

Takeover Bids For British Energy

The UK's biggest electricity producer, British Energy, has received early stage takeover proposals, it said on May 16, which value it at more than 10.8 billion pounds.

According to Reuters, the nuclear power company, which operates eight nuclear plants, has received takeover or other approaches from French utility EDF, France's Suez, and a consortium made up of Germany's RWE and Spain's Iberdrola, a source familiar with the matter told Reuters.

The stock was up 6.7 percent at 725.5 pence per share by 12:08 p.m., valuing the company at over 11.5 billion pounds, including the government's 35 percent stake.

British Energy said it had received proposals from several parties wishing to make a full offer for the company including the Nuclear Liabilities Fund, which represents the government's 35 percent stake. It did not identify the potential bidders.

British Energy, based in East Kilbride, Scotland, said the approaches are at an early stage and each requires several weeks of further development.

Suez said it had not submitted a bid for shares in British Energy. EDF, RWE and Iberdrola declined to comment.

"Suez has been in contact with British Energy but is more interested in building a relationship that would allow them to build power plants in the UK rather than bidding for British Energy," said a second source familiar with the matter.

Suez has not ruled out making a full takeover bid in the longer term, the source said.

British Energy declined to comment.

British Energy's eight aging power plants, built since



British Energy's eight aging power plants, built since 1965, have been beset by corrosion and other technical problems in the last two years.

1965, have been beset by corrosion and other technical problems in the last two years.

But the company is expected to be a key beneficiary of UK government plans to build more nuclear power plants to resolve a predicted electricity supply shortfall.

Despite concerns about storing nuclear waste and the cost of building the plants, the government is keen on power plants which do not emit large amounts of carbon dioxide.

That has sparked interest from Europe's biggest utility firms.

One of the sources familiar with the matter said British Energy has received two proposals since EDF made

its offer last week, with one from Germany's RWE which has paired up with Spain's Iberdrola and one from France's Suez.

Iberdrola, which owns Scottish Power in the UK, does not want to lead its own bid and RWE had not made an offer by last week's second-round deadline as its original partner Vattenfall had pulled out of the process.

Suez said in April it would not decide on major investments until its ongoing merger with rival Gaz de France is complete.

"We have made our position clear and our position has not changed since then," said a company source.

British Energy's shares had declined 13 percent

before Friday from a 785p all-time high on April 25 because EDF—which submitted its bid last week according to a Reuters source—was feared to be the only potential bidder.

"It is clear that the press speculation that only EDF had made a bid, with some reports putting the bid as low as 650p, was misleading and contributed to price weakness in recent days," said analyst Lakis Athanasiou at broker Evolution Securities.

"The board has reviewed the proposals and has decided that discussions should continue with all the parties concerned," said British Energy.

Both RWE and Germany's E.ON declined

this week to comment on a possible takeover while reiterating that they are both interested in building new nuclear power plants in the UK.

Centrica, the only British firm previously thought to still be in the race, was not one of the parties which has made a bid, according to the Reuters source.

The company, the UK's largest gas supplier, would have difficulty funding a takeover on its own and would likely need to join a consortium, Evolution analyst Athanasiou said.

However, an industry source said that Centrica was still in talks with EDF about possible cooperation in any deal. Centrica declined to comment.

In the News



Fuel Cells Burning With Promise

Some day, fuel cells may power your car and exhaust only water and perhaps carbon dioxide. More efficient and cleaner than an internal combustion engine, their emissions will be much lower.

They may also run your home without the energy loss of power lines, or even power your laptop or cell phone. But not today or even tomorrow, ENN said.

"It's unlikely that we will all be using fuel cell cars in 10 years," says Frank DiSalvo, the J.A. Newman Professor of Chemistry and Chemical Biology and co-director of the Cornell Fuel Cell Institute, a team of Cornell researchers from eight faculty research groups. "The energy infrastructure in the world is so huge that even if you had ideal fuel cells today it would take decades to rebuild the infrastructure. Most people researching energy today expect to have an impact after 2030 or 2040. The role of present research is to put as many options on the table as possible, so that we can choose the best ones."

Instead of burning fuel to move pistons and turn wheels, fuel cells chemically decompose the fuel, turning its energy directly into electricity. To do that efficiently and economically, the Cornell team seeks to develop new materials for fuel cell catalysts and membranes.

"We may be the only university program in the country approaching it this way," says Hector Abruna, the E.M. Chamot Professor of Chemistry and Chemical Biology and co-director of the Fuel Cell Institute.

> Ideal Cell

The ideal cell is one fueled by extremely pure hydrogen with platinum as the catalyst. Hydrogen is difficult and expensive to produce and store, and platinum is just expensive. With hydrocarbon fuels and even everyday-quality hydrogen, impurities literally gum up the works. The catalyst that locks onto hydrogen atoms also locks onto impurities like carbon monoxide or sulfur and won't let go. The surface becomes "poisoned" and can no longer react with fuel.

To find an inexpensive catalyst for hydrocarbon fuels that rejects poisoning, the team is testing vast numbers of possible combinations of two, three or four different elements, much the way pharmaceutical companies test thousands of compounds for biological activity. A device with three or four nozzles equally spaced around a silicon wafer sputters atoms onto its surface. Near any one nozzle you get a predominance of just one element; at the center you get an even combination; and over the rest of the wafer you get every other possible proportion.

The wafer is tested in a special fuel cell in which the electrolyte fluoresces where catalytic activity happens, and Abruna's research group determines the exact chemical composition and molecular structure of the material at that spot. Promising candidates are sent off to industrial partners to test in practical devices.

"It's important to partner with industry because it adds credibility," Abruna says, "so that what we find is not just a curiosity in the lab. Most companies don't really believe what happens in a beaker in academic labs, they have to try it."

So far, the researchers have discovered a very good catalyst for formic acid—best known as the sting in an ant bite, but cheap to produce and with many industrial uses. Formic acid fuel cells might be used in laptops and cell phones—lighter and less expensive than batteries and usable far away from the power grid.

> Near Future

There are some moderately good catalysts for methanol but, so far, nothing good for ethanol, the most likely biofuel to be available in the near future. The catch is an extra carbon-carbon bond that's hard to break. Strip off the hydrogen from ethanol without breaking that bond and you get what Abruna calls "very expensive vinegar." The solution may be a two-catalyst process.

Another approach is to make good catalysts more efficient. DiSalvo and Ulrich Wiesner, professor of materials science and engineering, have developed a method of forming metal oxides around a self-assembling plastic so that when the plastic is removed, it leaves a honeycomb of nanoscale pores, offering a vastly larger surface area where fuel and catalyst can interact.

Yet another strategy is to develop membranes that are more stable over a wide range of temperatures and don't leak fuel. Cornell materials chemist Emmanouil Giannelis, the Walter R. Read Professor of Engineering, adds nanoparticles to a polymer membrane, making the membrane stronger—which means it can be thinner—and rearranging the pores to make it less permeable to fuel. "We haven't solved the temperature problem, but we haven't made it worse," Giannelis says about the new membranes.

Geoffrey Coates, the Betty R. Miller Professor and associate chair of chemistry and chemical biology, focuses on membranes for alkaline fuel cells, where instead of protons moving from anode to cathode, negative hydroxyl ions move from cathode to anode. "Some catalysts work better in base than in acid," Abruna explains. "It may be easier to find better membranes than better catalysts."

And if new catalysts and membranes don't work out, yet another approach is to change the fuels, using "reformer" technology to extract and purify hydrogen from liquid hydrocarbons to feed into classic fuel cells, or to make biomaterials into new, unconventional fuels for which it might be easier to find good catalysts.

Gas Supply to Oman Delayed

Abu Dhabi-based Dolphin Energy will begin supplying natural gas to Oman in August or September, a few months later than planned as Oman has yet to complete the infrastructure.

"In August or September we expect the gas to come to Oman," Oman Oil Company chief executive Ahmed Al Wahabi said at the inauguration of the Dolphin gas plant in Qatar, Gas reported.

The Dolphin project linking Qatar's giant North Field with the UAE and Oman was the first cross-border gas project in the Persian Gulf region. It has pumped around two billion cubic feet a day of gas from Qatar to the UAE since February.

Oman is struggling to meet both domestic demand and its gas export commitments.

Dolphin has a contract to supply 200 million cubic feet a day of gas to Oman. Omani officials said last month they expected gas supplies from Dolphin to start next month.

"There is some issue with the gas compression," said Al Wahabi. "It is on our side of the pipeline," he said.

A gas compressing unit compresses gas to ease pumping through the pipeline.

Dolphin general manager Ibrahim Al Ansari said the firm was still working on gas metering stations in the UAE. "The gas is there ... on our side we are ready to export."

As Dolphin waits for the infrastructure to be completed, it is supplying the gas that would have been pumped to Oman to the UAE's Federal Electricity and Water Authority and the federation's northern emirates of Ras Al Khaimah and Sharjah.

Dolphin will end those supplies when it begins exporting to Oman. It will reverse the direction of the pipeline. That pipeline was the first to carry gas across borders in the Persian Gulf region when Oman began pumping to the UAE in 2004.

Mubadala Development Company, run by the government of Abu Dhabi, owns 51pc of Dolphin while France's Total and US Occidental each have a 24.5pc stake.

The final cost of the entire Dolphin project was around \$4.8 billion, Al Ansari said, up from initial estimates of around \$3.5 billion.

The 364-km pipeline for gas exports to the UAE was completed in 2006. Dolphin began using the pipeline in March last year to bring 400m cubic feet per day of gas to Dubai.

Qatar maintains a moratorium on new gas projects from its North Field, as it studies the effect of rapid development on the largest reservoir of pure gas in the world. Qatari Oil Minister Abdullah bin Hamad Al Attiyah said it was not in discussions to boost Dolphin supply and would not discuss further supplies with anybody until it had completed its studies of the gas field's performance.