

Throw another rock on the fire

Pacific Northwest National Laboratory researchers have joined with scientists worldwide in a collaborative effort to pursue a massive energy reserve that, by itself, could keep America powered into the next century. But retrieving that resource poses quite a challenge. In fact, it's trapped within rock three-quarters of a mile below Alaska and Canada's frozen tundra, and in offshore locations scattered around America's coastline.

Early next year, PNNL researchers will obtain frozen core samples from the MacKenzie Delta in Canada that contain methane gas trapped in an ice-like substance called gas hydrate. These 'rock gas' samples from the Mallik Research Well may unlock clues to future U.S. energy independence if a safe and economical harvesting process can be perfected.

On the rooftop

In another energy-related development, a new diagnostic system developed at PNNL can help ensure economizer devices purchased for rooftop air-conditioning units are working at peak performance.

PNNL's diagnostician allows building managers to remotely monitor conditions like temperature and thermostat control commands. Rather than a technician climbing onto the roof, opening the air-conditioning unit and taking measurements by hand, the rooftop diagnostician records all that information and posts it on a Web page, enabling technicians to monitor the system from a desk. The constant collection of data also provides a more comprehensive view of the system's performance.

Future enhancements will include capabilities to check efficiency levels and the condition of filters and coils. The diagnostician also could be useful in monitoring chillers, boilers and substations.

Weight loss for glass

And, finally, the automotive industry could help us save energy by reducing the weight of our cars. Less weight means improved gas efficiency and lower emissions.

With today's average car sporting upwards of 150 pounds of glass, the industry has set a goal of cutting this weight by a third. The challenge is to preserve the safety and performance features.

With a dedicated suite of models and experimental tools, PNNL and its automotive and glass manufacturing partners have developed a prototype windshield that is 30 percent lighter but retains key optical, thermal and safety properties. ♦