

Wales Targets Clean Technology

By SELINA WILLIAMS

LONDON—Wales may have been well known in the past for its coal mines and polluting heavy industry but now the region wants to cash in on the growing financial opportunities in low-carbon development by combining its natural resources in renewables with innovation in clean technology.

By 2025, Wales wants to generate all its electricity from renewable sources and even become a net exporter—an aim analysts say is feasible. In the meantime, the regional government is working to attract companies involved in the research and innovation side of the sector with a view to becoming a leading center for alternative-energy research and development in the United Kingdom.

"We're very committed to achieving this goal, but we can't do it on our own," said David Jones, vice president of International Business Wales, the trade and investment arm of the Welsh Assembly, the regional government. "We realize that if it's just the public sector, it probably wouldn't happen, so we had to try to encourage innovators to come to Wales."

Wales, with its windy weather, long coastline and huge tidal range in the River Severn Estuary, is well placed to become a significant producer and exporter of green energy, particularly with its location close to the huge market in England.

Although investment in renewable energy in Wales has so far been around £1 billion, or about \$1.98 billion, the regional government's plan to increase green electricity output to 16 gigawatts by 2025 from 400 megawatts now will require around £26 billion, said Ron Loveland, director of sustainable energy and industry at the Welsh Assembly.

Wales is betting on two huge projects: the £15 billion Severn Estuary tidal barrage and the largest biomass plant in the world in Port Talbot to generate the bulk of electricity. Wind farms, biomass and marine energy—such as wave power and tidal power—would supplement the total.

In tandem with the renewables targets, Wales is working to boost investment in clean technology—a sector that includes solar photovoltaic cells and hybrid cars, as well as research into energy efficiency in buildings and power stations.

Companies and analysts say the streamlined bureaucracy and decision-making process in Wales, access to skilled labor and proximity to universities for research and development have made the region an ideal location to set up a clean-tech business.

"Wales has a good track record of attracting inward investment and getting its act together to generate economic development in a specific area," said Jonathan Johns, head of renewables at consulting firm Ernst & Young.

"It's also got very good natural resources, as well as a strong technical base, so it's very well placed for research and development in the clean-tech sector," he added.

For the smaller companies that are typical of this sector, these sorts of incentives are important. Many of them are working on tight budgets as they concentrate on converting cutting-edge ideas and technology into a finished product.

G24 Innovations Ltd. has invested \$75 million in a factory in Wales to manufacture lightweight and durable silicon-free thin-film solar cells to power mobile-phone chargers in countries such as India or across Africa where electricity grids aren't widespread, but mobile-phone penetration is increasing.

President J. Clemens Betzel said G24i initially looked at the greater London area, but prohibitively expensive real estate prompted them to look elsewhere. "We found a very good site for the factory in Wales, the level of bureaucracy limited and the turnaround time on the site very quick, as the land was owned by the Welsh Assembly Government," Mr. Betzel said.

G24i, which has contracts with Vodacom in Tanzania and Kenya, and a distribution deal with the U.S.'s **Bright Star Ventures Ltd.**, plans to ramp up output this year to several million units as further deals develop with **Motorola Inc.** and **Vodafone Group PLC.**

Vodacom is jointly owned by South Africa's **Telkom SA** and the U.K.'s **Vodafone**. G24i hopes to expand the applications of its thin film to include chargers for laptops and other electronic devices such as surveillance systems and base stations for mobile-phone stations.

Connaught Engineering Ltd., which produces a hybrid system that can be retrofitted to commercial vehicles, has invested half of a £12 million investment package in South Wales, where it has just commissioned a factory.

The company, which says its hybrid system increases fuel efficiency by 15% to 20% while reducing carbon emissions, expects orders of around 4,000 hybrid units a year once trials are completed this year with U.K. supermarket chain **Tesco PLC**, construction and engineering company **Balfour Beatty**, U.K. building company **Rok PLC**, and others.

It's also involved in the development of four other hybrid systems for other types of vehicles.

Chief Executive Tony Martindale said that the strong automotive expertise in Wales, site of **Toyota Motor Corp.** and **Ford Motor Co.** engine-

manufacturing plants, combined with the research at the universities, would help the company to develop new products.

"We use a lot of the research programs at the universities as the research and development feed for future developments in our business," Mr. Martindale said.

Other companies in the clean-tech sector in Wales include Japan's **Sharp Corp.**, which is doubling production capacity for solar photovoltaic modules at its plant in North Wales to 220 megawatts a year. The plant in Wales is the company's second largest outside Japan.

Ernst & Young's Mr. Johns said that as well as attracting companies, the Welsh Assembly is very skilled at getting funding from the U.K. government or from the European Union for R&D gets so that money can be focused and given to initiatives rather than being dispersed across lots of different projects," Mr. Johns said.

One such grant winner is **Corus**, the European arm of **Tata Steel Ltd.**, and Australian solar photovoltaic company **Dyesol Ltd.** that recently secured funding from the Welsh Assembly for their joint project on developing solar-cell technology on steel for building integrated photovoltaic applications.

The new "Wales Low Carbon Research Institute" is one of the research facilities expected to receive "significant" money from the EU's £1.4 billion convergence fund for Wales, said the Welsh Assembly's Mr. Loveland.

"The institute has already received a grant of £5 million to increase the number of academics involved in low-carbon research, but they're expected to get significant money from the EU fund, which has around £60 million for climate-change projects and £100 million for innovation," he said.

