



Grenoble Iserre Report

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Dr. Dan Arvizu, Director and Chief Executive of the U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL)

> INTERVIEW <

Grenoble-Isère & Golden, Colorado come together with renewed (and renewable!) energy

Could it be that living in mountain environments—with their sometimes-harsh weather conditions—forces people to use energy wisely and to think more carefully about energy in general?

If you take the example of Grenoble-Isère's Tenerrdis cluster for new energy technologies, located at the foot of the Alps, and the Colorado-based National Renewable Energy Laboratory in the heart of the Rockies, the answer is a resounding yes!

The two organizations have signed a partnership—their first—to work together on technologies for solar energy, batteries, and smart grids. However, as NREL Director Dan Arvizu pointed out, the benefits of the partnership could have an impact that reaches far beyond technological innovation.

From NREL's point of view, how do partnerships accelerate innovation?

International partnerships enable NREL to collaborate with leading centers of excellence around the world in advancing progress toward common technology research goals. Such cooperation accelerates the pace and scope of innovation by harnessing collective expertise, facilities, and resources across institutions to address key technical challenges. This cooperation can include sharing of research methods, test data and analytic tools, and cooperative fundamental research projects.

Beyond the joint development of new technologies, how do you feel your partnership with Tenerrdis will benefit business and the economy?

The NREL partnership with Tenerrdis holds great promise to contribute to our mutual understanding of the performance of innovative PV, battery, and smart grid technologies and systems. This can lead to improvements in performance and

cost-effectiveness of these clean energy technologies and increased opportunities for their successful commercialization and deployment. This can benefit U.S. and French companies, while also reducing energy costs for consumers in both our countries.

Do you feel that competition is a thing of the past? Is "coopetition" the new trend today?

There are many reasons why we should focus our collective energies on cooperative programs. We need to harness our common expertise and resources to tackle global challenges such as climate change and energy security. Only through robust international cooperation can we achieve the transformational changes needed in our energy systems to respond to these urgent global issues. In addition, the market for clean energy technologies is global and the major international players are multinational corporations. Both France and the U.S. benefit if we can accelerate innovations that these international corporations bring to market.

You recently visited the Rhône-Alpes region. What do you feel are the region's main benefits?

I was highly impressed with the research capabilities at the National Solar Energy Institute and the Grenoble Institute of Technology. Both of these institutions are conducting state-of-the-art clean energy research and development and position the Rhône-Alpes region as a leading European and global center of excellence on solar, smart grid, and battery and vehicle technologies.

Multibase >

New production line in China

Custom thermoplastic compound manufacturer Multibase (acquired by U.S. based Dow Corning in 2002) has opened a new production line in Zhangjiagang, China, just outside of Shanghai. Based in Grenoble-Isère, Multibase enriches, reinforces, and modifies engineered polymers using additives, mineral fillers and silicones, making them suitable for a broader range of applications. The new production line in China will round out Multibase's existing locations near Grenoble, in the United States, and in India. The new facility will help Multibase more effectively penetrate the growing Chinese market, where it has been operating for more than two decades via a network of local distributors. The Chinese production line, which manufactures, stores, and commercializes finished products, will primarily target the automotive, household appliance, electronics, and mobile telephony markets, using technologies developed in France.

www.dowcorning.com

Movea >

IMUs for motion sensing

CEA-Leti spinoff Movea (founded in 2007), owner of U.S. based Gyration (the developer of the motion sensing system used in the Nintendo Wii game console), which it acquired in 2008, has announced it will now focus on its technological offering. The company plans to shift from its former focus on commercializing motion-sensing products like the Air Mouse motion-sensing mouse and the MotionPod physical-therapy device to providing integrators with its core technology, MotionIC. The technology is offered as a System-in-Package component measuring just several square millimeters. The tiny IMU (inertial measurement unit) encloses a microcontroller, three main sensors (an accelerometer, a gyroscope, and a magnetometer), and Movea-developed software that picks up data from multiple sensors. Movea is targeting two main markets with its MotionIC technology: physical activity monitoring for sports, healthcare, and wellness—the company has already signed a contract with France-based Oxylane, a leader in sports-related products—, and consumer peripheral devices for gaming, audiovisual entertainment, and home healthcare. www.movea.com

B&D Eolas > new-generation green data centers

Information system hosting and cloud computing specialist Business & Decision Eolas has just broken ground on a new-generation green data center in Grenoble. The project will further B&D Eolas's compliance with the European Commission's Code of Conduct for Data Center Energy Efficiency, which the company adopted in 2009. The new-generation data center is a joint project that involves several Grenoble-Isère businesses, including Schneider Electric and Hewlett-Packard, as well as world-renowned experts like Intel. The project has also garnered the support of local governments. The data center is slated to go live in 2011 and will be an estimated seven times more energy efficient than traditional data centers. The data center will feature innovations in eco-efficient design, of course, but it will also stand out for its capacity to innovate in areas like service quality, service transfer planning, virtualization, and cloud computing. The project is certified by the Minalogic competitive cluster. www.businessdecision.com

> SPOTLIGHT <

Grenoble and Dresden join forces in new alliance

Nanoelectronics clusters in Dresden, Germany and Grenoble, France joined forces in March 2010, and will now present a united front on the world nanoelectronics market.

The two clusters have a lot in common: they are of comparable size; both boast dynamic interactions between education, research, and industry; and both also benefit from the support of governments concerned with the future of the industry. Given their similarities, it is no surprise that Europe's leading hubs for microelectronics decided to work together. Their goal: to share resources in order to build on their strengths and bolster their competitiveness on global markets. Alain Astier, who oversees the alliance at the Grenoble cluster, said, "The alliance is above all pragmatic. By bringing together two clusters, we hope to achieve critical mass in terms of employment and investment at the European level." Jens Drew, coordinator of the Dresden cluster's working group on public policy, added, "Whether you are talking about cars, healthcare, new energies, or communications, 90% of the innovations that affect people's day-to-day lives currently come from the semiconductor industry. And Europe is responsible for a great many of



Isère Representative Geneviève Fioraso, pictured with Stanislaw Tillich, Prime Minister of Saxony in Germany, and Alain Astier, VP Group, STMicroelectronics and coordinator of the alliance at the Grenoble cluster.

these innovations. Which is precisely why our governments support the alliance: one of our goals is to convince the European Commission to acknowledge that the semiconductor and nanoelectronics industries play a crucial role in innovation and that it is in all of our best interests to keep both R&D and manufacturing here in Europe."

The partners have adopted a distinctly forward-looking strategy and will focus on education, R&D, industry, the environment, SMEs, and public policy. The clusters will create joint academic programs, share best practices, and build on their strengths to solidly anchor Europe as leader of an environmentally-sustainable industry.

Micro and nanoelectronics have been identified as one of five key enabling technologies in Europe and Grenoble and Dresden intend to contribute actively to the field, together!

Ballard Power Systems: a closer look at Grenoble-Isère's fuel-cell industry



Geoff Budd, Senior Manager, Ballard Power Systems, pictured with local business representatives

New energies have spurred economic growth in Grenoble-Isère for more than 150 years.

In the mid-nineteenth century, Grenoble-Isère broke new ground in the field of hydroelectric power generation. Nuclear energy came next. Today, renewable energies are driving economic development in the region. Canada-based Ballard Power Systems, a leader on the global fuel-cell market, got a first-hand look at our local fuel-cell industry during a recent visit to Grenoble. Ballard Power Systems representatives toured CEA-Liten, making a special stop at LCPPEM, a lab that focuses on fuel-cell components and proton membrane exchange. CEA-Liten has a team of some 1,000

researchers, making it one of Europe's leading centers for research on the topic—and a great showcase for the high quality of local fuel-cell R&D. Visitors from Ballard also got to see the industrial aspect of local work on fuel cells, meeting with representatives of local companies McPhy Energy, Adixen, Soprano, and SymbioFCell, an excellent demonstration of our local design and manufacturing capabilities.

One thing is clear: Grenoble-Isère is poised to meet the challenges of sustainable development and renewable energies and has what it takes to attract both top talent and new partners.



The Greater Grenoble area

Grenoble-Isère, where partnership is second nature

Partnerships are nothing new to Grenoble-Isère, a region known for its strong culture of collaborative ventures that span multiple disciplines and reach across national borders. Therefore, it comes as no surprise that Grenoble-Isère's renowned innovation ecosystem—where synergies among education, research, and industry drive economic growth—inspired the French government's 2005 competitive cluster initiative, designed to spur economic competitiveness through innovation.

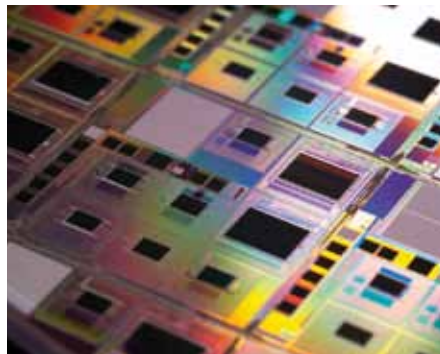
The world's developed economies are currently marked by fierce competition. In this environment, getting new innovations to market fast is a key success factor. Not only do innovative, highly-differentiated products enable businesses to stay ahead of competitors, but they also fuel the expansion of related services, like the online app stores that have sprouted up to accommodate the new generation of smartphones. However, innovation is a complicated, multifaceted process. Open innovation—where companies tap into knowledge, research, and intellectual property outside their own organizations—is currently being heralded as the most effective way to develop breakthrough technologies and encourage the emergence of new concepts. This, too, is nothing new to businesses in Grenoble-Isère.

World-class research facilities

Grenoble is home to four prestigious international research facilities, all born of partnerships: ILL (Institut Laue Langevin), founded in 1967; EMBL (the European Molecular Biology Laboratory); the European Synchrotron Radiation Facility; and IRAM (the Millimetric Radioastronomy Institute). These high-caliber institutions illustrate Grenoble-Isère's commitment to encouraging joint ventures and securing the resources needed to firmly anchor long-term international partnerships. Grenoble's four flagship facilities count between 3 and 20 countries among their partners—countries that individually would not have had the resources needed to develop world-class R&D centers.

Exemplary corporate partnerships

The year 2002 marked a milestone in Grenoble-Isère's rich history of industrial partnerships with the creation of the Crolles2 Alliance. Founded by STMicroelectronics, Freescale, and NXP, this ambitious Alliance represented a commitment to invest \$2 billion in new equipment and to spend €1.3 billion on R&D over the five years from 2002 to 2007, with the aim of creating future generations of 90 nm to 32 nm CMOS technologies. Grenoble-Isère is continuing to invest heavily, most notably in the Nano 2012 program uniting STMicroelectronics, CEA-Leti, and IBM. Launched in 2008, the goal of the €3 billion program is to overcome the technological hurdle of 32 nm and 22 nm



Integrated circuits

etching. The program will develop a major technological advancement that will not only benefit the entire nanoelectronics industry, but also boost economic growth throughout the region.

Economic development through partnerships

Grenoble-Isère's partnerships are not limited to just science and industry; the region's economic development initiatives also focus heavily on partnerships. AEPI, the Grenoble-Isère Economic Development Agency, has formed transatlantic partnerships with Albany, New York through the Center for Economic Growth, and with Denver, Colorado through the Colorado Rhône-Alpes Network (Cora). Both these regions share common economic development interests with Grenoble-Isère and have similar business environments.

High-tech start-ups gather for the 2010 Grenoble Innovation Fair (GIF10)



2010 Grenoble Innovation Fair

Innovative young businesses from France, Italy, and Switzerland descended on Grenoble this past October to attend the second Grenoble Innovation Fair. It's no secret that the Alps—from Grenoble to Turin and from Geneva to Lausanne—constitute a hub for European innovation. So it would only make sense that research centers, universities, and high-tech start-ups from throughout the region would want to come together and share the fruits of their work. The Fair showcased some 120 innovative technologies—a source of competitive advantage and sustainable economic growth for the region. A full slate of speakers addressed topics like how to reconcile a company's need to stay competitive and make profits with society's need for environmentally-friendly and socially-responsible policies. As one speaker aptly put it, "Collaboration accelerates innovation. The most collaborative companies will be the more innovative ones and the more profitable."

Competitive clusters in the Rhône-Alpes region work in tandem with other clusters in France, providing complementary skills and resources. However the region's clusters also work with other clusters in Europe and beyond. For instance, Minalogic works with Albany, Tenerrdis with Colorado, Axelera with Germany, and Lionbiopole with Japan. Grenoble-Isère's business incubators also benefit substantially from the region's international partnerships. The Petale high-tech business incubator works with its peer in Colorado, the Longmont Entrepreneurial Network, to help new businesses gain a foothold on both sides of the Atlantic. Local businesses have recognized the power of partnerships to open up new opportunities, speed innovation, and fuel growth. Open innovation is more than just a trend in Grenoble-Isère—you might even say it is a way of life.

> TIME OFF <



Grenoble-Isère Airport

Grenoble-Isère Airport: Local access, international reach

Grenoble-Isère Airport, which opened for the 1968 Winter Olympics, serves as the gateway to the Alps for some half a million passengers each year. Located just 45 kilometers from the city center with easy access to local ski resorts, Grenoble-Isère is the airport of choice for British, Scandinavian, and Russian tour operators, whose winter vacation customers account for 62% of passenger traffic. In addition to winter charter traffic, the airport also ensures regular service to Great Britain and Ireland and has a special terminal for private aircraft, a boon to business travelers heading to Grenoble city center and business parks in the surrounding area—not to mention their winter vacation destinations!

The Icarus Cup: international free-flying festival

In France, a country where summer vacation is serious business, September is not only synonymous with back-to-school; it also means back-to-work! In Grenoble-Isère, however, September immediately calls to mind the Icarus Cup, a four-day free-flying festival that attracts airborne daredevils from around the globe. Founded in 1974, the Icarus Cup—which takes place on the Petites Roches plateau just outside Grenoble—started out as a precision-landing competition for hang-gliders. Since then it has grown into the world's premier free-flying festival, attracting top-notch free-flyers from around the globe. Those who prefer to stay safely on the ground can take the breathtakingly-steep (83% at some points along the route), almost-centenary funicular from St. Hilaire du Touvet to the plateau to take in a jaw-dropping array of acrobatics performed by top hang-glider, paraglider, wingsuit, and speed-glider pilots. Meanwhile, down in the valley, hot-air balloons, ULMs, and acrobatic planes prepare for take-off, echoing the hair-raising maneuvers of the free-flyers in the skies overhead. The festival ends with "Icarnaval," the now-iconic costumed free-flying parade. For a full two days some 120 pilots take to the skies in a surreal procession of dragons, snakes, birds—and yes—tractors and bathtubs. This year's Icarus Cup even boasted an Avatar that would have made James Cameron proud. When it comes to imagination—and just plain fun—the sky's the limit! The Icarus Cup takes place the third week end in September, only in Grenoble-Isère!



The Icarus Cup costumed parade

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Agence d'Etudes et de Promotion de l'Isère

1, place Firmin Gautier - 38027 Grenoble Cedex 1
Coordination: Anne Giraudel - Tel: +33 476 709 703 - Fax: +33 476 709 719
Email: a.giraudel@grenoble-isere.com
www.grenoble-isere.com

AEPI, the Grenoble-Isère Economic Development Agency, provides businesses seeking to move to Grenoble-Isère with economic data and information on available commercial and industrial real estate, sets up meetings with local decision-makers, helps identify grants and other sources of funding, and ensures comprehensive project support. **Contact us today!**

USA: Sharon Reh binder
Tel: +1 310 473 2818
Fax: +1 310 388 5382
Email: sharon@france.com

China: Shun Zhou
Tel: +86 21 61 35 20 42
Fax: +86 21 63 41 12 06
Email: szhou@investinfrance.org

Japan: French Chamber of Commerce and Industry in Japan
Tel: +81 3 3288 9640
Fax: +81 3 3288 9558
Email: aepi@ccifj.or.jp

Italy: Sophie Chelkoff
Tel: +39 348 26 26 480
Email: sophie.chelkoff@acsan-consulting.com