000 kW

Scheduled to go online in 2017

Watarai Project: 28,000 kW  
(increasing to 50,000 kW)

Launched in November 2014

Hirogawa-Hidakagawa Wind Farm: 20,000 kW

## Safe and Reliable Maintenance to Ensure High Availability

It has been five months since the Hirogawa-Hidakagawa Wind Farm went online in November 2014. Everything is going as planned, and we have met our target of achieving 94% availability. This is the first time EcoPower has used made-in-Japan turbines. They are specifically designed for wind conditions in Japan, where wind direction and speed can change from day to day. We are currently working with the maker to collect data so that we can further improve availability.

Maintenance and inspections are essential to securing the safe operation of a wind farm. We conduct monthly, biannual and annual inspections and also respond as needed to unforeseen situations. We track the operating status of every turbine owned by EcoPower in a database, and we have a framework for quickly responding and implementing safe and reliable measures in an emergency. We will keep working to maintain high availability to secure stable supply of electricity.

### Yoshikazu Hashimoto

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Hitachi Solar Power Plant (CSD Solar)

## More Mega-solar Power Plants Launched

In March 2013, Cosmo Oil entered the mega-solar power business in earnest by establishing CSD Solar, a joint venture with Showa Shell Sekiyu and the Development Bank of Japan. CSD Solar has stepped up its wholesale power generation business with the launch of the Hitachi Solar Power Plant and four other mega-solar power plants in 2014 and the Kasumi Solar Power Plant in June 2015. The company will soon construct two additional mega-solar plants to bring the total number of sites across Japan to eight, for a total generating capacity of 24,000 kW.

### CSD Solar's Main Power Plants

Launched in June 2014; 384 kW capacity

Hitachi Solar Power Plant (Ibaraki Pref.)

Launched in July 2014; 1,229 kW capacity

Tokushima Solar Power Plant (Tokushima Pref.)

Launched in July 2014; 573 kW capacity

Oita Solar Power Plant (Oita Pref.)

Launched in October 2014; 1,188 kW capacity

Taniyama Solar Power Plant (Kagoshima Pref.)

Launched in November 2014; 1,966 kW capacity

Fukui Solar Power Plant (Fukui Pref.)

Launched in June 2015; 4,608 kW capacity

Kasumi Solar Power Plant (Mie Pref.)