

STOP PRESS!

Segen is pleased to announce that it has agreed terms to merge with Devon based Hydro Generation Ltd.

Hydro Generation is a business dedicated to the development of the potential of micro hydro as a sustainable source of energy generation. Based at offices in Devon and Stroud, Hydro Generation has been established for four years and has not only installed a number of micro hydro sites across the UK, but has also developed a low cost turbine specifically for the type of low head sites common in the UK, and across the world.

Segen and Hydro Generation have been working together for the past 18 months and have formed an excellent working relationship, and it was only natural therefore that closer ties would be on the cards.



Phil Davies, MD of Hydro Generation said *"I am very pleased to be joining forces with Segen, and the combined financial strength and expertise of both companies will enable us to more rapidly expand the business and develop more and larger micro hydro projects, across a wider geographical area."*

For more information on Hydro Generation please visit the Hydro Generation web site: <http://www.hydrogeneration.co.uk/>

HydroGeneration Ltd**Christmas Turbine Special Offer**

Segen has signed a distribution agreement to sell Southwest Windpower's range of grid connected small wind turbines in the UK. US based Southwest Windpower is one of the world's most established and largest small wind turbine manufacturers and has sold many 1,000s of turbines across over 100 countries.

Segen has now launched the Whisper 500 3.2kW small wind turbine in the UK which is a very cost effective mid range small wind turbine, capable of generating 500kW per month in a typical UK average wind speed of 5m/s. It is ideally suited to rural domestic property owners looking to generate their own power and make their own contribution to reducing climate change.

Full technical details of the turbine may be viewed by downloading the specification from Segen's web site: <http://www.segen.co.uk/downloads/downloads.htm>

Segen has a special launch offer enabling the first 5 UK customers to get a fully installed Whisper 500 for only **£9,995** (after claiming the £3,200 Low Carbon Building Domestic Grant) that this turbine is fully eligible for. This includes the turbine, the electrical connection, foundations, installation and commissioning, subject only to a site survey to ensure there are no issues with the site, and a maximum distance of 100m from your property.

Segen of course continues to sell the Iskra AT5-1 5kw turbine, which has proved very popular for slightly larger applications, such as schools, farms, community centres and commercial applications.

This is a limited period offer and is subject to a full planning application being made for your installation by **Christmas 2006**, so contact Segen now if you want to take advantage in time!

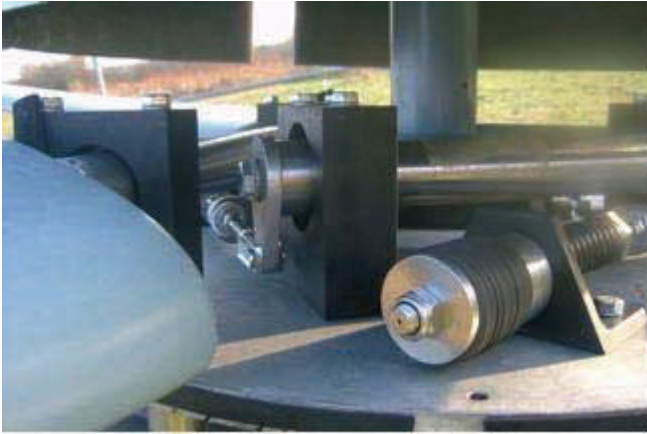
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Technology

Wind turbine systems have been developed over a number of years, and each generation builds on knowledge from previous products and experience. In no case is this more true than with the **Iskra AT5-1 5kW** small wind turbine. Developed by the engineering team at Iskra over a 5 year period, the AT5-1 design contains a number of very innovative design features that make it the most technologically advanced small wind turbine on the market today.

Pitch Control

One of the most important issues that any wind turbine has to deal with, is that of too much wind. The power in the wind is proportional to the cube of the wind speed, so the power at the maximum design conditions (typically 60m/s) is 1,000 times that at "normal" operating conditions (typically 6m/s). The turbine not only needs to survive high wind speeds but ideally without unwanted side effects, such as high noise. This requires an effective and robust mechanism for "shedding" power at high wind speeds.



With the Iskra AT5-1 over-speed protection and pitch control have been achieved using a clever and light-weight mechanism so as to minimize the overall weight of the elevated structure. This has positive consequences for the responsiveness of the turbine in variable wind and also for the overall cost.

Speed regulation is achieved through an ingenious geometrical arrangement with a spring preload acting against generator torque and centrifugal forces. This protects the turbine both against over speeding and against producing too much power, thus removing any requirement for "dump loads". This method of protection works, irrespective of how much power is being extracted by the turbine, in either a grid connected or battery charging application.

Generator

The second major innovative feature of the AT5-1 is the Permanent Magnet Generator (PMG). This is another patented technology, unique to Iskra.

Through a number of innovations, the axial flux permanent magnet generator developed by Iskra achieves a remarkably high efficiency, in excess of 95%, which has been independently tested and confirmed by members of the Cambridge University engineering department.

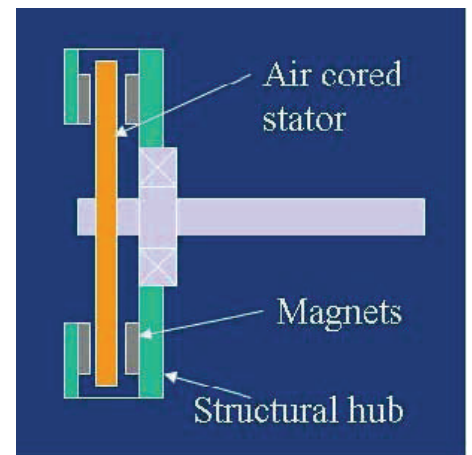
The main features of the Iskra generator are:

1. Air cored, so there is no magnetic attraction between stator and rotor
2. Single hub plate that provides both structure and carries the magnetic flux.
3. Innovative arrangement of coils.

This has a number of very important benefits:

1. Very little energy is lost in the generator, which naturally means that more is available to be used.
2. The generator has the capacity to act as a brake that can bring the wind turbine to rest from any operating condition.
3. There is a low component count, and therefore low cost of manufacture.

If you want a full a full 8 page white paper on the design of the Iskra AT5-1 turbine, then please contact Segen and we will be happy to send you a copy.



A Personal View

We asked some of our recent customers to write some personal notes on why they got a wind turbine from Segen, and this is the first in a series from Stephen Welsh in Hebdon Bridge, in his own words.

"So why did we buy a wind turbine? Well, a few hundred yards from where we live, there's a 24 turbine wind farm. In the other direction there are two small 5kW turbines - and they spend practically all day, every day, skipping around and making electricity.

I went to a meeting about renewable energy at the local pub and the owners of the two small turbines were there. Salesmen are one thing, but listening to the actual experience of the two owners is quite another. They spoke well of Segen and had no complaints. My wife and I did lots of thinking and did back of an envelope calculations about money saved against the cost of the investment. And then I rang Segen. We gave the map co-ordinates of the possible location for a turbine and within the week a sheaf of papers arrived showing our mean wind speed and financial calculations showing estimated savings on our electricity bill and income from selling the surplus electricity to the grid. And then we had a visit from Jim Robertson of Segen. We walked our field and talked about the best possible site. We talked about planning permission and the grants available. Jim gave us a quote for the turbine and that meant we could apply for a grant (it was the Clear Skies Grant scheme then). While waiting for the grant to be approved, we applied for planning permission. The information sent to us by Segen was invaluable in filling out the planning application, but if we'd wanted to, Jim would have helped us fill in. The grant was soon approved and so the next step was to arrange the installation of the wind turbine.



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At a mutually convenient date, the foundations were dug, filled with cement and left for a fortnight to dry. Then the wind turbine itself arrived and within two days it was up, spinning round and generating our own electricity. Jim arrived on the second day and brought some beer. A nice touch, I thought, and a fitting celebration. It's not often you spend £15,000, but the process was smoothed by Segen. Queries were answered promptly. Problems were sorted.

So why did we buy a wind turbine? A number of reasons. We live on the tops and it's windy. We have some land. The wind turbine will add to the value of the house should ever we have to move. The turbine is capable of producing a surplus above our needs and we'll sell that to the grid. But we're also aware that the world we live in is changing rapidly. Global warming is a fact and we're committed to renewable energy. Practising what you preach is important. But also we have a nine year old child. It's not so much about the money we might make and the payback period. It's about the world he'll live in 10 and 20 years from now.

I used to get tired of the wind blowing around the house. Now I don't mind."

Stephen's turbine has now been running for just over a month and he organised an open day for local people to come and see it, at which over 60 people admired his new pride and joy. Read all about Stephen's open day in Halifax Today:

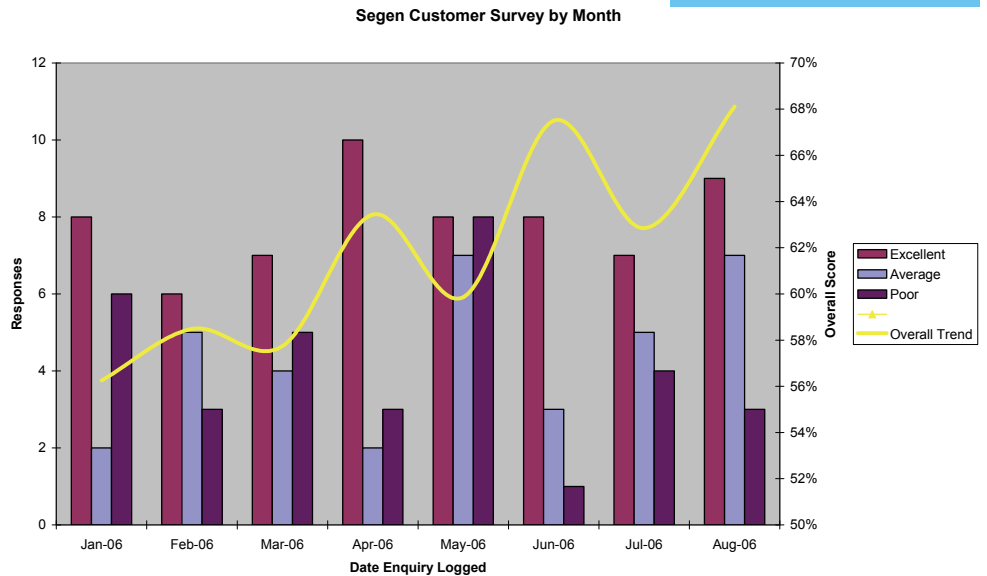
<http://www.halifaxcourier.co.uk/ViewArticle2.aspx?SectionID=700&ArticleID=1863031>

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Customer Survey

We would like to thank everyone who responded to our customer survey in September and we have now collated all the responses.

We have taken all the feedback on board and made further improvements to our enquiry handling procedures, and it was nice to see that our average score had increased from 55% in January up to nearly 70% in August, but we'll keep working hard to get even better!



What you can measure, you can save

Not only can we reduce our electricity bills and help to reduce climate change through generating our own electricity, but we can also very easily save electricity. Government organisations like the Energy Saving Trust (<http://www.est.co.uk/myhome/>) and the Carbon Trust n/ (<http://www.carbontrust.co.uk/energy/>) both have excellent web sites with lots of advice, targeted at individuals and companies respectively to help save energy.

With probably 50+ electrical appliances however in a typical house, ranging from mobile phone chargers to clothes driers, how do you know where your electricity is being used?



One easy way is to buy an electricity monitor which shows you how much electricity you use at home, how much it costs you, and how much harmful CO2 emissions you are contributing to the environment through your electricity usage. These can be installed very easily, usually by just clipping a sensor over your incoming mains cable, and using wireless technology display the information on a remote display.

These enable you to see exactly how much power your house is using at any time, and will help you to identify which devices are the most power hungry. You may be surprised just how much energy you are using when you think everything is turned off!

Our favourite for domestic properties is the Electrisave and the best price currently (£65) from a web retailer seems to be the Ethical Superstore. (http://www.ethicalsuperstore.com/product_info.php?cPath=73&products_id=1194), but shop around as prices change constantly.

You may also like to monitor individual devices, in which case you should look at a power meter that will record the total power used by a device over a period of time. The best value one we have found is available from Maplin (<http://www.maplin.co.uk/module.aspx?TabID=1&criteria=power%20meter&ModuleNo=38343&doy=7m11>) for £13,50.



Upcoming Events

Segen is an active supporter of local renewable energy events across the country and will be supporting and exhibiting at the following locations:

6th December 2006 The Energy Show, Longhirst Hall, Morpeth Northumberland

3rd February 2007 Customer Open Day in Todmorden, Lancs. One of our valued customers has offered to open their gates to allow visitors to see their Iskra AT5-1 Turbine fully operational.

27th March 2007 Segen will be exhibiting at the **Envirenergy North West** exhibition. Join us at Stand 49.

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