Royal Dutch Shell's Dutch pension fund has fallen into deficit as share market turmoil knocked 40 percent off the fund's value, forcing the oil major and employees to increase contributions.

The fund said in a letter sent to its members this week that its funding ratio -- a measure of how well a pension scheme can meet its liabilities -- was 85 percent at the end of November, down from 180 percent at the end of 2007.

A spokeswoman for Shell confirmed the letter had been sent but could not say how much the new arrangements would cost Shell. She said Shell's UK defined benefits fund was fully funded.

A Dutch pension fund manager estimated the company would need around 2 billion euros (1.78 billion pounds) to bring the funding ratio to 100 percent or 2.5 billion euros to hit the 105 percent level Dutch law requires such funds to maintain over time.

The drop in ratio is a result of the fund's focus on equities and the fund said it would now decrease its share investments and shift into government bonds to reduce risk, the letter, seen by Reuters, said.

A full copy of the letter is published on activist website royaldutchshellplc.com.

The scheme's annual accounts show that at the end of 2007 the fund had assets at 19.2 billion euros, and liabilities of 10.6 billion euros.

At the time, equities investments accounted for 12.2 billion euros and bonds for 5.5 billion euros.

An agreement between Shell and the fund requires Shell to provide additional funding up to a funding ratio of 105 percent, if the funding ratio regularly is below 105 percent over a six-month period, the letter said.

Under Dutch law, a pension scheme whose funding ratio is under 105 percent has three years to fill the deficit. The scheme must notify the regulator and submit a recovery plan.

Shell's pension fund has commissioned a report to establish if its long-term strategy needs changing and will submit a recovery plan to the Dutch Central Bank, which is also the country's pension regulator, next year.

The fund's 70 percent equity focus is in the upper end of the range Dutch and UK defined benefit schemes usually operate within while similar funds in Germany, France or Italy typically have a clear bond focus.

The Dutch central bank responded to the current market downturn last month by allowing underfunded pension schemes to postpone recovery plan submission until April next year.

(Reporting by Tom Bergin and Cecilia Valente; Editing by Hans Peters and Rupert Winchester)