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GREEN TECHNOLOGY Spain was fast becoming one of the market leaders in several forms of renewable energy before the financial crisis of 2008. Although the crisis saw huge reductions in investment for green technologies it also saw a re-focusing of attention on environmental issues. Green technology has so far reaped rich rewards for Spain as a whole and for a few regions in particular.

REGIONAL DIFFERENCES

Spain's regions differ greatly in terms of their sustainable energy produce, with the more northern regions especially excelling – Navarre is already producing near 70% of its energy from a range of renewable sources and other regions like Castile & Leon and Galicia hope to reach 100% in the near future. These northern regions are way ahead of regions like Madrid, Valencia and the Balearic islands, and they at the forefront

of the Spanish Government's drive to reach the European Commission's target of 20% renewable energy consumption rate per annum way before 2020.

SOLAR POWER

Due to the high levels of sun all year round in Spain, it has become one of the foremost countries in solar power development and implementation. Concentrating Solar power plants (CSP)

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are being developed worldwide. However, these are dominated by the United States with 8.67 GW, followed by Spain with 4.46GW, almost double of Japan which is next in line.²

Spain's Solnova solar power station is one of the largest in the world. It is located at the Solar platform in Sanlúcar la Mayor where the solar 'power tower' is also located. **Abengoa Solar** a subsidiary of **Abengoa**, the Spanish multinational, owns all five plants.³

Andasol power station is Europe's first parabolic trough solar thermal power plant located in Guadix, in the Andalusia region. Andasol 1 and 2 are owned by **ACS Group**, a Spanish civil engineering multinational.

Andasol 3, which was commissioned by **Ferrostal** and **Stadtwerke Munchen** (a German communal company for the city of Munich) and became active in October 2011.⁴

Spain was the second largest photovoltaic producer at the end of 2010, but since 2008 growth has been restricted to 500 MW a year since subsidies were capped in 2008, slowing down growth. Subsidies were lowered and stricter standards were implemented for solar plants. Although, this has hampered some developments the most successful energy companies restructured and are now more efficient than ever.⁵

WIND POWER

Spain is also the fourth biggest producer of wind power after the United States, Germany and China with a capacity of 19,959 MW in 2010. In 2009 wind overtook coal covering 16% of demand in 2010

compared to 13.8% in 2009. Wind power is the third largest source of energy in Spain, behind thermal gas and nuclear power. Despite the economic downturn, the wind market in Spain maintained its surge and remains the largest annual market and is still home to the second highest wind capacity in Europe after Germany.⁶

The world's largest producer of wind energy, Spanish company **Iberdrola**, made \$4 billion dollars in profit in 2010 with half the energy they produced not emitting Carbon dioxide, a significant achievement when making such considerable profit. Iberdrola have significant interests abroad with wind and solar producing 28% of their output and hydropower producing 22%.⁷

AEE President José Donoso said:

"This milestone reached, shows that wind energy, in addition to being indigenous, clean and increasingly competitive, is in reality capable of supplying thirteen million Spanish households."

The **AEE** (asociación empresarial eólica) is the voice of the wind industry in Spain and in coordination with **ICEX** (Ministerio de Industria, Turismo y Comercio) it maintains the presence of Spanish companies in trade fairs and international conferences abroad as it is a member of several international associations like **EWEA** (European wind association), **AWEA** (American wind association) and **GWEC** (Global wind council).

INSTITUTIONS

There are several institutions within Spain that look to promote Spain's green technology and their companies. **IDAE** (Instituto para la Diversificación y Ahorro de la Energía) is a public corporation

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under the ministry of industry, tourism and trade; it looks to promote and enhance the competitiveness of Spanish energy companies on the basis of their sustainability.⁸

Similarly the APPA (Asociación de Productores de Energías Renovables) brings together around 300 companies that work in the renewable energy sector and covers the entire country. Its main aim is to create a favourable environment for the development and implementation of renewable energy sources, making them more effective and cost efficient.

A good example of not only Spanish companies leading the way but also their institutions and academics, is the **SolarPACES** conference, held in Granada between the 20th and 23rd of September this



year. The conference aims to offer insight into new developments in technology, politics, the market and financing. There will be a scientific conference with leading experts showcasing their recent research results. As well as this, there will be a forum for industry, research, politics and financial stakeholders to discuss the future of solar energy in particular.⁹

SPAIN AND THE UK: A NEW SPECIAL RELATIONSHIP?

British companies could seek cooperation from Spain in producing solar energy, wind power and help in tapping various sources of renewable energy. Since the reductions and caps after the financial crisis the Spanish green industry has become very responsible and a lot more cost efficient – maybe something that could encourage the UK into trying harder to lead the way in developing and implementing different forms of renewable energy.

This is not only an idea but something that has to happen after the European Commission released its renewable energy action plan, demanding that each member state provide detailed road maps of how they will reach the legally binding target of 20% share of renewable energy as part of their final energy consumption by 2020. Both the UK and Spain have set out their outlines for the trajectory they will follow, their measures and their reforms. However, there is potential to not only follow the commission's guidelines but go beyond them, for either the UK or Spain or even both, to lead the way in Europe and make renewable energy into a truly commercial venture that will benefit not only the future of the environment but also the economy.

At the moment the UK Government's plan is to reach 10% of total consumption by 2010, a realistic figure given the potential in Scotland in particular. Scotland has great capacity to utilise its wind and tidal power which leads the Scottish government to be more ambitious than those in Whitehall by predicting they could reach upwards of 17% of total consumption by 2010 and potentially 40% by 2020.



This offers a major and attractive incentive to businesses Europe wide – not only for the large corporations. The Government has stated its support for smaller scale renewable energy technologies and companies practicing them. This has already encouraged the big Spanish companies but it could lead to a mutual relationship between the UK and Spain on all scales of business.

Saveffi Solutions a Spanish company based in the research, design and implementation of comprehensive solutions for renewable energy has bought 50% of shares in **Gatehouse Ltd.** which will be its subsidiary in the UK.

Manuel Obsipo, Saveffi's director of strategy and corporate development, said that 'the UK market – in terms of laws, market rules and main players – is highly attractive to us, and challenges our quality, standards and skills.' Saveffi has already become involved with **EnviroLink Northwest** aiding the development of

renewable technologies in the North West of England.¹⁰

On a larger scale, Spanish corporation **Iberdrola** is looking to invest heavily in the UK and US with the large profits it made last year and will invest billions of pounds in Scottish business over the next few years.

Chairman of Iberdrola Ignacio Galán quotes:

*"In the coming years, Iberdrola will intensify its firm commitment to Scotland. We plan to make investments in the UK of £4 billion in the 2010-2012 period, two thirds of which will go to Scotland [...] this will mean that Iberdrola will continue to be a catalyst for development in Scotland and the Basque country, two lands of great importance for our company and for which we have major plans in the future."*¹¹

Spanish corporation Gamesa specialises in wind power and is the market leader in Spain having, in 2007, a share of the world market of around 15%. It has interests in 20 countries spread over four continents

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and now has plans to set up its offshore wind technology centre in Glasgow, a wind turbine blade plant and offshore wind logistics from several UK ports. Chairman Jorge Calvet says, 'I am delighted to confirm our commitment to the UK and to Scotland as we become more deeply engaged with the UK's forward thinking plans around offshore wind.'

Another project taking place in Scotland has been instigated by Spanish oil giant **Repsol** in partnership with Portugal's **EDPR** who bought **SeaEnergy renewables Ltd (SERL)** and their offshore wind unit off Aberdeen. Scottish First Minister Alex Salmond has welcomed this acquisition as it will develop Scotland's growing offshore renewable sector.

Spanish companies are not just buying up existing British companies and improving them they are also investing in new ventures.

Agbar Group is the leading company in the sector of water cycle – forecasting, flood prediction, water treatment, supply contract and industrial management – in Spain and one of the most important

worldwide. **Agbar environment Limited** is the UK branch of the group dedicated to providing innovative products and services.

These examples are just the start of what could be a mutually very beneficial relationship between the UK and Spain concerning the proliferation and implementation of renewable energy.

¹ Stacy Morford, Navarre's stunning clean energy success a lesson for US policymakers, 21st January 2011, solveclimateneeds.com/news/20090121/navarres-stunning-clean-energy-success-lesson-us-policymakers

² Uclia Wang, The rise of concentrating solar power, 6th June 2011, (<http://www.renewableenergyworld.com/rea/news/print/article/2011/06/the-rise-of-concentrating-solar-thermal-power>)

³ http://www.science24.org/show/Solnova_Solar_Power_Station

⁴ <http://www.ferrostaal.com/company/media-publications/news/solar-power-plant-andasol-3-produces-environment-friendly-energy-for-the-first>

⁵ Elisabeth Rosentahl, After boom and bust solar power finds a place in Spain <http://tech.mit.edu/V130/N11/long3.html>

⁶ <http://www.gwec.net/index.php?id=131>

⁷ Brit Liggett, World's biggest producer of wind energy records \$4 billion profit in 2010, 24th February 2011, <http://inhabitat.com/worlds-biggest-producer-of-wind-energy-records-4-billion-in-profits-in-2010/>

⁸ <http://www.idae.es/index.php/lang.uk>

⁹ <http://www.solarpaces.org/inicio.php>