Brochures & Annual Reports

Southern Research
(multiple excerpts from
annual report/capabilities brochure)
BellSouth
(one page excerpt from 12-page
business-to-business brochure)

(Southern Research Institute Annual Report/capabilities brochure—multiple excerpts)

Biomass

Renewable Energy
That Absorbs Its Own Emissions

In the changeable climate of the Southeast, where the humid haze and storms from the Gulf make wind and solar power less than predictable, finding a reliable, renewable source of energy that didn't add to the carbon dioxide burden wasn't immediately obvious. But with a little creative thinking, the answer was found right under foot.

Switchgrass is a native prairie grass that's highly photosynthetically productive and so easy to grow it's considered a weed in some places. What makes switchgrass special is that it's an ideal biomass fuel. As it grows, it takes up as much CO^2 as it gives off when it burns.

Chopped fine and blended with other fuels, switchgrass brings down the net average amount of carbon dioxide released for each BTU of energy produced. Biomass energy sources also show promise for gasification.

By channeling carbon dioxide into a closed cycle, biomass energy can make a major contribution to slowing global warming and helping the United States achieve its international environmental goals. As the energy industry is deregulated, biomass can help utilities meet interstate standards, opening opportunities for new markets.

Switchgrass could also bring a new era of opportunity to rural counties that have suffered from a fading agricultural economy. The flat, wide farmlands of the deep South are ideal for growing switchgrass. As a new cash crop, it could be harvested twice a year using existing hay production technology.

Southern Research Institute is working to make Switchgrass a practical source of energy, determining the best preparation techniques and the most effective fuel blends for maximum BTU production per dollar.

In a few years, green fields of switchgrass by the roadsides of the rural South could be a growing source of energy for a greener economy and a greener planet.

(photo and sidebar)

AEROGELS

Aerobraking in the atmosphere of Mars.

Later this year, a NASA shuttle mission will test ultra lightweight aerogels for use in an aerobraking system proposed for the next Mars mission.

Foreshadowed in the Arthur C. Clark movie 2010, aerobraking slows spacecraft entering a planet's atmosphere. Southern Research Institute is now testing and developing exotic materials to be used in the process.

Almost 98% air, these polymer-based or carbonized aerogels have sufficient structure to transmit load and thermal energy, and they can be tailored for unique capabilities and extreme temperatures. Our researchers are working interactively with NASA and aerospace contractors to develop an aerogel carbon/carbon sandwich structure. An aerobraking shield made of this material is being designed to allow softer landings on future missions to explore the surface of the red planet.

Countering The Threat Of Chemical And Biological Terrorism

The release of Soren gas in a Japanese subway and the threat of biological weapons in the middle east have brought home the urgent need for more effective ways to detect chemical and biological agents and protect civilians and troops in the field.

Southern Research Institute's Environment And Energy Division is partnering in a project for the U.S. Government to help counter the threat of chemical and biological terrorism. The first step in this difficult but essential task is learning what is involved in rapid detection.

We're providing laboratory support and developing analytical methods and techniques for detecting, monitoring, sampling and analysis. Our researchers have also begun work on neutralizing agents, drugs and vaccines to protect against some of the most devastating tools of terrorism.

(cutline)

Cooling The Heat Of The Desert

In the baking temperatures of desert battlefields, heat stroke can be as great a danger as the threat of an army over the next hill. Cooling vests made with Southern Research Institute's unique, heat-absorbing macrocapsules help protect soldiers against the effects of high temperatures. Commercial applications could offer those same cooling benefits to consumers.

(textbox)

The ultimate purpose of technology is changing life for the better. Our cooling materials keep people more comfortable while our new technique for detecting hidden dangers in the transportation infrastructure helps keep them safer.

Phase Change Materials

During the Desert Storm conflict and in the jungles of Southeast Asia, heat was a relentless enemy that put soldiers at risk of heat stroke and heat exhaustion, attacking their ability to perform with peak readiness in the field.

Using phase-change materials, Southern Research developed unique, heat-absorbing macrocapsules that can be incorporated in clothing to lower body temperature. Soldiers wearing vests made with these materials can stay cooler for hours. The cooling capacity of the vests can be recharged in the field by simply burying them in the sand.

Commercially developed, this technology offers great advantages for travelers in the tropics and workers in high temperature environments, and additional thermal control applications.

Ultrasonic Spectroscopy

For the first time, ultrasonic technology can be used to detect and evaluate hidden corrosion and many types of other defects. Using Southern Research's proprietary technique for nondestructive testing, airplanes, ships, nuclear cooling tanks and other vital structures can be quickly screened for problems without taking them apart.
At a time when the soundness of bridges and other elements of the transportation infrastructure is a serious concern, this tool can be a valuable asset in protecting public safety.

This technology also has many applications in industry, and it is being tested as a possible noninvasive diagnostic tool to detect tumors, arthritic damage and other tissue changes.

Each day, something new emerges. The spectrum of communication and information products and services continues to expand, making virtually anything you can imagine possible. But how do you turn possibilities into real advantages for your business?

To get the full benefits of innovation, you need a communications partner with the expanse of products and depth of resources to provide, develop and apply technology across virtually all areas. You need a company with the widest array of services and the creativity and expertise to make sure your needs are fully addressed, without compromise, using the best technology available.

Few companies can make that commitment. Many simply choose not to try. But BellSouth delivers. From the most reliable voice delivery systems to the most sophisticated integrated communications, the unparalleled breadth of our product offerings gives you the flexibility to choose the most effective combination of capabilities and service plans to fit your business.

As the premier telecommunications company in the Southeast, we also have the resources to develop and deliver new capabilities. In fact, our experience in meeting the specialized telecommunications needs of virtually every

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THAT GIVE MY BUSINESS AN EDGE. AND A COMMUNICATIONS COMPANY

THAT CAN DELIVER WHATEVER IT TAKES TO MAKE IT HAPPEN.

type of business gives us a unique perspective in finding better answers for your specific requirements.

With BellSouth's variety of service offerings, you can choose the level of support that fits the way you do business. From basic technical assistance, installation and customer training to comprehensive management, operations support, and financing options, we design our support programs to give you the resources that work best for you.

Whether you're looking for capabilities with applications to benefit all departments, or unique solutions for your most specialized needs, look to BellSouth. Our leadership is built on bringing you the best from an exciting new world of possibilities.