SENEGAL’S PETROLEUM FUTURE OR A STRANDED ASSET RISK?
Financial Modelling Energy Transition Pricing Scenarios and Potential Government Revenue from the Rufisque Offshore Profond Project

Context

The Senegalese government hopes to develop its fossil fuel reserves in order to address Senegal’s major economic development and energy access needs. For newly developed projects in particular, this strategy’s success will be heavily influenced by the energy transition’s impact on global energy markets, including a projected decline in oil and gas prices. Senegal’s Rufisque Offshore Profond project, which remains in its exploration phase, exemplifies the risks and opportunities of new oil and gas projects.

Operated by majority owner TotalEnergies (90%), with Petrosen currently holding a minority (10%) stake, a number of uncertainties surround Rufisque Offshore Profond. It is unclear whether the block contains oil or gas and what the scale of its reserves is. Given that a project that has yet to produce a commercial discovery, production would almost certainly not begin until the 2030s, by which point the energy transition may have significantly transformed the global energy market. Many of these market forces are outside Senegal’s control. Unless Rufisque Offshore Profond is used for gas-to-power—which is unlikely given the barriers gas-to-power projects face, especially for a deep offshore project like Rufisque Offshore Profond, which is not even yet confirmed to contain gas—it would sell oil or gas for export. The climate policies of countries other than Senegal would be key to determining demand—and in turn prices—for oil and gas produced at Rufisque Offshore Profond. These factors will also have a profound effect on the potential revenues that Senegal may be able to collect as a result of any extraction.

What does the study analyze?

Oxfam is finalizing an analytical report presenting and contextualizing OpenOil’s financial model of the economics and contractual terms of Rufisque Offshore Profond and applicable fiscal regime. This analysis provides insight on the likelihood of Rufisque Offshore Profond going forward and the potential revenues it would produce for the Senegalese government in different price and reserve scenarios. This report is a work in progress with publication anticipated in August 2023 (after the PWYP and EITI conferences in June). It has not undergone peer review and the preliminary findings cited in this document may be modified prior to publication.

What are the preliminary key findings of the study?
• Will the project be deemed commercially viable and move from the exploration phase to the production phase?
  o TotalEnergies’ investment criteria may prevent the project from going forward
    ▪ TotalEnergies has implemented criteria to align hydrocarbon investments with the Paris Agreement. Because it is the operator and majority owner, TotalEnergies’ criteria will likely decide whether the project goes forward.
    ▪ In order to satisfy these criteria, the model finds that Rufisque Offshore Profond would need to contain oil reserves well over twice as large as the discovery in Senegal’s Sangomar field when its final investment decision was made.
  o Beyond TotalEnergies’ criteria, viability is also based on the economics. Unless Rufisque Offshore Profond’s oil reserves are very large, the energy transition will make it difficult for Rufisque Offshore Profond to be sufficiently profitable to be commercially viable as an oil project. And as a gas project, only with a very slow or delayed energy transition, and with most exported gas shipped to Asia, would the project proceed. The faster the pace of the global energy transition, the less likely it is Rufisque Offshore Profond will go forward, whether oil or gas.
    ▪ A net-zero emissions by 2050 energy transition would preclude commercial viability for gas and for oil only astronomically large reserves would enable viability.
    ▪ In a modestly paced energy transition, gas would still not be viable but oil could be viable if reserves were nearly twice the size as the discovery at Sangomar when its final investment decision was made.
    ▪ If current energy policies continue, a scenario associated with 2.5°C of warming, Rufisque Offshore Profond could be viable with oil reserves slightly larger than the discovery at Sangomar when its final investment decision was made. Gas could be viable but only if a majority of gas was sold to Asia, where gas prices are expected to be higher than the US and Europe.
  o Rufisque Offshore Profond is more likely to be viable if it contains oil than gas
    ▪ LNG projects are limited by their processing capacity, meaning that gas production would plateau at the project’s maximum processing capacity.
• What revenues could it bring to the Senegalese government?
  o Scale
    ▪ For both oil and gas, scenarios that just cross the threshold of commercial viability tend to produce total revenues over the life of the project in the range of $5.5 billion dollars (3.4 trillion XOF). After discounting future
revenues to account for factors like interest rates, the net present value of these revenues is around $650 million (397 billion XOF).

- In an oil scenario very favorable to government revenues, in which oil prices do not experience long-term price decline and a discovery at Rufisque Offshore Profond was almost twice as large as Sangomar at the time of its final investment decision, government revenues would top $19 billion (11.6 trillion XOF) over the life of the project, in nominal terms. However, these assumptions may be unrealistic. And even so, the net present value of these revenue flows still only equates to about 7.5% of Senegal’s current external debt.

- Timing and composition
  - The Senegalese government would not begin receiving revenues until the 2030s, with revenues likely peaking in the late 2030s.
  - Profit petroleum would be the greatest – and earliest – source of government revenue, followed by corporate income tax.

- Petrosen debt risks
  - In many scenarios Petrosen never earns enough in dividends to pay back the money it would need to borrow to finance its costs as a joint venture partner, while in scenarios where Petrosen earns money these revenues still are smaller and come later than revenues from profit petroleum and corporate income tax.
  - Increasing Petrosen’s share in the project from 10% to 18% would increase Petrosen revenues in scenarios profitable to Petrosen, but it also increases Petrosen’s loss in scenarios where Petrosen does not recover its investment.

- How could carbon taxes impact the project?
  - Carbon taxes could have a meaningful but likely not dramatic effect on project profitability.
  - In a carbon tax scenario with TotalEnergies’ internal carbon price of $100/ton applied, carbon taxes tend to decrease the contractors’ rate of return by between 0.5% and 1%.

- How certain is the analysis?
  - Any analysis of future market trends and economic effects is uncertain, especially in a situation like Rufisque Offshore Profond where it is still unknown what level of reserves the block contains and whether it contains oil or gas.
  - The report still provides useful conclusions that can inform stakeholders’ decision-making.

What does the study recommend?
• It will be critical that the Senegalese government undertakes its own financial modeling of the Rufisque Offshore Project and update it regularly. If the project only produces limited benefits that do not outweigh the costs of extraction, it does not make sense for it to go forward.

• Should the project move forward, the country should also do all it can to maximize revenue collection, including through cost control and the exercise of tax and cost audit rights.

• Government and other stakeholders should also make use of relevant fiscal disclosures and transition plans from TotalEnergies and other project partners, and encourage more such disclosures, to help combat the information asymmetry in project decision-making that favors the private parties.