

## Press Release

# Open Sourcing a future for renewable energy



Imagine a time when we have more control over the energy we have available to us: a time, for example, when we use the sun's energy to power our homes and our electric vehicles; when individual households readily contribute power to a 'smart' distribution grid.

It may sound rather futuristic, but with the right thinking we could get there sooner than you think. Wind farms, geothermal power and hydroelectric dams already account for 80% of all power generated in this country.

But while viable technology to capture solar energy is progressing in leaps and bounds, New Zealand's potential to exist wholly on renewable energy has yet to be fully tapped.

There is little doubt that renewable energy is the way of the future. The question is: how far in the future will our homes and transport be energy self-sufficient, and when will our existing power stations be enough to maintain the status quo?

The answer depends on two things: our ability to change the way we think about energy, its generation, distribution and use; and, crucially, the capacity for companies operating in this space to alter the way they work.

As with many industries, companies working within the power sector have traditionally laboured in isolation, keeping their knowledge closely under wraps. As a result, research and development costs are high, much effort is needlessly duplicated and time to market can be a long, hard slog.

There is, however, a growing community of engineers, academics and business leaders in New Zealand that hopes to change this. They have created an open source forum to help develop technologies to support electric vehicles, solar energy technologies and smart power distribution.

Open source describes practices in production and development that promote access to the end product's source materials. Some consider open source a philosophy, others consider it a pragmatic methodology.

Open source gained hold with the rise of the Internet, and the need for sometimes massive retooling of the computing source code. But the concept of open source and free sharing of technological information existed long before computers. For example, people have shared cooking recipes since the beginning of human culture.

A central principle of open source is collaboration. The approach encourages groups with a common goal to share their ideas, knowledge and findings. Importantly, product development isn't compromised: people contribute what they want and take what they want.

Open source simply irons out many of the pitfalls.

With the end-product, source-material, 'blueprints' and documentation freely available to the public, the upshot is that R&D costs are reduced and product can get to the market more quickly.

Hi-tech company Greenstage has been driving an open source initiative in New Zealand's power sector, pulling in necessary support from complementary businesses along the way. Their projects aim to capture people's attention and demonstrate the potential of new technologies: generating demand for change is the primary goal.

For example, the group is challenging our preconceptions: we've traditionally viewed the supply of power as a one-way channel, coming from the power companies to our

homes and businesses; and electric vehicles are generally considered slow and cumbersome, with short running times between protracted recharges. But it needn't be this way.

Indeed, this was the catalyst for an open source forum in Pokeno in December last year. The occasion brought together like-minded people in the distributed generation and smart grid space for the first time in New Zealand.

Facilitated by Greenstage, the goal was to establish an open source platform for the group and create an even and pragmatic playing field for those involved.

The outcome was encouraging, with three projects spinning out from the event: the group has agreed to jointly progress low-volume electric vehicle production, a solar energy power distribution network, and combined battery charger and inverter technology.

Greenstage is tackling the electric vehicle question from two angles: the team has begun building the Saker 750 electric race car and, using this technology, is also developing low-volume production road-going Sakers.

It is the availability of a common platform which will make electric vehicles commercially viable; it has already provided the standards and tool for DIY car enthusiasts to convert their petroleum-driven vehicle to an electric-powered model. Participants from the Pokeno conference are also exploring a way to get direct excess power to the national grid. SolarNetwork is an open source platform which relies on the continuous Participation and cooperation of an online community. Put simply, consumers with off-grid solar installations would be able to both manage their own power requirements and sell surplus electricity via the Internet.

Lastly, trials are planned for a vehicle battery charger/inverter circuit. The goal is two-way power transmission between the home and the car. The result would be a solar powered vehicle that, as well as being able to draw power from the home, could in turn supply power to the home when it was not being driven.

The beauty of an open source approach is that it is expected to shave years off the development of these technologies, allowing the benefits to be enjoyed by more people, much sooner. It's simply smarter business.

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