Compressed air project saves oil

Technology conserves energy

United Press International

NEW YORK — By storing compressed air underground and using it to turn generators, the electric utility industry could save 100 million barrels of oil a year, says a spokesman for Battelle Pacific Northwest Laboratories.

It's already being done in Germany and at least a dozen American electric utilities have compressed-air power projects on the drawing boards, said Battelle's project manager T.J. Daugherty.

Daugherty said the largest proposed compressed-air project he knows about in the United States is being planned by Maryland's Potomac Power Co., which wants to store enough compressed air in hard rock caverns to produce 1,000 megawatts of electricity during peak consumption hours.

The German plant at Huntorff has been operating since 1977. The compressed air is stored underground in old salt mine caverns.

Battelle is managing a study at Pittsfield, Ill., under a $2.2 million federal grant, to determine the feasibility of storing compressed air for power generation in porous rock the way nature stores oil and gas. The actual work is being done by the Houston office of Parsons Brinckerhoff, the widely known engineering firm, and Kavernen Bau-und-Betriebs Co. of Germany.

Using compressed air to turn power-generating turbines, of course, is a variant of, and a potentially great improvement over, the pumped storage water power generating cycle.

The curse of the electric utility industry is that the generators have to produce vastly more power than is needed during the off-peak consumption hours. Unless it can be sold and transported considerable distances, this power just goes to waste.

The plant being operated in Germany has demonstrated such a high efficiency for the compressed-air storage cycle that utilities have become interested in the system — T.J. Daugherty, Battelle project manager.

In the pumped storage cycle the excess power is stored by using it to pump water into a reservoir. During the peak consumption hours, this water flows back to the power plant by gravity and helps turn the turbines, saving vast amounts of fuel.

If air is substituted for water in a pumped storage cycle, it has many advantages. Water in the quantities needed to generate power is available at limited locations. Air is everywhere and unlimited in supply and it doesn't need gravity to exert its force.

The capital requirements of compressing and storing air underground appear to be substantially less than those of pumping and storing water. But Daugherty said no general figures on these comparative costs can be given because the costs vary so much from site to site. Nevertheless, he said, it can be calculated pretty accurately that widespread use of a compressed air storage cycle could save the electric utility industry at least 100 million barrels of petroleum or coal equivalent yearly.

In comparison with the cost of running a power plant on gas turbines without any off-peak hour storage, Daugh... the fuel savings might... order of one third.

Daugherty said t... being operated in Ger... demonstrated such a h... ciency for the comp... storage cycle that uti... become interested in t...

Most of the comp... plans on the utility... boards are "hard ro... projects" like that of... Power and one being ... Soyland Power Coo... catur, Ill. Daugher... however, what is need... that the air can be sto... mically and safely in g... and other porous ro... tions called aquifers ... found almost everyw...

John Istvan of Kave... und-Betriebs explain... will inject the compr... into shallow, confine... stone aquifer. The e... will demonstrate that ... nology can be used in ... formations as well a... domes."

Istvan said that, in a... the use of compressed ... underground for g... electricity, some large ... firms could use the p... get a steady supply of ... ed air for pneumatic e... at favorable costs.

Two to spacewalk during fifth flight of space shuttle

United Press International

HOUSTON — Two men will walk in space for the first time in more than eight years in November under current plans for the fifth space shuttle mission, Johnson Space Center officials report.

But JSC officials noted the extravehicular activity could be scrubbed when the final plan is done.

"We've been told to plan everything for it," said Jim Bates, flight requirements manager for the fifth shuttle flight.

"Get the equipment ready. Get the crew ready. But don't put it in a contract."

JSC officials said Tuesday the current plan calls for mission specialist astronauts William Lenoir and Joseph Allen to put on space suits on the third day of the five-day mission and spend up to six hours in the shuttle payload bay testing the utility of the suits.

The astronauts will have television cameras on their helmets so viewers on the ground will be able to see what they are seeing as they go through mission practice tasks, training manager Ray Dell'Osso said.

Mission commander Vance Brand and pilot Robert Overmeyer will stay inside and monitor the activity, taking television and movie pictures for post-flight evaluation. Lenoir and Allen will be tethered ... ship.

If actually carried out ... ned on space shuttle C... it will be the first spa... since Skylab 4 in Februa...

All three Skylab miss... two-man space walks ... men walked on the moon ... each Apollo landing. T... sians have never done ... man space walk.

Dell'Osso said the as... will try to demonstrate th... of the entire extrave... activity system, putting ... suits, leaving through ... lock into the payload b... working in the bay.

Bates said the astron... check the flexibility of ... ger, elbow, hip and knee ... check their reach in th... check how much they ... through their visors and ... well the suits keep them ...

They also will use a ... simulation board to test h... they can work in the suits ... have foot grips for them t... on as they simulate wor... wrenches.

Lenoir and Allen also ... the slide wires running ... length of the ship on eith... of the payload bay to mo... and forth. Once back ... they will recharge the ... case needed in a ... emergency.

Four Americans help Chinese establish 4-H

United Press International

WASHINGTON — Four Americans have been sent to the People's Republic of China to help the Chinese set up a 4-H youth program similar to that of the United States. The team will work with the Chinese government and university officials, community leaders and coordinators of Chinese youth programs.

The U.S. team is hea... 4-H program leader ... Soobitsky. Other membe... Ray Crabbs, a vice presi... the National 4-H Council ... Pace, a state 4-H specialis... the University of Minn... and Steve Boruchowitz, ... cialist in Chinese interna... affairs in the USDA Offi... International Cooperation ... Development.