Opportunities and Challenges for Senegal in Oil and Gas Production: Lessons Learned from Other New Producers

William Davis and David Mihalyi

May 2021

Natural Resource Governance Institute

Contents

Key messages

- Countries embarking on large-scale oil and gas production face a number of pitfalls. Senegal can learn from the experience of other "new producers" in Africa.
- Senegal faces a risk of inflated expectations, which may lead to political pressure for high levels of spending. All stakeholders have a role to play in contributing to informed public debate on natural resources.
- Senegal's prospects for oil and gas revenues are uncertain due to the possibility of production delays and volatility in prices. Senegalese officials should consider multiple scenarios and plan conservatively for future spending.
- Senegalese authorities (particularly the Ministry of Finance and Budget and the National Assembly) should continue to refrain from granting tax cuts for projects that have already reached final investment decision and should carry out rigorous cost audits.
- Senegalese authorities (particularly the presidency, the Ministry of Petroleum and Energy, the Ministry of Finance and Budget and the National Assembly) can use the years prior to production to build strong oversight of spending and investment from resource revenues (e.g., through strengthening the governance of the sovereign wealth fund) and commit to a fiscal rule, which would govern the shares of resource revenues to be consumed and invested.
- The Senegalese government's "gas-to-power" plans have the potential to provide the country with cheaper, cleaner and more accessible energy. But they also carry a risk of the country becoming "locked in" to gas, which could undermine fiscal sustainability (through "take-or-pay" contracts), and prevent the country from taking full advantage of increasingly attractive renewables.

Cover: top image by Diana Jarvis / Alamy; bottom image by Wojciech Wrzesien / Shutterstock

Executive summary

Senegal, with significant reserves of natural gas, appears to be on the verge of becoming a significant hydrocarbon producer. This resource wealth presents the country with opportunities, but also risks. This paper reviews the recent experience of other "new producers," mainly in Africa, and attempts to draw lessons for Senegal on how to make the most of its hydrocarbon resources, taking into account both the changing context due to the coronavirus pandemic and the ongoing transition to renewable energy.

The first key lesson we identify is the risk of over-optimism. Senegal's discovery of significant oil and gas reserves (approximately 60 barrels of oil equivalent per citizen from projects currently under development) will not make the country rich overnight.[1] In other formerly new producers, citizens often had inflated expectations following petroleum discovery, which in turn led to unrealistic demands and later discontent when these hopes went unrealized Senegal's government, parliamentarians, civil society, journalists, the Extractive Industries Transparency Initiative (EITI) and the private sector have a shared responsibility to help manage expectations on the size of oil riches. This can be done individually or collectively through EITI and other platforms.

Second, though the operators in Senegal are confident of their timelines, oil and gas projects in other countries have often been delayed– and Senegal's plans for its oil and gas sector also need to be robust to such delays. In the last two decades across new producers in sub-Saharan Africa, the average project took nearly twice as long to achieve production as initially anticipated. The government was justifiably cautious in this regard by committing not to factor in resource revenues in public spending/investment plans until projects received a final investment decision (FID). But risks of delays remain following FIDs. Post-pandemic uncertainties and the energy transition could also put into question whether additional projects may move ahead.

Third, the volatility in the oil price precipitated by the pandemic, coupled with the expected long-term decline due to the energy transition, means that future revenues are less certain. International experience also warns of a risk of governments further undermining those revenues. This may result from governments granting unnecessary tax incentives to projects that would receive investment/go ahead anyway, or by failing to monitor and protect the tax base from cost over-statement and tax base erosion. The Senegalese government wisely did not grant any fiscal incentives to oil and gas producers during the recent price dip and should continue with this approach.

The risks highlighted above may lead to governments over-estimating the revenues they can expect from natural resources. This may lead to overly ambitious public spending and borrowing, which in turn can create unsustainable levels of public debt if and when natural resource revenues do not materialize. The government may want to borrow more to mitigate the effects of the pandemic, but it should

1 This figure relates to reserves (2P) of Senegal's oil and gas projects that have already reached final investment decision. Future phases and additional projects contain significant additional resources but are also more uncertain.

ensure such borrowing is either one-off crisis mitigation measures or investments into the future, rather than fueling recurrent spending on the back of uncertain petroleum revenues. Due to these uncertainties, the government should also be cautious about its own investments in into oil and gas production via Petrosen.

Another challenge that governments face relates to how to smooth the consumption of resource revenues over time, given their volatility and unsustainability. The government of Senegal is right to follow the example of other petroleum producers in setting up a revenue management framework to ensure that resource revenues can help to smooth macroeconomic fluctuations and that that future generations can benefit.

Senegal's own revenue management framework is yet to be finalized. But it should ensure that the sovereign wealth fund (to be housed within the national strategic investment fund—Fonds Souverain d'Investissements Stratégiques (FONSIS)) has a robust and well-governed framework in place to save for the long-term, while avoiding pitfalls of saving prematurely and creating parallel budgets. More broadly, there are a number of gaps in Senegal's fiscal transparency measures needing to be addressed.

The government of Senegal has major plans for using natural gas to provide energy domestically. While the ambition to bring electricity to all is commendable, the government should proceed with caution to avoid getting locked into using gas as its primary resource in a rapidly changing energy landscape in which renewables are becoming increasingly attractive. The Senegalese authorities should avoid over-committing to purchasing domestic gas in case the generation and distribution infrastructure will not be ready in time.

In summary, Senegal's oil and gas resources present both opportunities and challenges for the country. To make the most of the resources, the government should ensure realistic expectations (amongst both policy-makers and the general public), and institute a cautious approach to public spending and investment based on oil and gas resources, including when it comes to using them for domestic energy. Finally, the government should establish a transparent and well-governed savings framework that is appropriate for Senegal's level of savings and limits the risk of mismanagement of resource revenues.

Introduction

Senegal appears to be on the verge of becoming a significant producer of hydrocarbons, especially natural gas. The country is already a small-scale natural gas producer. However, between 2014 and 2017, a number of significant oil and gas discoveries were made. Two projects (Sangomar and Grand Tortue Ahmeyim (GTA)) recently reached final investment decision (FID), while a third find (Yakaar-Teranga) is also a candidate for investment. (FID refers to the investors' decision to move to implement an investment project—after this, major financial commitments take place.[2,3]) Senegal is therefore preparing for the investment needed to bring these projects online, and for the impact of a significant increase in natural resource revenues.

Countries face a number of challenges in managing revenues from natural resources. In this brief we focus on some special challenges affecting countries as they prepare for production from oil and gas finds. First, international experience has shown that a number of countries have succumbed to the "presource curse," where overoptimism regarding the future benefits from the sector undermines government policies and ultimately leads to disappointing outcomes. As such, it is important to manage public expectations around what the finds will mean for the economy, and resist pressure to embark on unsustainable borrowing, public spending or investment plans based on overly-optimistic forecasts of the revenues that will flow from these resources.[4] There are also challenges around putting in place an appropriate governance framework to prevent revenues from being lost to tax avoidance/evasion and mismanagement.[5] In the context of the coronavirus pandemic, these challenges are particularly difficult, as countries grapple with fears of losing out on investment, and weigh whether to use resource wealth to finance temporary spending needs to stabilize the economy.

In this brief, we examine the experience of other new producers in sub-Saharan Africa. In so doing, we aim to draw lessons that may be useful for Senegal in avoiding some of the major pitfalls that tend to await new oil producers. The brief is NRGI's first publication under our newly-launched Senegal country program. Under this program, we may produce further publications that will take a more detailed look at specific aspects of the country's extractives governance.

2 McKinsey, "FID," Energy Insights by McKinsey, accessed 30 October 2020, www.mckinseyenergyinsights.com/resources/refinery-reference-desk/fid.

3 Editorial Dept, "The Complete Guide To FID's," OilPrice.com, 23 February 2020, oilprice.com/Energy/Energy-General/The-Complete-Guide-To-FIDs.html.

4 David Mihalyi and Thomas Scurfield. *How Did Africa's Prospective Petroleum Producers Fall Victim to the Presource Curse?* (The World Bank, September 8, 2020), doi.org/10.1596/1813-9450-9384.

5 We do not have any information on whether tax avoidance/evasion or mismanagement of revenues is currently occurring in Senegal's oil and gas sector; nor do we have information to suggest that companies operating in the sector are attempting to avoid or evade taxes in Senegal. We mention this point simply because it is a general problem that has affected extractives in many countries, and is a therefore a risk of which Senegal should be aware.

This briefing explores the factors that may contribute to overoptimism[6]: 1) the amount of petroleum found from exploration and its implications for public expectations, 2) the road to first oil and the risks of delays, 3) revenue collection difficulties and avoiding the "race to bottom."[7] We then turn to the possible consequences of overoptimism and how to avoid them: 4) we discuss appropriate short-term borrowing given the current context, 5) provide considerations for setting up a petroleum revenue management framework and 6) discuss implications for Senegal's ambitions to use gas domestically, followed by a conclusion. In Appendix I, we provide an overview of how transparent Senegal's fiscal policies and governance are, focusing on areas that are particularly relevant for natural resource management. In Appendix II, we provide background information on the main oil and gas projects currently being developed in Senegal.

6 Inspired by the sequencing of the extractive decision chain as outlined in the Natural Resource Charter. Natural Resource Governance Institute, *Natural Resource Charter: Second Edition*, 12 June 2014, resourcegovernance.org/approach/natural-resource-charter.

7 A "race to the bottom" refers to jurisdictions competing to attract investment by lowering taxes and regulatory standards. This can have negative effects, as such policies may attract only limited (if any) additional investment, and lower tax revenues and regulatory standards may ultimately leave jurisdictions worse off.

1. Managing public expectations and debate

Senegal has been a small-scale producer of natural gas for decades. But since 2014, there have been a number of significant discoveries of oil and gas reserves. Of these, two major projects (the Sangomar and GTA fields) have secured FIDs. Senegal made its first major oil strike in November 2014, when Cairn Energy discovered the Sangomar field. The discovery was announced as the largest in 2014 anywhere in the world.[8] This was followed by a series of additional gas discoveries, among which the Greater Tortue Field or Grand Tortue/Ahmeyim (GTA) discovered by Kosmos Energy in 2015 stands out. It is a cross-border gas field located on the Senegal-Mauritania border, which was announced as a "world class gas resource" immediately after its discovery.[9]

Rystad Energy puts Senegal's estimated oil resources at over 1 billion barrels. These resources were found across numerous fields. Of these, the operator of the Sangomar offshore development (Woodside) has estimated that the field will yield 231 million barrels of oil during the first phase of exploitation; this could rise to 500 million barrels over the life of the field. For natural gas, Senegal has 50 percent of the estimated 15 trillion cubic feet (tcf) of recoverable gas reserves in the cross-border GTA field (with 25 tcf of gas initially in place), in addition to around 10-25 tcf of gas initially in place in Yakaar-Teranga. There is also potentially more oil and gas located in FAN, Sangomar Profond and beyond. Phase 1 of GTA is expected to export around 2.5 million tons per annum (Mtpa) of liquified natural gas (LNG), with half of this accruing to Senegal.[10,11,12,13]

It is difficult to interpret such figures at face value—these "big numbers" can be misleading when it comes to the impact on revenues, investment and jobs. We therefore compare Rystad's estimates of reserves they classify as proven and probable (2P) on a per capita basis to other countries across sub-Saharan Africa to give a rough idea of what the reserves might mean taking into account Senegal's population.[14]

8 FAR Limited, "The World's Largest Oil Discovery 2014," Presented at the Melbourne Mining Club Cutting Edge Series, Melbourne Mining Club, 15 March 2016, www.melbourneminingclub.com/wp-content/uploads/2015/11/CE-Presentations-March-15-2016.pdf.

9 "Kosmos Energy Announces Significant Gas Discovery Offshore Senegal," Kosmos Energy, 27 January 2016, investors.kosmosenergy.com/news-releases/news-release-details/kosmos-energy-announces-significant-gas-discovery-offshore.

10 International Monetary Fund, *IMF Country Report No. 19/34 Senegal Fiscal Transparency Evaluation*, 2019, 65, www.imf.org/~/media/Files/Publications/CR/2019/cr1934-senegal-fiscal-transparency.ashx.

11 Mostefa Ouki, *Mauritania -Senegal: an emerging New African Gas Province—is it still possible? OIES PAPER: NG 163*, The Oxford Institute of Energy Studies, 2020.

12 FAR Limited, *Annual Report 2019: FAR's Journey to First Oil* (FAR Limited, N.d.), 13, www.annualreports.com/HostedData/AnnualReports/PDF/ASX_FAR_2019.pdf

13 BP, "Greater Tortue Ahmeyim Phase 1", BP, N.d., 1, www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/what-we-do/worldwide/greater-tortue-ahmeyim-fact-sheet-english.pdf

14 The population is estimated at 17.2 million in 2020. "Agence Nationale de Statistique et de La Démographie," Agence Nationale de Statistique et de la Démographie, accessed 5 May 2021, satisfaction.ansd.sn/.

Figure 1 below shows that Senegal's proven and probable oil reserves per capita (for finds that have secured FID) would equal 15 barrels for each of its citizens. This amount is an order of magnitude smaller than the most petroleum-rich countries in Africa, e.g., Equatorial Guinea, Gabon, Republic of Congo and Angola. Its proven and probable gas reserves are somewhat more significant, at below 45 barrels of oil equivalent (boe) per capita.[15]

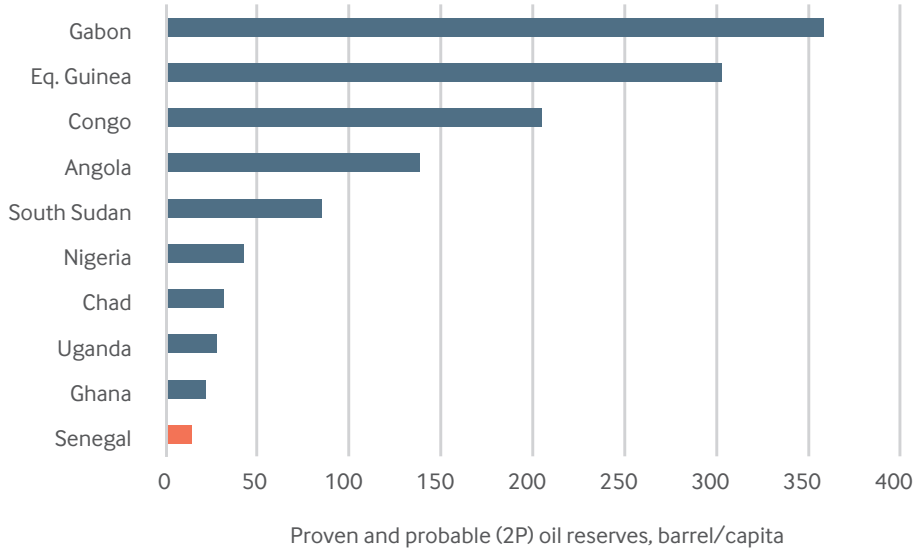


Figure 1. Proven and probable oil reserves (barrels per capita)

Source: Rystad, 2020

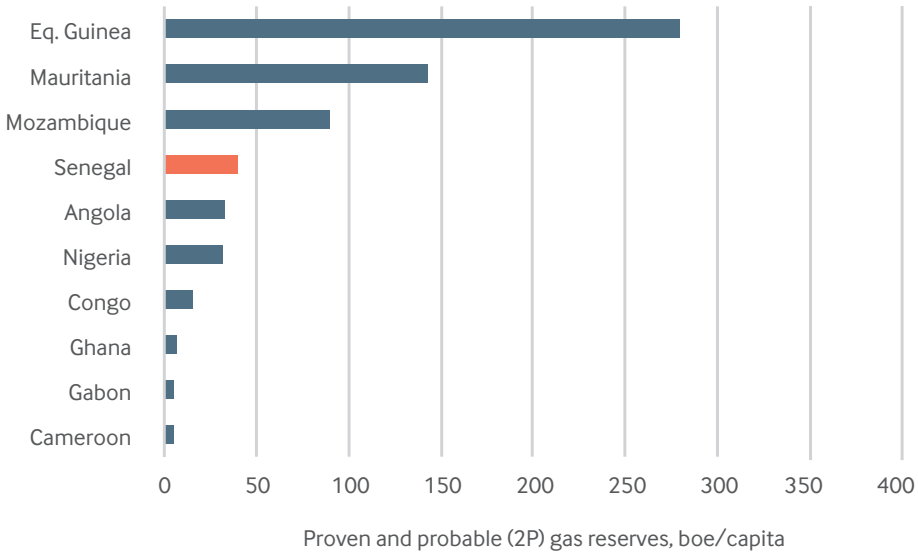


Figure 2. Proven and probable gas reserves (boe/capita)

Source: Rystad, 2020

15 According to the Société Géologique de France, "proven" reserves refer to those that are more than 90 percent likely to be commercially recovered and are located in known reservoirs, using established production techniques, and with stable economic and contractual conditions. "Probable" reserves, by contrast, are over 50 likely to be commercially recovered. "Quelles Sont Les Différences Entre Réserves et Ressources En Hydrocarbures ?," Société Géologique de France, accessed 4 February, 2021, www.geosoc.fr/quid-sgf/133-quid/ressources-energetiques/735-quelles-sont-les-differences-entre-reserves-et-ressources-en-hydrocarbures.html.

Combining the oil and gas reserves that reached proven and probable (2P) stage, assuming all are to be extracted over the next thirty years (an optimistic scenario) and taking into account the country's growing population, Senegal's current proven and probable reserves add up to less than 1 boe per citizen per year.[16]

The prospects for future exploration and reserve addition are now an open question, due to uncertainties caused by the coronavirus pandemic and global oil market uncertainties. For example, the pandemic has caused significant operational difficulties for BP, the operator of GTA, in pushing ahead with the project (these have been overcome)– and may make further exploration more difficult.[17]

While Senegal's petroleum wealth is not of a magnitude to significantly boost the individual incomes of the Senegalese population directly, it certainly provides an important opportunity to support the economy through strategic, well-chosen investments. But in order to do so, it is critical for the government to learn lessons from other new African producers and communicate the significance of the finds clearly and help set the right expectations for citizens– particularly by avoiding overly-optimistic views that they will transform the economy.

Unfortunately, despite only having modest revenues, politicians in other countries have often shown little restraint with their messaging on oil and gas finds. Celebrating Ghana's giant oil discovery in 2007, President John Kufour said, "Even without oil, we are doing so well[. . .]With oil as a shot in the arm, we're going to fly."[18] Then, in 2010, President John Atta Mills promised that, "The petroleum resources will take Ghana into an industrial revolution in the next 10 years."[19] In Tanzania, when campaigning for re-election in 2010, President Jakaya Kikwete stated about the town near one of the large gas discoveries, "Mtwara will be the new Dubai."[20] Ten years later, the reality has not come close to living up to such pronouncements in either of these countries. In particular, Ghana's petroleum sector is far from transformational: the World Bank estimates that oil rents accounted for just 4.7 percent of GDP in 2019, the latest year for which data is available.[21] Meanwhile, Tanzania has thus far failed to secure investment into its gas projects. Even where the government does not stoke unrealistic expectations, other politicians, media outlets or individual citizens may do so by themselves. Therefore, the government should manage expectations through precise and realistic communication.

16 Note that Yakaar-Teranga and later potential phases of GTA or Sangomar, which would considerably add to total resources, were not classified as 2P by Rystad. This is therefore a conservative estimate of reserves per person, as it assumes that the country's reserves will not increase over time.

17 Reuters Staff, "BP Issues Force Majeure to Golar over Tortue Ahmeyim LNG Project," Reuters, 8 April 2020, www.reuters.com/article/us-golar-lng-lng-bp-idUSKBN21P2J7.

18 Kufour, 2007, cited in "Ghana 'Will Be an African Tiger,'" BBC, 19 June 2007, news.bbc.co.uk/1/hi/world/africa/6766527.stm.

19 JEA Mills, "State of the Nation Address by His Excellency John Evans Atta Mills," President of the Republic of Ghana, *(Accra)*, 2009.

20 Elise Must and Siri Aas Rustad, "'Mtwara Will Be the New Dubai': Dashed Expectations, Grievances, and Civil Unrest in Tanzania," *International Interactions* 45, no. 3 (2019): 500–531, doi.org/10.1080/03050629.2019.1554569.

21 The World Bank, "Oil Rents (% of GDP) — Ghana," The World Bank | Data, accessed 5 May 2021, data.worldbank.org/indicator/NY.GDP.PETR.RT.ZS?locations=GH.

Despite Liberia's failure to discover commercially viable oil resources to date, the potential benefits of oil have captured the imagination of citizens on multiple occasions. Confusion erupted in 2013 when African Petroleum reported a pre-drill estimate for one of its oil wells.[22] Media mistakenly interpreted the 840 million barrels of oil (mbbl) figure in estimated recoverable resources as if Liberia was starting to produce 840 barrels of oil per day.[23] Another newspaper ran a headline "If last week's announcement by African Petroleum that there's a huge deposit of oil offshore Liberia is anything to go by, then there is no need for Liberians to live in abject poverty again."[24] A third article stated that Exxon would be starting oil production in 2017, despite the Mesurado well that it drilled the year before being dry.[25] After drilling, the company announced it as a discovery, and it was some time before it was acknowledged to be non-commercial. In Kenya, Tullow Oil announced that it had struck oil in 2012.[26] At that stage there was no way to know whether the discovery was commercially viable—and even in the best scenario, it would be at least four years before oil would start to flow. However, by the next month, public sector unions had made an ambitious wage demand as a result.[27]

In several countries, the government has attempted to counteract some of this unrealistic excitement. After the confusion around exploration results in Liberia, the National Oil Company of Liberia (NOCAL) issued multiple public statements to try and clarify the situation.[28] It even prepared an infographic to clarify where Liberia was located on an oil production timeline.[29] (See figure 3.)

22 Dundee Capital Markets, Dundee Securities Ltd, "African Petroleum: Liberian Drilling Campaign Now Underway," Internet Archive: Wayback Machine, 23 February 2017, web.archive.org/web/20170223054622/www.africanpetroleum.com.au/system/files/AfricanPetroleum_DundeeSecurities_08Jan2013.pdf.

23 The Analyst, "Liberia: NOCAL, AP Quell Crude Oil Hysteria -Calls 840 Million Barrels Report 'Estimation,'"22 January 2013, allafrica.com/stories/201301220952.html.

24 "If Last Week's Announcement by African Petroleum That There's a Huge Deposit of Oil Offshore Liberia Is Anything to Go by, Then There Is No Need for Liberians to Live in Abject Poverty Again," *Independent*, 21 January 2013, quoted in David Mihalyi and Thomas Scurfield, "How Africa's Prospective Petroleum Producers Fell Victim to the Presource Curse," *The Extractive Industries and Society*, 20 November 2020, doi.org/10.1016/j.exis.2020.11.003.

25 C Oguh, "Liberia to begin oil production in 2017", *Financial Nigeria* 13, 2015.

26 BBC News, "Kenya Oil Discovery after Tullow Oil Drilling," 26 March 2012, www.bbc.com/news/world-africa-17513488.

27 Paul Collier, "Under Pressure," *Finance & Development*, December 2013, www.imf.org/external/pubs/ft/fandd/2013/12/collier.htm.

28 See for example: The Analyst, "Liberia." and National Oil Company of Liberia, "Background Briefing on Liberia's Oil Sector", National Oil Company of Liberia, July 2012. web.archive.org/web/20181123002742/http://www.nocal.com.lr/pdf/Press_Releases/Background_Briefing_on_Liberia.pdf.

29 National Oil Company of Liberia, "Background Briefing on Liberia's Oil Sector."

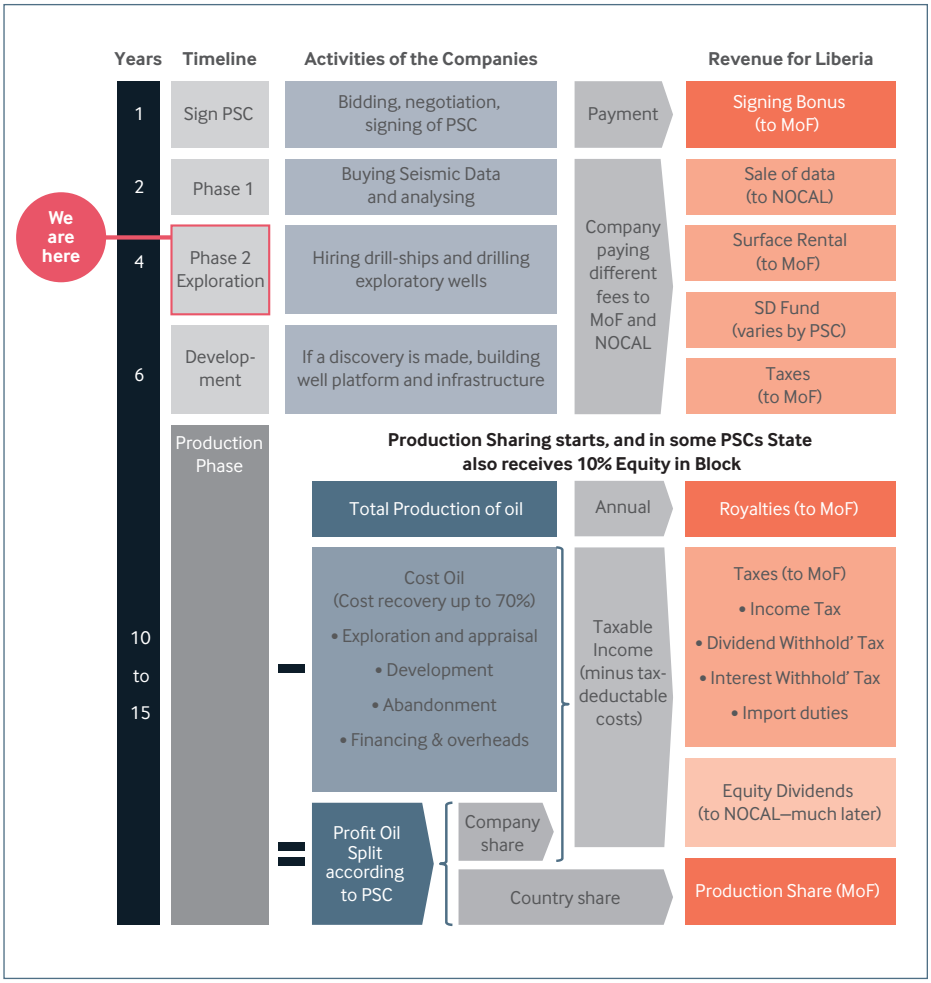


Figure 3. Oil production and revenues timeline published by Liberia's NOCAL[30]

So far, the government of Senegal appears to have been relatively cautious in its communications and has adopted a strategy aimed at engaging multiple stakeholders in responsible communication on the country's oil and gas wealth. However, media outlets and individual commentators have in some cases been less restrained and may be creating unrealistic expectations. According to a 2019 Afrobarometer survey, Senegalese people are generally optimistic that the country's hydrocarbon resources can power the country's development and improve their living standards.[31] Yet it is likely that material benefits from petroleum sector will remain modest whether it is through taxes (see section 3) or through local content.[32]

30 *Ibid.*

31 Ousmane Niang and Alpha Ba, "La gouvernance économique : Une perception positive des Sénégalais sur l'orientation et l'avenir du pays," *Afrobarometer*, 19 July 2019, afrobarometer.org/sites/default/files/publications/D%C3%A9p%C3%AAches/ab_r7_dispatchno308_gouvernance_economique_en_senegal.pdf.

32 While the government has made efforts to encourage development of local content, global experience shows that local content in extractive industries tends to bring far fewer benefits than government revenues. See, e.g., Robert Pitman and Kaisa Toroskainen, *Beneath the Surface: The Case for Oversight of Extractive Industry Suppliers* (London and New York: Natural Resource Governance Institute, September 2020), resourcegovernance.org/sites/default/files/documents/beneath_the_surface.pdf, 5. Moreover, Senegal's EITI report indicates that, to date, only 4 percent of spending on suppliers in the hydrocarbon sector went to local firms. Comité National ITIE Sénégal and BDO Consulting, *Rapport ITIE 2019* (Senegal: L'Initiative pour la Transparence des Industries Extractives au Sénégal, December 2020), eiti.org/files/documents/rapport_itie-senegal_2019-vf.pdf.

By communicating proactively in advance, the government can help avoid any subsequent popular disappointment or fend of accusations that petroleum wealth must have been squandered.

Recommendation: Manage expectations. Senegalese policy makers should communicate clearly and proactively about the significance of the resources found, the size of the projects going ahead, the possibility of delays (see next section) and the uncertainties around the size of finds and the economic benefits they may bring.

Recommendation: Informed public debate on natural resources is everyone's responsibility. Other stakeholders, such as media, civil society organizations and companies also have an important role in scrutinizing and disseminating information on natural resources and their management, as well as interpreting it for public consumption, including working through EITI.[33]

33 We recognize that such efforts are already taking place both through Senegal EITI and elsewhere.

2. Preparing for delays

In spite of the pandemic and global economic crisis, Senegal's two main oil and gas projects (GTA and Sangomar) are moving ahead, albeit with some delay. The Sangomar project was given a green light in January 2020, when the government granted exploitation authorization and approved the joint venture exploitation plan.[34] For GTA, an initial hurdle was passed in 2018, when the governments of Mauritania and Senegal agreed to share the resources on a 50/50 basis.[35] This was followed by final investment decision by investors BP and Kosmos Energy in December that year.

The production of oil and gas in Senegal is currently expected to start in 2023 for both the GTA and Sangomar projects. This represents a delay compared to the first timeline put forward by companies for both projects which targeted 2021.[36,37]

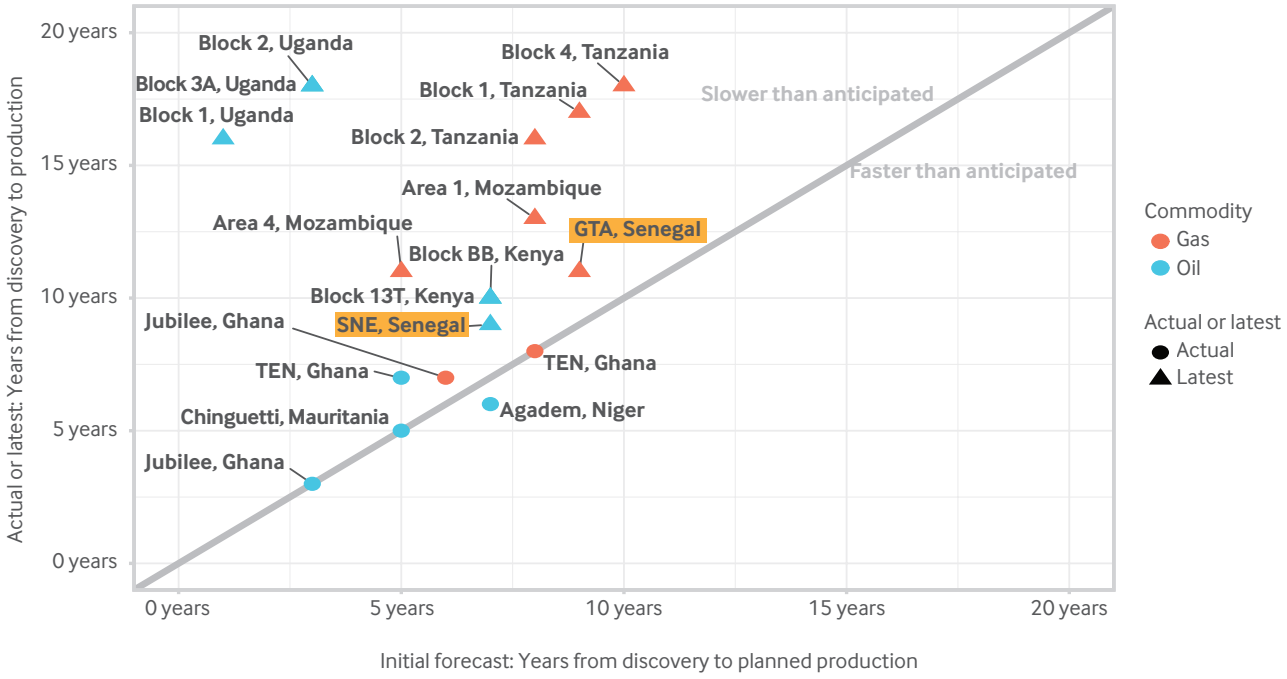
To start production, significant up-front investments are needed (around USD 10 billion across the GTA and Sangomar fields). Senegal was fortunate to have secured an FID on these two projects prior to the pandemic. But the pandemic has brought some difficulties in advancing the projects. Specifically, BP asked one of its contractors to delay the delivery of a floating LNG facility, citing disruptions caused by the pandemic (e.g., quarantine restrictions imposed by the government) which caused the project to miss the "weather window" for construction of a breakwater for the gas liquefaction terminal.[38] This has now been resolved with a delay of around 11 months relative to the original timeline.[39] Project development is proceeding well and was around 50 percent complete by the end of 2020, on track to achieve first gas in the first half of 2023.[40] On Sangomar, one of the joint venture partners, FAR, ran out of money and was forced to sell its stake in the project that had run into delays.[41] Despite these challenges, the operator of Sangomar (Woodside) continues with procurement for the project and has insisted that production will start in 2023.[42] According to the government, project execution was 17.3 percent complete by December 2020.

34 FAR Limited, "01 January - 31 March 2020 Q1 Report," Melbourne: FAR Limited, 2020, far.live.irmau.com/irm/PDF/c4be136b-3254-439c-a950-a109521d5780/QuarterlyActivitiesandCashflow.
35 This division will be reassessed after the first five years, following a recalculation of the amounts of hydrocarbons coming from each country. Ministère des Affaires Etrangères et des Sénégalais de l'Extérieur, République du Sénégal, Projet de Loi autorisant le Président de la République à ratifier l'Accord de Coopération inter-Etats portant sur le développement et l'exploitation des réservoirs du champ Grand Tortue/Ahmeyim entre la République du Sénégal et la République Islamique de Mauritanie, signé le 09 février 2018 à Nouakchott", (Dakar, 2018), www.dri.gouv.sn/sites/default/files/an-documents/L-2018-21.pdf.
36 FAR Limited, "The World's Largest Oil Discovery 2014," 15 March 2016, www.melbourneminingclub.com/wp-content/uploads/2015/11/CE-Presentations-March-15-2016.pdf.
37 "Future potential: how Mauritania and Senegal are set to become new players in natural gas supply" BP, 8 May 2017, www.bp.com/en/global/corporate/news-and-insights/reimagining-energy/emma-delaney-mauritania-senegal-gas-development.html.
38 "BP Issues Force Majeure to Golar over Tortue Ahmeyim LNG Project," Reuters, 8 April 2020, www.reuters.com/article/us-golar-lng-lng-bp-idUSKBN21P2J7.
39 "BP p.l.c. Group Results Third Quarter and Nine Months 2020," BP, 27 October, 2020, www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/investors/bp-third-quarter-2020-results.pdf.
40 Kosmos Energy, "4Q 2020 Results," Kosmos Energy, 22 February 2021, investors.kosmosenergy.com/static-files/3bd3f0ef-3129-415d-94b8-841eb6938eca.
41 Reuters Staff, "UPDATE 1-FAR Says It Is in Default over Senegal Sangomar Project," Reuters, 24 June 2020, uk.reuters.com/article/far-senegal-idUKL4N2E11Z4.
42 "COVID Will Not Stop First Oil From Senegal in 2023," *Africa Oil + Gas Report*, 23 June 2020, africaoilgasreport.com/2020/06/in-the-news/senegalese-field-on-course-for-2023-first-oil/.

In addition to the two projects in development, there are a number of other potential projects, some of unproven size, that have not yet secured an FID. The recent volatility in oil and gas prices (largely due to the coronavirus pandemic) and the ongoing transition to renewable energy may make it more difficult for these projects (particularly those based on oil) to mobilize investment. Plans for GTA phase 2 were recently scaled down.[43] (See Appendix II for background on the main oil and gas projects.) That said, recent analysis suggests that demand for LNG is strong, suggesting favorable prospects for future phases of GTA.[44]

Senegal can learn from other countries' experience to understand project timelines. In particular, oil and gas projects are capital intensive and difficult to execute. This is why so many fail to be ready on-time and on-budget, as reported by industry studies.[45] NRGI reviewed oil and gas project timelines across 12 new producers in sub-Saharan Africa since 2000.[46] It found that while initial timelines across the eight countries forecast production to commence an average of 6.4 years after discovery, even if the most recent timelines are met, the average would actually be 11 years. The differences are more marked for oil (forecast of 4.8 years versus actual/latest of 10.2 years) than for gas (forecast of 8.1 years versus actual/latest of 11.9 years). All projects above the 45-degree line in figure 4 are delayed.[47]

Figure 4. Initial forecast versus actual or latest timeline from discovery to production[48]



43 Joe Murphy, "BP, Partners Downsize GTA Expansion", Natural Gas World, 13 November 2020, www.naturalgasworld.com/bp-partners-downsize-gta-expansion-83398.
44 Kosmos Energy, "4Q 2020 Results," 13.
45 EY, cited in *Offshore Energy*, "EY: Oil & Gas Megaprojects Exceed Budgets. Cost Overruns Reach USD 500B," Offshore Energy, 14 August 2014, www.offshore-energy.biz/ey-oil-gas-megaprojects-exceed-budgets-cost-overruns-at-500b/.
46 Mihalyi and Scurfield, "How Did Africa's Prospective Petroleum Producers Fall Victim to the Presource Curse?"
47 Details of these projects and the circumstances of the delays are available from Mihalyi and Scurfield, "How Did Africa's Prospective Petroleum Producers Fall Victim to the Presource Curse?"
48 Authors' collection from company, government and IMF statements and reports. For projects that are yet to reach production, we report the latest estimate of first oil or gas. Data are current as of June 2020, but expected delays as a result of the recent price crash are yet to be factored into publicized estimates.

Many of the oil and gas projects above, especially those in Eastern and Southern Africa, were delayed before securing an FID. Our review also suggests that the 2014 drop in petroleum prices was a major cause for delay. Cross-border issues also were a complicating factor. For example, gas projects that require pipelines straddling countries faced delays, as well as the Tweneboa-Enyenra-Ntomme (TEN) field in Ghana, which reached first oil two years later than expected as a result of a maritime border dispute with Côte d'Ivoire.[49]

The risk of delays remains relevant for Senegal. After the pandemic struck, petroleum prices dropped to levels not seen over the last two decades and the medium-term outlook for oil and gas markets remains uncertain. While prices have since recovered, recent volatility, and the ongoing transition to renewable energy, may slow down or dissuade decisions to invest into any projects still awaiting FIDs. Although delays on the two projects with FIDs have so far have been more moderate than elsewhere (and the companies have shown their commitment to the first phase and are targeting FID for a (scaled-down) phase 2 of GTA in late 2022) the risks remain given complexities in project execution.[50,51,52] Moreover, Kosmos and BP (the two companies involved in GTA and Yakaar-Teranga) have both announced ambitious greening policies. While these may involve switching focus to gas as a lower-emission alternative to oil, Kosmos' own modeling, which analyzed what such greening may entail as part of its recent Climate Risk and Resilience Report, shows a decline in the net present value of their Senegal assets under their Sustainable Development Scenario.[53] A lower asset value may imply larger uncertainties of projects going ahead or smaller government revenues. It remains to be seen how strongly committed these companies are to keeping their Yakaar-Teranga assets over the longer term.[54]

Recommendation: Do not bet too heavily on projects being completed on schedule. The government should be careful in its planning around the use of petroleum production and revenues, and avoid taking large risks that depend on timelines put forward by petroleum companies. For example, in terms of planning its budget and borrowing (see next section), and when planning for the domestic use of gas or refining plans, it should ensure these projects do not put a large burden on the government if upstream projects slip. (See section 6 on "Opportunities and challenges around gas-to-power"). Close, continuous monitoring of project progress will also be helpful, but cannot remove the risk of project delays.

Recommendation: Do not count on the projects that have not yet received FIDs when making plans for the sector and the broader economy. It is not clear when, or whether, these projects will go ahead; and investing over-ambitiously carries significant negative consequences.

49 Mihalyi and Scurfield, "How Did Africa's Prospective Petroleum Producers Fall Victim to the Presource Curse?"
50 Kosmos Energy, "4Q 2020 Results," 13.
51 For example, one source of complexity is that GTA is a cross-border LNG project (though a division of the reserves has already been agreed between Senegal and Mauritania). Kosmos Energy emphasizes that the project and its use of floating LNG are designed to achieve first gas safely and quickly.
52 Livia Gallarati, "BP, Kosmos Reduce GTA LNG Expansion Plans", Argus, 11 November 2020, www.argusmedia.com/en/news/2158858-bp-kosmos-reduce-gta-lng-expansion-plans.
53 Kosmos Energy, "Climate Risk and Resilience Report 2020," Climate Risk and Resilience Report, Dallas: Kosmos Energy, September 2020, www.kosmosenergy.com/wp-content/uploads/2020/09/Kosmos-CRR-Report-2020.pdf.
54 Upstream Analytics, "Senegal-Mauritania LNG Hubs Face Headwinds," Rystad Energy, 22 September 2020.

3. Resource revenue collection: Avoiding tax cuts and protecting the tax base

Tax revenues provide the main source of benefit from oil and gas projects.[55] Senegal has introduced new fiscal regimes for oil (in 2019) and gas (in 2020).[56] However, the main oil and gas projects in the country have contracts carrying fiscal stabilization clauses, which mean that the previous tax code (from 1998) will apply, as well as specific production-sharing provisions that vary from project to project. Kosmos Energy and the Ministry of Petroleum and Energies published the signed contracts online. (See Appendix II.) An independent assessment of the level of taxes, and government's share of revenues (considering both the direct share and via Petrosen) from the Sangomar project judged these to be relatively low by international standards.[57,58] Fiscal terms for GTA may be more favorable to the state.

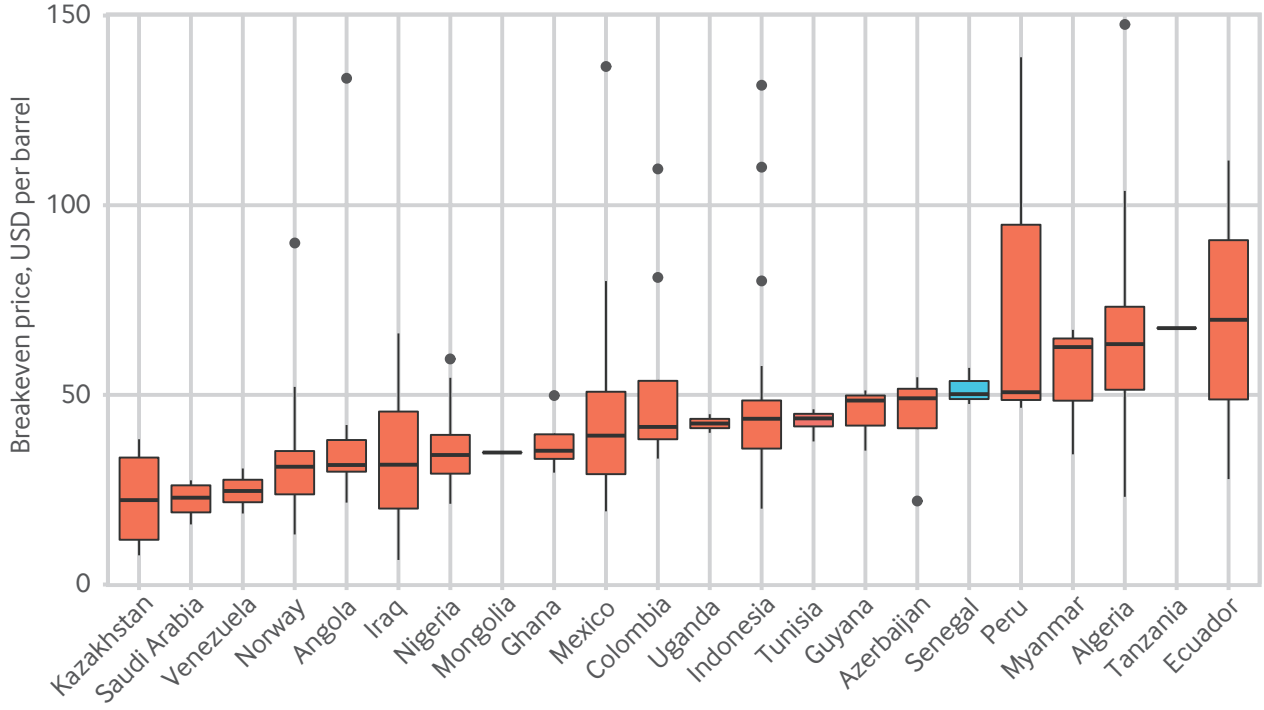
Table 1. Fiscal regime for main oil and gas projects in Senegal[59]

Senegal fiscal regime for Sangomar and GTA projects	
Applicable tax code	1998 oil and gas code (and contracts)
Fiscal instrument	Tax details
Royalty	Not applicable to production sharing contracts
Corporate income tax	33 percent for Sangomar and 25 percent for GTA.
State participation via Petrosen	Varies by project. Sangomar: 18 percent. GTA: 10 percent of Senegal's half of the project (can increase to 20 percent) [60]
Production sharing arrangement – state share of profit oil/gas	Sangomar: 15 to 40 percent. GTA: 35 to 58 percent, depending on the daily level of production. For Sangomar, "cost oil/gas" is capped at 70 percent of total production for depths of less than or equal to 500 meters, 75 percent for depths of 500 meters or more. For GTA, "cost gas" is capped at 75 percent of total production.
Export tax	None
Surface area rents	For GTA and Sangomar: USD 5 per square kilometer (km^2) during the first research period, USD 8 per km^2 during the first renewal period and USD 15 per km2 during the second renewal period and any extension

55 Natural Resource Governance Institute, *Natural Resource Charter.*
56 The gas code only applies to midstream and downstream segments. See République du Sénégal, Loi n°2020-06 du 7 février 2020 portant Code gazier, Pub. L. No. 2020–06 (2020), 1, www.droit-afrique.com/uploads/Senegal-Code-2020-gazier1.pdf,
57 Awa Diouf and Bertrand Laporte, *Oil Contracts and Government Take: Issues for Senegal and Developing Countries*, FERDI, 2018, ferdi.fr/dl/df-8He21bpvzZr1yEQjSiHMzjtg/ferdi-p209-oil-contracts-and-government-take-issues-for-senegal-and.pdf.
58 The 2019 tax code provides more revenue for the government. Currently proposed projects (e.g., future phases of GTA and Sangomar as well as Yakaar-Teranga) would take place under the 1998 code as contracts containing stabilization clauses were signed prior to the introduction of the 2019 code. However, any new projects (e.g., resulting from Senegal's current licensing round) would be subject to the 2019 code. See Awa Diouf, "Note politique 2020/01 La fiscalité sur l'or noir au Sénégal", Initiative Prospective Agricole et Rurale, 2020, 5, www.ipar.sn/IMG/pdf/np2020_01_fr.pdf
59 The Republic of Senegal, *Hydrocarbon Exploration and Production Sharing Contract: Saint Louis Offshore Profond, n.d. ; République du Sénégal, Contrat de Recherche et de Partage de Production d'Hydrocarbures: Rufisque Offshore, Sangomar Offshore, Sangomar Offshore Profond*, n.d.; Fitch Solutions, *Senegal's 2019 Petroleum Code Revision: Main Points Of Interest*, 29 March 2019 ; République du Sénégal, Loi 98-05 du 8 janvier 1998 portant code pétrolier, Pub. L. No. 98–05 (1998), www.droit-afrique.com/upload/doc/senegal/Senegal-Code-1998-petrolier.pdf.
60 For both contracts, Petrosen does not have to contribute to any expenses or charges that occur during the research phase. See The Republic of Senegal, *Saint Louis Offshore Profound* and *République du Sénégal, Rufisque Offshore, Sangomar Offshore, Sangomar Offshore Profound.*

Highly volatile oil prices and expected declines in prices in the future due to the energy transition may put governments under pressure by petroleum companies to grant tax concessions to the sector. But when it comes to projects that are already going ahead, their effects are questionable.[61] Investors will be unlikely to walk away from a project in which they have already secured and invested.[62] However, new projects that have not yet reached FIDs may face more difficulties in light of uncertainties the sector faces.[63] Figure 5 below compares break-even prices for future projects in several countries (including Senegal). It shows that Senegal's future projects (e.g., future phases of Sangomar and others in the Rufisque, Sangomar and Sangomar Deep area) are relatively higher cost with an average of $50/barrel which puts them at risk under a rapid energy transition scenario[64,65] But granting concessions to them now would put future revenues at risks for decades if prices were to stay high (unless they are explicitly made temporary).

Figure 5. Spread of breakeven prices for prospective projects in selected countries[66]



61 David Manley, David Mihalyi and Anna Fleming, *A Race to the Bottom and Back to the Top: Taxing Oil and Gas During and After the Pandemic* (Natural Resource Governance Institute, 22 October 2020), resourcegovernance.org/analysis-tools/publications/race-bottom-taxing-oil-gas-coronavirus-pandemic.

62 Sangomar, in particular, will remain profitable even in the face of significant declines in the oil price in line with the IEA's "sustainable development" scenario, according to Woodside's own modelling. See Woodside Petroleum Ltd, *2020 Annual Report Incorporating Appendix 4E*, Perth: Woodside Petroleum Ltd, 2021, 44, files.woodside/docs/default-source/investor-documents/major-reports-(static-pdfs)/2020-full-year-results-and-annual-report/2020-woodside-annual-report.pdf?sfvrsn=11372a48_4

63 Upstream Analytics, "Senegal-Mauritania LNG Hubs Face Headwinds."

64 For an extractive project, its "break-even price" is the minimum sale price for the extracted commodity that would allow the project to cover its expenses and make a profit.

65 Natural Resource Governance Institute, *Risky Bet: National Oil Companies in the Energy Transition*, Natural Resource Governance Institute, 16 January 2021, resourcegovernance.org/analysis-tools/publications/risky-bet-national-oil-companies-energy-transition.

66 Only includes projects that have not yet been developed and that Rystad expects to be developed over next five years. Showing quantiles for each country, unweighted by production. Source: Manley, Mihalyi and Fleming, *A Race to the Bottom and Back to the Top*, based on 2020 data from Rystad's Ucube platform.

Other countries' experience with tax collection also provide lessons for Senegal. In Ghana, revenues from oil were less than half of what was projected by the World Bank in the 2011 to 2018 period.[67] A key driver of lower revenues was higher development costs from the initial oil project as well as deductions on the back of costs incurred by the same set of oil companies on different subsequent projects.[68] Additionally, the cost audits carried out by the government have suffered from delayed starts, legal ambiguities, overlapping audit mandates, deficiencies in necessary expertise, and a lack of transparency.[69] Where countries lack the capacity for effective tax audits, there is an increased risk of extractive companies systematically inflating costs incurred by suppliers from the same group to shift profits out of the country (though NRGI has no information on whether this is occurring in Senegal currently).[70] The Senegalese government and Petrosen (the national oil company) should therefore ensure that it has adequate capacity to audit the oil and gas sector well before the revenues start to flow (especially since many of the costs are incurred before the oil and gas is extracted, and by the time extraction begins, it may be too late to audit costs). In this regard, the Senegalese authorities wish to may consider engaging external assistance to build initial capacity. The Senegalese authorities have already contracted a firm to audit extractive companies' costs, but there could be advantages to building Petrosen's in-house capacity.[71,72] Strong coordination and information-sharing between government agencies is also important.[73]

Recommendation: Strengthen tax collection capacity. The government and Petrosen should also use the time ahead of significant production to strengthen its tax collection and cost monitoring capacity. This includes strengthening trade data collection and acquiring capacity to conduct cost audits. For example, Oxfam's recent report on this subject provides useful information on effective cost audits.[74]

Recommendation: Be wary of relaxing fiscal terms for investors. The government should continue to avoid granting fiscal concessions to investors for the two petroleum projects already underway unless clearly necessary for the project to move ahead.[75] New petroleum projects have been in a more difficult spot amid the pandemic; NRGI has developed a detailed analysis on possible policy responses for this situation.[76]

67 USD 1.4 billion a year projected by the World Bank versus USD 0.6 billion in actual revenues. See The World Bank, *Report No. 47321-GH: Economy-Wide Impact of Oil Discovery in Ghana*, Washington, D.C.: The World Bank, 30 November 2009, 21, openknowledge.worldbank.org/bitstream/handle/10986/18903/473210ESW0P1121IC0disclosed03111101.pdf?sequence=1&isAllowed=y; Public Interest and Accountability Committee. *Annual Report On The Management And Use Of Petroleum Revenues For The Period 2018*, Ghana: Public Interest and Accountability Committee, 2019, 51, www.piacghana.org/portal/files/downloads/piac_reports/2018_piac_semi-annual_report.pdf.

68 Costs from developing neighboring projects were deductible from taxable profit taxes on already profitable projects.

69 Alexandra Readhead, Daniel Mulé and Anton Op de Beke, *Examining the Crude Details: Government audits of oil and gas project costs to maximize revenue collection*, Oxfam, 2018, www.oxfam.org/en/research/examining-crude-details.

70 David Mihalyi and Thomas Scurfield, *How Did Africa's Prospective Petroleum Producers Fall Victim to the Presource Curse?*

71 "SENEGAL : Coûts pétroliers : qui va auditer BP, Kosmos et Woodside ?" Africa Intelligence, 9 September 2020, www.africaintelligence.fr/petrole-et-gaz/2020/09/09/couts-petroliers--qui-va-auditer-bp-kosmos-et-woodside,109604261-ar1.

72 Mamadou Faye, "Texte de l'avis d'appel d'offres", Portail des marchés publics du Sénégal, accessed 24 March 2021, www.marchespublics.sn/index.php?option=com_loffres&task=txt&key=34307&Itemid=104.

73 Readhead, Mulé and Op de Beke, *Examining the Crude Details.*

74 *Ibid.*

75 We do not have information on whether oil and gas companies operating in Senegal are seeking tax concessions. We raise this issue because it is a general challenge for extractives projects, and one of which the Senegalese government should be aware.

76 Manley, Mihalyi and Fleming, *A Race to the Bottom and Back to the Top.*

4. Caution in borrowing against uncertain revenues

Having a clear understanding of the likely revenues from any extractives project under various scenarios is always important, as it helps the host government to plan current and future spending, as well as borrowing to support such spending, to be sustainable given the level of future expected resources. This is particularly true in Senegal, since the country has an ambitious public investment program. While this has been slowed due to the coronavirus pandemic, an accurate understanding of the extent of natural resource wealth will be important to ensure that the country's debt remains sustainable (it is currently sustainable according to the IMF).[77]

In a 2019 publication, the IMF provides detailed government revenue estimates, although only under a single scenario (i.e., they do not estimate revenues for different possible values of key parameters).[78] This projects that oil revenues from the two projects will go from an initial level of 0.5 percent of GDP up to 3 percent of GDP during peak production, which will contribute 6 to 16 percent of total non-resource government revenue between 2022 and 2050. The IMF projection relies on a USD 60/barrel oil price. The latest IMF program documents from July 2020 still plan for oil revenues of FCFA 140 to 200 billion (approximately 0.8 percent of GDP) in the 2023 to 2025 period.[79] Senegal's own multi-annual budget framework projects that revenues will be very modest in the first two years of production (0.05 percent and 0.08 percent of GDP in the first and second years, respectively).[80]

There are great uncertainties around future oil price. In order to meet the goals of the Paris climate accord, the long-term price of oil will need to be significantly lower than the IMF's projected level, with recent estimates ranging between $50/barrel and $38/barrel.[81] A recent report by OpenOil reviewed a scenario for Senegal where oil prices progressively decline to under USD 20 per barrel by the late 2030s.[82] On the other hand, other forecasters expect robust oil prices, even up to $72 if governments do not go beyond current stated policies in tackling climate change. [83]

77 International Monetary Fund, *IMF Country Report No. 20/225*, Washington, D.C.: International Monetary Fund, 2020, 51, www.imf.org/en/Publications/CR/Issues/2020/07/24/Senegal-First-Review-Under-the-Policy-Coordination-Instrument-and-Request-for-Modification-49608.

78 International Monetary Fund, I*MF Country Report No. 19/28 Senegal Selected Issues*, Washington, D.C.: International Monetary Fund, 2019, www.imf.org/~/media/Files/Publications/CR/2019/cr1928-Senegal-SI.ashx.

79 International Monetary Fund, *IMF Country Report No. 20/225*.

80 Ministère des Finances et du Budget, République du Sénégal, *Document de Programmation Budgétaire et Économique Pluriannuelle (DPBEP) 2021-2023*, June 2020, www.budget.gouv.sn///articles/fichiers/5ef5fb44-921c-41a2-9938-861c0a2a028a.pdf.

81 David Manley and Patrick R. P. Heller, "Summary: Risky Bet: National Oil Companies in the Energy Transition", Natural Resource Governance Institute, February 2021, 1, resourcegovernance.org/sites/default/files/documents/risky-bet-national-oil-companies-in-the-energy-transition-summary.pdf.

82 Johnny West, *Les Actifs Échoués Du Sénégal : L'impact Du Covid-19 et de La Transition Énergétique Sur Le Secteur Pétrolier Offshore*, OpenOil, November 2020, openoil.net/wp/wp-content/uploads/2016/12/Senegal_v2-francais.pdf.

83 Manley and Heller, "Summary: Risky Bet".

In the current environment, therefore, uncertainty over oil prices is high and, as such, the risk of depressed revenues is large. Senegal's oil and gas projects have relatively high break-even prices. (See Figure 5.) If prices fall again, while companies are likely to proceed with projects in accordance with their past investment and contractual obligations, even after taking steps to cut costs, they will see reduced profits from these projects Corporate income tax, the main source of government revenues, is also dependent on project profitability and would likely be significantly affected.

Other countries have borrowed excessively based on inflated expectations of resource revenues, a phenomenon we label the "presource curse."[84] Ghana ramped up its borrowing shortly after its major oil discovery started being developed in 2010. It used the proceeds from large Eurobond issuances largely on recurrent spending. Five years later, as revenues proved disappointingly low, the country requested an IMF bailout. Mozambique also took multiple large loans, some of which were without parliamentary approval, following giant gas discoveries offshore. It then went bankrupt in 2017 because it was unable to service the debt after its gas projects ran into severe delays.[85] Chad also had to twice restructure a 2014 resource-backed loan due to lower-than-expected oil prices.[86]

As such, the government should avoid overly ambitious investment plans that will become unaffordable if oil revenues are lower than expected. To its credit, the Senegalese government appears to agree with the need to be cautious in investments from resource revenues: for example, in a recent bond prospectus, the Ministry of Finance committed not to invest on the basis of resource-based revenues until the extractives projects in question have received an FID.[87] In addition, during the coronavirus crisis, the Senegalese government has put on hold some public investment plans (rather than conducting additional borrowing to continue them), again indicating fiscal caution.[88]

However, Senegal's government debt has been increasing (though mostly in line with pre-existing trends) since recent hydrocarbon discoveries began in 2014. (See figure 6.) Most of the additional borrowing since 2014 has been in the form of non-concessional external debt, mostly Eurobonds. These forms of debt tend to come with higher interest rates and shorter maturities, increasing debt vulnerabilities.

84 Mihalyi and Scurfield, "How Did Africa's Prospective Petroleum Producers Fall Victim to the Presource Curse?"
85 Jim Cust and David Mihalyi, "The Presource Curse," *Finance & Development*, December 2017, www.imf.org/external/pubs/ft/fandd/2017/12/cust.htm.
86 Julia Payne, "Glencore, Banks and Chad Reach Deal on USD 1 Bln-plus Oil-Backed Loan," Reuters, 21 February 2018, uk.reuters.com/article/us-glencore-chad-idUSKCN1G52B9.
87 Bond prospectus of the $1bn Eurobond issued by Senegal on 13 March 2018 due 2048.
88 International Monetary Fund, *IMF Country Report No. 20/225*, 7.

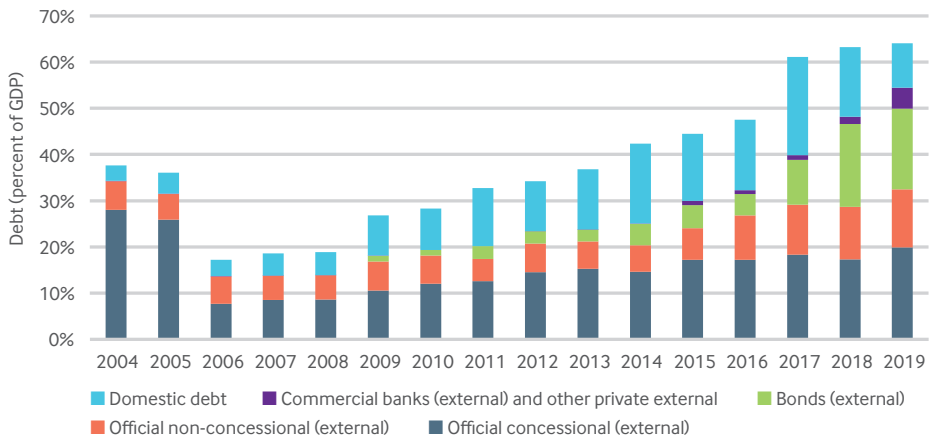


Figure 6. Senegal's general government gross debt, 2004-2019[89, 90, 91]

Moreover, due to the impact of the coronavirus pandemic, Senegal has had to borrow significantly in 2020, with the IMF estimating a deficit of 6.5 percent of GDP.[92] This may be compounded by Petrosen's move in August 2020 to increase its stake in Sangomar from 10 percent to 18 percent– which will mean that the national oil company must cover a larger share of the cost of expenses incurred to date. The IMF estimates that Petrosen's share of investment for the first phase of GTA (in which Petrosen has a 10 percent stake) and Sangomar will require over USD 1 billion.[93] The conditions and interest rates at which Petrosen will borrow the funds to finance its share of the projects are unknown (though any new borrowing by Petrosen must be authorized through the national budget).[94] A recent paper by NRGI explores issues related to national oil companies' debts more broadly.[95]

As in many countries, the current economic crisis puts a great deal of pressure on Senegal's government budget. In these circumstances, governments generally borrow more to the extent possible to make up for shortfalls in taxes and additional spending needs. But doing so should remain a temporary measure to fight the crisis (as the government is currently doing), rather than adopting a longer-term policy of borrowing against future resource revenues that remain uncertain.

89 "World Economic Outlook Database," International Monetary Fund, 4 November 2020, www.imf.org/en/Publications/WEO/weo-database/2020/October/weo-report.
90 International Monetary Fund, "International Financial Statistics," accessed 6 November 2020, data.imf.org/?sk=4C514D48-B6BA-49ED-8AB9-52B0C1A0179B.
91 The World Bank, "International Debt Statistics," accessed 6 November 2020, datatopics.worldbank.org/debt/ids/country/SEN.
92 "IMF Staff Completes Review Mission to Senegal," 17 November 2020, www.imf.org/en/News/Articles/2020/11/17/pr20341-senegal-imf-staff-completes-review-mission.
93 This leaves out the additional 8 percent of expenses under Sangomar for which Petrosen will now be responsible after increasing its stake. International Monetary Fund, *IMF Country Report No. 20/11: Senegal: Request for a Three-Year Policy Coordination Instrument—Press Release; Staff Report; and Statement by the Executive Director for Senegal,"* IMF Country Reports, Washington, D.C.: International Monetary Fund, January 2020, www.imf.org/-/media/Files/Publications/CR/2020/English/1SENEA2020001.ashx.
94 République du Sénégal, Sénégal Loi organique relative aux lois de finances, Loi organique n°2020-07 du 26 février 2020, Pub. L. No. 2020-07 (2020)18, www.droit-afrique.com/uploads/Senegal-Loi-2020-07-lois-de-finances.pdf
95 Patrick R. P. Heller and David Mihalyi, *Massive and Misunderstood: Data-Driven Insights into National Oil Companies*, Natural Resource Governance Institute, April 2019, resourcegovernance.org/analysis-tools/publications/massive-and-misunderstood-data-driven-insights-national-oil-companies

Recommendation: Create projections for multiple scenarios and plan conservatively. The government should publish estimates of expected oil and gas revenues based on multiple scenarios, including ones where oil and gas prices remain depressed for long, factoring in cost overruns and delays and scenarios with and without additional investments (such as those envisaged in the second/third phases of the Sangomar and GTA projects).

Recommendation: Borrow, but do so prudently. The current crisis warrants more borrowing to respond to the emergency. But the government should remain vigilant that additional spending is either one-off or used to fund investment in the future. In calculating how much it can safely borrow, the government should also be conservative in estimating future resource revenues.

Recommendation: Publish data on Petrosen's borrowing. National oil companies can become a significant source of opaque and unsustainable borrowing unless they are accountable to the public on their finances.[96]

96 Several countries publish borrowing by national oil companies. See Natural Resource Governance Institute, "National Oil Company Database", National Oil Company Database, December 2020, www.nationaloilcompanydata.org.

5. Managing resource revenues: Addressing volatility and unsustainability

Petroleum production can cause serious macroeconomic harms, due to the well-known phenomenon known as the "resource curse."[97] First, revenues from the sector tend to be highly volatile, which may lead to poor spending practices if the government does not save revenues to avoid revenue volatility translating into spending volatility. In boom times, government must ensure money is not wasted, while building sufficient reserves to turn to when revenues drop. Second, petroleum revenues are finite, and government should plan for a future when these revenues are exhausted. Third, workers and investment may be attracted to the booming petroleum sector at the detriment of other sectors, as part of a phenomenon known as "Dutch disease."[98] This may be further exacerbated if the government and the economy do not have adequate absorptive capacity. Fourth, there is a risk that petroleum revenue is seen as "free money" that is not directly tied to citizens, which may decrease public accountability and oversight.

In response, many petroleum-rich countries have set up sovereign wealth funds, which can effectively save petroleum receipts outside their countries to mitigate volatility, exhaustibility and absorptive capacity risks. Legislation establishing sovereign wealth funds often include rules on how to allocate and manage petroleum revenues. Most sovereign wealth fund legislation also prohibits such funds purchasing specific risky asset classes such as derivatives.

Governments have an important opportunity in the years running up to oil production to design the appropriate framework for managing and utilizing resource revenues in order to mitigate the above risks. But they should also recognize that not all petroleum producers are affected by the risks in the same way.

Senegal's petroleum revenues are likely to remain relatively modest, less than 1 percent GDP in the immediate future and not expected to ramp up to more than 3 percent of GDP on the back of existing projects. To put this figure in perspective, the government currently spends about 1 percent of GDP on health, 4.5 percent of GDP on education and it has a total debt stock of 60 percent of GDP.[99] This goes to illustrate that it would take many decades to use petroleum revenues to completely pay down existing debt, but that these resources are important enough to bring meaningful addition to any designated priority area.

97 See more on this here: Natural Resource Governance Institute, *NRGI Reader: The Resource Curse: The Political and Economic Challenges of Natural Resource Wealth*, March 2015, resourcegovernance.org/analysis-tools/publications/primer-resource-curse.

98 Though oil and gas do not employ large numbers of people directly, this effect may be more pronounced for highly skilled professionals.

99 UNESCO figures: UNESCO Institute for Statistics, "Government Expenditure on Education, Total (% of GDP) – Senegal," The World Bank, accessed 6 November 2020, data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS?locations=SN.

A number of countries have set up saving structures in anticipation of petroleum revenues that failed to meet expectations or proved to be a poor choice in high-debt environments. For example, Ghana's oil and gas revenues have remained relatively modest as a share of total fiscal revenues, and have, as a result, never caused macroeconomic volatility nor Dutch disease. In fact, the Ghanaian cedi has seen a massive real depreciation rather than the feared appreciation or inflation. At the same time, the country's transparent and conservatively managed funds, which are invested abroad, have yielded a net return of around 1 percent annually since they were established in 2011. However, over the same period, the country has borrowed over USD 3 billion in Eurobonds and is paying more than 9 percent interest on its latest Eurobond issuance.[100] Therefore, for each 100 dollars saved rather than used to pay down debt, the government has lost about 8 dollars.

Similarly, Mauritania's Fonds National des Revenus des Hydrocarbures had accumulated funds of only 1 percent of GDP after over a decade of petroleum production.[101] While São Tomé and Príncipe set up a national oil account in 2004, so far, its petroleum sector has cost the government more than it has earned.[102] While legislating a framework for managing revenues ahead of production is a good thing, especially when this includes strong governance provisions (as in Ghana and São Tomé), there is a risk of setting up savings structures that do not align with the country's savings needs. Each country's circumstances are different, but these examples suggest that Senegal should consider carefully whether setting up a sovereign wealth fund to manage resource revenues is appropriate in its context.

The government of Senegal is currently designing its own revenue management framework for petroleum and deciding how much to save or spend. Current proposals include:

- Expanding the remit of Senegal's Fonds Souverain d'Investissements Stratégiques (FONSIS) to invest a significant share of the country's resource revenues, with a role to host an "inter-generational fund" saving oil and gas revenues
- Creating a "stabilization fund" to be financed with oil and gas revenues
- Saving 20 percent of hydrocarbon revenues each year, with 80 percent passing to the general budget
- Passing laws dictating when the government can make withdrawals from the intergenerational and stabilization funds.[103]
- Presenting a multi-year plan for uses of resource revenues, and reporting annually on actual resource revenue spending

100 Andrew Bauer and David Mihalyi, *Premature Funds: How Overenthusiasm and Bad Advice Can Leave Countries Poorer*, Natural Resource Governance Institute, January 2018, resourcegovernance.org/analysis-tools/publications/premature-funds.

101 USD 74 million at end 2019. *International Monetary Fund, IMF Country Report No. 20/274 Islamic Republic of Mauritania: Fifth Review Under the Extended Credit Facility Arrangement, and Request for Augmentation of Access—Press Release; Staff Report; and Statement by the Executive Director for the Islamic Republic of Mauritania*, Washington, D.C.: International Monetary Fund, September 2020, 26, www.imf.org/en/Publications/CR/Issues/2020/09/16/Islamic-Republic-of-Mauritania-Fifth-Review-Under-the-Extended-Credit-Facility-Arrangement-49745.

102 "More Costs than Income so Far: The Quest for Oil in São Tomé and Principe," Extractive Industries Transparency Initiative, 9 March 2018, eiti.org/news/more-costs-than-income-so-far-quest-for-oil-in-sao-tome-principe.

103 The current *Loi organique relative aux lois de finances* already requires that no public resources can be saved or spent without being authorised by a budget law. République du Sénégal, Sénégal Loi organique relative aux lois de finances.

FONSIS is a sovereign fund (incorporated as a private company) for investing in the country's economic and social development, focusing on the private sector. Its current objectives are to encourage the development of national champions in key sectors, achieving shareholder value for the Senegalese state (its sole shareholder) and promoting capital investment in Senegal (though its governing law does allow investments of up to 25 percent of its capital, aside from financial reserves, to be invested abroad). To date, all of the fund's investments have been in Senegal.

In terms of the fund's governance, its website (and self-assessment) indicate that it follows the Santiago Principles for sovereign wealth funds, as well as general Senegalese business law and the business principles of the Organisation for the Harmonisation of Business Law in Africa.[104,105] However, there are several concerns and challenges in this area (and others) around FONSIS' governance. First, the fact that the fund invests in specific private firms and seeks to develop national champions may raise concerns about governance (if these are the most politically-connected firms rather than the best vehicles for the investment) and about efficiency (to the extent that it is difficult for the public sector to accurately "pick winners").[106] (FONSIS states that it applies a number of criteria in selecting investments, including a minimum rate of return of 12 percent, consistency with the priorities of the Plan Sénégal Émergent and having a positive socio-economic impact, all of which would help to ensure a minimum level of investment quality if applied faithfully).[107,108] It is also not immediately clear whether FONSIS applies a policy of avoiding conflicts of interest through the fund's investments, which will become increasingly important as the fund manages more assets. Further, no independent[109] assessment of FONSIS' performance exists to date.[110]

There should also be greater parliamentary oversight and transparency in the fund. In particular, FONSIS scores poorly on a number of NRGI's Resource Governance Index indicators for transparency and accountability of its sovereign wealth fund governance. [111] For example, in the law establishing the fund, there is no explicit requirement that the National Assembly must review the fund's financial reports.[112]

104 FONSIS S.A., *Santiago Principles Self-Assessment Fonds Souverain d'Investissements Stratégiques S.A*, International Forum of Sovereign Wealth Funds, n.d.
105 "Présentation," Fonds Souverain d'Investissements Stratégiques, accessed 11 December 2020, www.fonsis.org/fr/qui-sommes-nous/presentation.
106 David Manley and Rob Pitman, *Natural Resource Charter Benchmarking Framework*, London and New York: Natural Resource Governance Institute, 2017, resourcegovernance.org/sites/default/files/documents/natural-resource-charter-benchmarking-framework-report-2017-web_0.pdf.
107 FONSIS S.A., "Fonds Souverain d'Investissements Stratégiques", FONSIS S.A., N.d., www.fonsis.org/sites/default/files/rapport-annuel/Brochure_FONSIS_2020_version_finale_v2.pdf, 21.
108 "Notre Métier", FONSIS S.A., accessed 25 March 2021, www.fonsis.org/fr/ce-que-nous-faisons/notre-metier.
109 I.e., carried out by a body independent of the Senegalese state.
110 Natural Resource Governance Institute and Columbia Center on Sustainable Investment, *Natural Resource Fund Governance: The Essentials*, New York and London: Natural Resource Governance Institute and Columbia Center on Sustainable Investment, August 2014, ccsi.columbia.edu/files/2015/05/Natural-Resource-Fund-Governance-The-Essentials_EN.pdf
111 FONSIS S.A., "Santiago Principles Self-Assessment."
112 "Loi N° 2012-34 Du 31 Décembre 2012," Journal Officiel de la République du Sénégal, accessed 11 September 2020, www.jo.gouv.sn/spip.php?article9611.

Further, in the published version of the latest annual report there is no data provided on the actual returns achieved by the fund's investments, and FONSIS' financial reports (and audit reports) are not published.[113,114] As a result, it is not possible to know whether the rules regarding deposits and withdrawals from the fund have been respected. In addition, the fund's governing law is flexible as to how much can be withdrawn from the fund, allowing the Minister of Finance to decide on this up to 60 percent of the fund's net income (with other rules limiting the withdrawal of reserves) rather than requiring parliament to do so.[115] Appendix I provides further analysis of fiscal transparency in Senegal.

In addition, once Senegal starts to earn revenue from its oil and gas resources, the size of the fund will greatly increase, which may necessitate new approaches to management and oversight. Currently, FONSIS' capital of FCFA 3 billion represents 0.02 percent of Senegal's GDP. Current plans suggest that 20 percent of revenue would be saved and allocated to FONSIS. Based on the IMF's estimate that oil and gas revenues would equal 0.5 percent of GDP in the first year of production, if 20 percent of this (i.e., 0.1 percent of GDP) is saved in the first year, this would amount to a fivefold increase in the fund's capital in the first year of oil and gas revenues alone.[116] Further, while FONSIS does not invest in certain assets on ethical grounds, it has not excluded asset classes based on financial risk (as some sovereign wealth funds do). For example, derivatives investments can lead to financial losses greater than the initial investment value, and are prohibited by some sovereign wealth funds.

However, there are a number of reassuring facts about FONSIS' governance. For instance, the fund has co-invested with the United Nations Capital Development Fund and the International Finance Corporation, in addition to partnerships with other organizations, which can be seen as a vote of confidence in its governance arrangements. Nevertheless, it will still be important to address the governance concerns noted above, as strong oversight of sovereign wealth funds becomes ever-more important as the level of resources held in the fund increases (as will happen once FONSIS starts to manage a share of Senegal's oil and gas revenues).[117] The government is currently preparing a new law on both FONSIS' governance and revenue sharing between the intergenerational and stabilization funds and the general budget.[118] This law provides an important opportunity to tackle the issues we have identified.

113 Though FONSIS publishes annual reports, these do not provide the level of detail contained in audited financial reports.

114 Fonds Souverain d'Investissements Stratégiques S.A., *Rapport Annuel 2019 Fonds Souverain d'Investissements Stratégiques |FONSIS|*, Dakar: FONSIS S.A., 2020, www.fonsis.org/fr/ce-que-nous-faisons/rapport-annuel.

115 "Loi N° 2012-34 Du 31 Décembre 2012," Journal Officiel de la République du Sénégal, accessed 13 April 2021, www.jo.gouv.sn/spip.php?article9611.

116 International Monetary Fund, *IMF Country Report No. 19/28*, 11.

117 Andrew Bauer (ed)., Gubad Libadoglu, Eric Li, and Ben Utter, *Managing the Public Trust: How to Make Natural Resource Funds Work for Citizens* (Revenue Watch Institute and Vale Columbia Center, 2014), resourcegovernance.org/sites/default/files/NRF_RWI_Complete_Report_EN.pdf.

118 International Monetary Fund, *IMF Country Report No. 20/225*, 18.

Recommendation: Avoid saving petroleum revenues prematurely. The government's plan to legislate a framework for managing revenues now is commendable. But it should assess the benefits of requiring a proportion of petroleum revenues to be immediately saved. This approach may not be optimal if revenues remain modest. Saving has costs (e.g., the administrative costs of investing productively) and the money may be used more productively through the budget or by paying down expensive debt. Instead, a requirement for saving could be made conditional on reaching a degree of resource dependence. Tanzania has taken this approach: its revenue management framework requires saving only if revenues reach 3 percent of GDP.

Recommendation: Avoid creating parallel budgets. The other key risk is that government prioritizes using the proceeds domestically via FONSIS. Such parallel domestic spending generally undermines governmental oversight.[119, 120] More effective vehicles for domestic spending are the annual budget process and institutions designed for such purposes (such as national development banks or state-owned companies). Similarly, using a separate account within the budget (rather than through a fund) can increase transparency and improve reporting requirements.

Recommendation: For the longer term, create a clear fiscal rule governing the shares of resource revenues to be consumed and invested. A public fiscal rule, when combined with publication of data on its implementation, can help to ensure that government saves an adequate amount for the future, rather than prioritizing current consumption.

119 Andrew Bauer, "Six Reasons Why Sovereign Wealth Funds Should Not Invest or Spend at Home," Natural Resource Governance Institute (blog), 2015, resourcegovernance.org/blog/six-reasons-why-sovereign-wealth-funds-should-not-invest-or-spend-home-0.

120 Rafael Marques de Morais, "Stealing with Presidential Decrees," Maka Angola, 2017, www.makaangola.org/2017/03/stealing-with-presidential-decrees/.

6. Opportunities and challenges around gas-to-power

The Senegalese government plans to use a (smaller) part of the country's extracted gas for generating electricity domestically. This "gas-to-power" plan is aimed at achieving universal power access and increasing economic competitiveness.[121] The plans would also reduce the cost of providing electricity– currently, Senegal relies on heavy fuel oil, which is significantly more expensive than the projected cost of gas. Cheaper energy could mean that Senegal can greatly reduce its spending on energy and might no longer need to subsidize domestic energy access, which will support the country's fiscal health.[122] It is also expected to help to reduce emissions from electricity generation in the country, and form part of an energy strategy under which Senegal will cut emissions by more than its commitments under the Paris agreement.[123] In 2017, the government adopted a goal of achieving universal energy access by 2025, and domestic gas-to-power would be a major contributor to achieving this objective.[124] As such, Senegal's gas-to-power plans appear to be founded on a clear strategy, with detailed planning of the different phases, and will carry important benefits if they are realized.

The source of gas underpinning the gas-to-power strategy is undergoing revisions. The version of the gas-to-power strategy available on the Ministry of Petroleum and Energy's website still speaks of using domestic gas from the Sangomar and GTA fields, but phase 1 of these projects are going ahead with plans solely for exports.[125] For future phases of these projects, it remains an open question as to how much gas would be allocated to domestic use, should the future phases go ahead. While a share of GTA gas production was earmarked for domestic use initially, there are not yet any contracts in place to take it up. Senegal's latest plans are now centered on using part of the gas from the massive Yakaar-Teranga development.[126] However, this project is yet to receive an FID and, until it does so, there is still some level of uncertainty as the companies and the government negotiate over how to make it a mutually advantageous project. There is also significant infrastructure required to use gas from Yakaar-Teranga domestically, if it does go ahead. For example, the project requires a pipeline "To bring gas from the Yakaar field to shore, as well as[. . .]onshore pipelines comprising the North, South and Dakar networks. The domestic supply scheme also calls for conversion of a number of existing power plants into dual-fuel power plants and commissioning of new combined-cycle power plants."[127]

121 APO Group, "Senegal's Ambitious Gas-to-Power Agenda," *Africanews*, 2 August 2019, www.africanews.com/2019/08/02/senegals-ambitious-gas-to-power-agenda/.
122 The World Bank, *Project to Promote a Shift towards Lower Carbon Power Generation in Senegal (P169744): Project Information Document*, 28 March 2019, 4 (based on Senegalese government documents).
123 *Ibid.*, 4-5.
124 Ministère du Pétrole et des Energies, "Vision 2025 de l'électrification rurale," SE4ALL Sénégal, 17 December 2020, www.acces-universel-electricite.sn/vision-et-objectif.html.
125 Ministère du Pétrole et des Énergies, République du Sénégal, "Note Synthétique Stratégie Gas to Power: Le gaz naturel: instrument majeur pour l'atteinte de l'object d'électrification universelle à moindre coût!" Ministère du Pétrole et des Energies, République du Sénégal, December 2018.
126 Ouki, *Mauritania -Senegal.*
127 *Ibid.*

While the Senegalese authorities have developed a detailed plan for gas-to-power, there is much to accomplish under this strategy to make gas-to-power a reality, particularly physical infrastructure to distribute gas (see above) and convert it to electricity.[128] Moreover, it is not clear how the country will secure sufficient funds to achieve this investment.

Ghana's experience shows the dangers of committing to gas-to-power if the infrastructure to use the gas is not in place in time. In 2016, Ghana committed to buying gas from one of its own offshore fields, on a "take-or-pay" basis. This is a common practice in gas supply arrangements that helps secure investment by ensuring there is a buyer. This meant that, if Ghana was unable to use all of the gas produced, it would still have to pay for it. However, the transmission infrastructure was not ready in time, in part because state power companies were highly indebted. By 2020, an estimated 7 percent of Ghana's annual budget was being spent on penalties for gas not being used, and Ghana's power supply had not yet significantly improved as a result of its gas-to-power initiative.[129] In short, Ghana experienced costs of billions of dollars as a result of timeline delays and the take or pay arrangement. Another risk for Senegal that would have similar consequences could be over-estimating demand for electricity; it is therefore important to ensure that demand forecasts are rigorous.

There is also the risk of becoming "locked in" to natural gas for electricity generation. Lock-in occurs when investments in fossil fuel-based power plants make it difficult to shift away to newer, greener sources of energy, and can occur with gas power plants.[130] For example, Algeria built up a large domestic gas sector. In order to encourage domestic uptake, the government has heavily subsidized domestic gas prices. This in turn has not only led to an increasing energy consumption but also undermined efforts of boosting its otherwise strong renewable energy potential.[131]

The Senegalese authorities are currently working towards putting in place the infrastructure to use the country's gas domestically. Given that a significant portion of the infrastructure needed for gas-to-power is still to be built, it is also likely to need to use a take-or-pay arrangement for domestic gas, as this is standard in the industry. For now, the government has raised some funding for feasibility studies and other preparatory work.[132, 133, 134] It has also started work to strengthen its distribution system, including feasibility studies for investments in the distribution system and efforts to strengthen quality control.[135] But the energy landscape is going through large changes, as solar is becoming increasingly competitive at the same time as

128 Andrew Ward, "Senegal's Journey from Blackouts to Gas and Green Energy," *Financial Times*, 19 April 2018, www.ft.com/content/d6432b72-2ea8-11e8-97ec-4bd3494d5f14.
129 David Manley, Thomas Scurfield, and Aaron Sayne, "Gas-to-Power Challenges Point To Expansion of Renewables," Natural Resource Governance Institute (blog), 28 May 2020, resourcegovernance.org/blog/gas-to-power-challenges-expansion-renewables-ghana-algeria.
130 Peter Erickson, Sivan Kartha, Michael Lazarus and Kevin Tempest, "Assessing Carbon Lock-In," *Environmental Research Letters* 10, no. 8 (August 2015): 084023, doi.org/10.1088/1748-9326/10/8/084023.
131 Mostefa Ouki, "Algerian Gas in Transition: Domestic transformation and changing gas export potential," OIES PAPER: NG 151. 2019, www.oxfordenergy.org/wpcms/wp-content/uploads/2019/10/Algerian-Gas-in-Transition-NG-151.pdf.
132 "USTDA Supports Senegal's First Major Gas Pipeline, 28 August 2020," U.S. Embassy in Senegal, 31 August 2020, sn.usembassy.gov/ustda-supports-senegals-first-major-gas-pipeline-august-28-2020.
133 Ousseynou Balde, "Les Etats-Unis Offrent Plus de 700 Millions FCFA au FONSIS," SenePlus, 30 August 2020, www.seneplus.com/economie/les-etats-unis-offrent-plus-de-700-millions-fcfa-au-fonsis.
134 Global Infrastructure Facility, "Project Details," Global Infrastructure Facility,accessed 6 October 2020, www.globalinfrafacility.org/all-projects-list.
135 "Distribution (Aval)," Ministère du Pétrole et des Énergies, 2019, www.energie.gouv.sn/distribution-aval/.

fossil fuel-based projects are becoming increasingly difficult to finance. Securing an FID for Yakaar-Teranga may prove even more difficult if it comes with heavy obligations to allocate gas to the domestic market at affordable rates.

It would appear to be challenging for the country to both achieve the extraction of the gas from the field, ensure it supplies gas domestically at cheap rates and put in place infrastructure for distribution and generation of electricity based on this gas field, all by 2025 (in line with Senegal's goal of achieving universal energy access by that date).[136] It will therefore be important to manage public expectations about when universal energy access will be achieved, as well as not to over-invest in the gas-to-power strategy while uncertainties about production from Yakaar-Teranga remain.

While gas may be the most likely candidate to ramp up energy production in short-term, the government also plans to ambitiously increase the share of renewables in electricity generation– aiming for "30 [percent] renewables in the grid" by 2030.[137] It will be important to ensure that these plans are not abandoned, with the risk that the prospect of gas-fired power plants and use of gas in industry creating vested interests. As of 2020, the country had 230 megawatts of installed generation capacity from renewable sources, which was around 25 percent of the country's total generation capacity.[138,139]

Recommendation: Be cautious in committing to purchasing domestic gas before there is clarity on domestic use infrastructure. This can be done by ensuring this decision is driven by market data: rigorously estimating the demand (and ability to pay) for domestic gas; factoring in the risk of delays to generation and distribution infrastructure; and weighing the consequences of being overly ambitious (i.e., paying for gas, and related infrastructure, beyond what is needed) versus overly cautious (i.e., insufficient energy slowing the country's development).

Recommendation: Adapt gas-to-power strategies to the realities of a changing world. Senegal's government should ensure that its ambitions to scale up power generation are aligned with new realities of the energy landscape, and that it retains the flexibility to increase its share of renewables in the energy generation, should technology (and economics) permit it to do so (e.g., by maintaining bureaucratic capacity, legal flexibility and fiscal space to shift more towards renewables if circumstances allow).

136 That being said, Senegal has made impressive progress towards universal electricity access and continued to do so in 2020, for example through the initial phase of the Tabia N'Diaye wind farm. "Senegal Power Africa Fact Sheet", USAID, accessed 25 March 2021, www.usaid.gov/powerafrica/senegal.

137 The World Bank, *Project to Promote a Shift towards Lower Carbon Power Generation in Senegal*, 4-5.

138 International Renewable Energy Agency, *Renewable Capacity Statistics 2021*, Renewable Capacity Statistics, Abu Dhabi: International Renewable Energy Agency, 2021, www.irena.org/-/media/Files/IRENA/Agency/Publication/2021/Apr/IRENA_RE_Capacity_Statistics_2021.pdf.

139 "Senegal Power Africa Fact Sheet".

Conclusion

Senegal is embarking on a journey towards significant oil and gas production in turbulent times. The revenues from the sector may provide much needed additional finance to rebuild the economy from the devastating impacts of the pandemic and further sustainable development. However, the benefits Senegal can expect from the sector will be modest at best. While the finds are substantial, they are by no means transformative for the country. Having received FIDs prior to the pandemic, the government can be hopeful that the country's two most important petroleum projects will eventually turn to production. But it should brace itself for complications, delays and debates. In the current price environment, there is risk that revenues will be muted, especially if the government and Petrosen do not monitor costs diligently.

The government is now devising its plans on how to allocate and utilize petroleum revenues. Building a solid and transparent revenue management framework for the sector is critical. But such plans should be based on sound and conservative revenue projections and avoid over-ambitious plans for investment and associated borrowing. Senegal should also ensure it has a realistic plan for power generation from domestic gas, and that it avoids getting locked in to fossil fuel-based energy, in the global context of the push towards the ongoing transition to renewable energy.

Additionally, civil society, companies and other key stakeholders can play an important role in establishing and implementing these plans by building a shared understanding on the role of petroleum in Senegal's development.

Appendix I. Fiscal transparency and natural resources in Senegal

Fiscal transparency is particularly important for countries with significant natural resource wealth; without it, there are increased risks that opacity will allow this wealth to be lost, including due to corruption or tax abuse permitted through poorly-designed tax policies.[140] This transparency is important not only for natural resource revenues, but also for other areas of fiscal policy, especially public spending; this is because of the risk of resource revenues being mis-spent in an opaque environment. In this Appendix, we highlight some key insights from the recent IMF reports on Senegal's fiscal transparency that are relevant to management of natural resource wealth.[141]

In some respects, Senegal has a relatively transparent fiscal processes– it has the eighth-highest score in sub-Saharan Africa on the Open Budget Index, and its score is equal to the global median, while the budget document itself provides a high level of information.[142] However, according to the IMF there are still important gaps, including in areas relevant to natural resources. It is important for the Senegalese authorities to address these before oil and gas revenues start to flow from the projects; otherwise, these revenues may be mis-spent (and it may become politically harder to make changes if such spending creates vested interests). For example:

- Natural resource revenues are not separated out in budget documents; the budget does also not clearly separate out spending on fuel subsidies (though this has been communicated in other documents, such as the gas-to-power strategy).[143, 144, 145] However, the government has started to publish forecasts for oil and gas revenues from 2022 as part of the multi-annual economic and budgetary program for 2021 to 2023.[146] Moreover, Senegal does publish resource extraction contracts and a wealth of other information on the sector through EITI.

140 See e.g., United Nations Economic Commission for Africa, *Economic Report on Africa 2019: Fiscal Policy for Financing Sustainable Development in Africa* (United Nations, 23 March 2019), chapter 6, doi.org/10.18356/5d8e4ec9-en.

141 These reports are: International Monetary Fund. I*MF Country Report No. 19/27 Senegal Staff Report for the 2018 Article IV Consultation and Seventh Review under the Policy Support Instrument and Request for Modification of Assessment Criteria—Debt Sustainability Analysis—Press Release; Staff Report; and Statement by the Executive Director for Senegal* (January 2019); International Monetary Fund, *IMF Country Report No. 19/34*; International Monetary Fund, *IMF Country Report No. 20/225*.

142 "Open Budget Survey: Rankings," International Budget Partnership, accessed 10 December 2020, www.internationalbudget.org/open-budget-survey/rankings.

143 International Monetary Fund, *IMF Country Report No. 19/34*, 65.

144 However, the Agence Nationale de Statistique et de la Démographie does show certain elements of this in its reports. *Ibid.*

145 République du Sénégal. *Loi N°2019-17 du 20 Décembre 2019 Portant Loi Finances Pour L'année 2020, 2019-17 §* (2019).

146 Ministère des Finances et du Budget, République du Sénégal, *Document de Programmation Budgétaire et Économique Pluriannuelle (DPBEP) 2021-2023.*

- Tax expenditures (i.e., foregone revenue due to granting tax incentives to individual companies) are not published. These can significantly undermine revenues.[147] This is particularly important since Senegal's tax expenditure levels (according to the most recent published data) were higher than those of its neighbors.[148]
- Thorough analyses of macroeconomic risks such as oil price volatility are not published, though oil prices are considered in the government's multi-annual economic and financial program document for 2021 to 2023.[149, 150]
- According to the IMF, "Relations between the public sector and the exploitation of natural resources are complex. Apart from tax revenue, these industries also contribute to pension and social security institutions [Caisse de Sécurité Sociale (CSS) and Institut de Prévoyance de Retraite du Sénégal (IPRES)] as well as to subnational governments, through an equalization fund, and to the Sovereign Funds Strategic Investment (FONSIS)." There are also complex relations with sub-national governments and state-owned enterprises.[151] The complexity of these relations may make it more difficult for civil society (and indeed the National Assembly) to effectively scrutinize fiscal operations in the country.
- The government does not publish information on fiscal risks related to balancing government assets and liabilities; very little information is available about the government's use of guarantees or contingent liabilities, and there are no documents available on government liabilities related to public-private partnerships (which are estimated to account for 6 percent of GDP).[152] The transparency of public investment could also be improved.[153] In addition, the government does not provide information on "letters of comfort," which are effectively extra-budgetary borrowing to pay suppliers.[154] These are estimated to account for 1.9 percent of GDP.[155]

In addition, Senegal's strategic investment fund FONSIS (which the government plans to use hold resource wealth funds once revenues from oil and gas start to flow) could also improve its level of transparency, as highlighted in section 5. "Managing resource revenues: addressing volatility and unsustainability." Transparency in these areas will be important to allow civil society to hold government to account over natural resource management.

147 See e.g., United Nations Economic Commission for Africa, Economic *Report on Africa 2019*.
148 International Monetary Fund, *IMF Country Report No. 19/34*, 21.
149 *Ibid.*, 6.
150 Ministère des Finances et du Budget, République du Sénégal, *Document de Programmation Budgétaire et Économique Pluriannuelle* (DPBEP) *2021-2023*.
151 International Monetary Fund, *IMF Country Report No. 19/34*, 65-6.
152 *Ibid.*, 59-61.
153 *Ibid.*, 39, 47.
154 *Ibid.*, 23, 35.
155 *Ibid.*, 59.

There are other challenges with Senegal's accounting and budgeting processes that may hamper efforts against corruption and accounting for fiscal revenues. For example, some of Senegal's reporting practices make it difficult to reconcile statistics from different accounts. In addition, currently actual taxation and spending patterns often differ significantly from announced budgets.[156]

The government has recently implemented and is planning to pursue further reforms to improve its level of fiscal transparency. For example, the country is planning to improve its public tendering process by ensuring that public tenders rely less on unsolicited bids (though until recently the country had just missed its target for reducing the use of single tender in public procurement).[157]

The IMF is also delivering multi-year technical assistance to the Senegalese authorities on the management of oil and gas revenues, and (as noted in section 5. "Managing resource revenues: addressing volatility and unsustainability") the government is preparing a new governing law for FONSIS to strengthen its governance before the advent of oil and gas revenues.[158] According to the IMF, the country has committed to achieving high standards of transparency and governance for pandemic-related spending, including transparent procurement and "enhanced audit activities, the results of which will be published."[159] Such standards (transparent tendering and enhanced audits) should be considered for application to the natural resource sector.

156 *Ibid.,* 39, 47.
157 International Monetary Fund, *IMF Country Report No. 20/225,* 7.
158 *Ibid.,* 18.
159 *Ibid.,* 7.

Appendix II. Background on the main oil and gas projects in Senegal

Table 2. Details of the main oil and gas projects under development in Senegal[160]

Project name	Hydrocarbon type	Status	Planned production start date	Estimated reserves	Companies involved	Contract
Sangomar Field Development Phase 1	Oil	FID taken	2023	231m barrels of oil (2P recoverable reserves)	Woodside (operator): 68 percent Petrosen: 18 percent FAR: 14 percent.[161]	Available Date: 2005
Sangomar: post-phase 1	Oil and natural gas	No FID yet	?	Around 253m barrels of oil from future phases of Sangomar. The RSSD evaluation area as a whole is estimated to have 4 tcf of natural gas and further oil (in addition to what is in Sangomar).	Woodside: 75 percent FAR: 15 percent Petrosen: 10 percent.	Available Date: 2005
Remaining RSSD evaluation area	Oil and natural gas	No FID yet	?			Available Date: 2005
Grand Tortue Ahmeyim (GTA) Phase 1	Domestic gas and export liquefied natural gas (LNG)	FID taken	2023	15 trillion cubic feet of recoverable gas reserves (of which 50 percent to Senegal). 25 tcf of gas initially in place.	BP (operator) : 60 percent Kosmos : 30 percent Petrosen : 10 percent.	Available Date: 2012 (transferred in 2014)
Grand Tortue Ahmeyim (GTA) – Phases 2 and 3	Domestic gas and export LNG	No FID yet; targeting 2022	2023-2026	?		
Yakaar-Teranga Phase 1	Domestic gas	No FID yet; engineering studies due to start Sep-Dec 2021	2023/2024	?	BP (operator): 60 percent Kosmos: 30 percent Petrosen: 10 percent.	Available Date: 2012 (transferred in 2014)

N.b.: we exclude the Gadiaga natural gas project where production is already taking place as this is of a smaller scale than the new finds.

160 "BP, Kosmos Reduce GTA LNG Expansion Plans," Argus, 11 November 2020, www.argusmedia.com/en/news/2158858-bp-kosmos-reduce-gta-lng-expansion-plans; "BP Announces Final Investment Decision for Phase 1 of the Greater Tortue Ahmeyim LNG Development," BP, 21 December 2018, www.bp.com/en/global/corporate/news-and-insights/press-releases/bp-announces-final-investment-decision-for-phase-1-of-the-greater-tortue-ahmeyim-lng-development.html; "Senegal," BP, accessed 30 October 2020, www.bp.com/en/global/corporate/what-we-do/bp-worldwide/bp-in-senegal.html. Thomas Hedley, "Woodside Acquires Cairn Energy's Stake in Senegal's Sangomar Development," Africa Oil & Power, 10 September 2020, www.africaoilandpower.com/2020/09/10/woodside-acquires-cairn-energys-stake-in-senegals-sangomar-development/; L'Initiative pour la Transparence dans les Industries Extractives Sénégal, "Aperçu du secteur" L'Initiative pour la Transparence dans les Industries Extractives Sénégal, accessed 4-6 November 2020, itie.sn/apercu-du-secteur-2/; Ouki, Mauritania -Senegal; Rystad Ucube; Upstream Analytics, Senegal-Mauritania LNG Hubs Face Headwinds; West, *Les Actifs Échoués Du Sénégal*; "Senegal," Woodside, accessed 30 October 2020, www.woodside.com.au/our-business/senegal; Woodside, 2*019 Annual Report Incorporating Annex 4E*, Perth: Woodside, 2020; FAR Limited, *Annual Report 2019*.

161 FAR has agreed to sell its stake to Woodside. Esmarie Iannucci, "FAR Advances Woodside Transaction," Mining Weekly, 20 January 2021,www.miningweekly.com/article/far-advances-woodside-transaction-2021-01-20/rep_id:3650.

Bibliography

Africa Oil + Gas Report. "COVID Will Not Stop First Oil From Senegal in 2023." 23 June 2020. africaoilgasreport.com/2020/06/in-the-news/senegalese-field-on-course-for-2023-first-oil/.

Africa Intelligence. "SENEGAL : Coûts pétroliers : qui va auditer BP, Kosmos et Woodside ?" September 9, 2020. www.africaintelligence.fr/petrole-et-gaz/2020/09/09/couts-petroliers--qui-va-auditer-bp-kosmos-et-woodside,109604261-ar1.

Agence Nationale de Statistique et de la Démographie. "Agence Nationale de Statistique et de La Démographie." Accessed 5 May 2021, satisfaction.ansd.sn.

APO Group. "Senegal's Ambitious Gas-to-Power Agenda." Africanews, 2 August 2019. www.africanews.com/2019/08/02/senegals-ambitious-gas-to-power-agenda.

Argus. "BP, Kosmos Reduce GTA LNG Expansion Plans." 11 November 2020. www.argusmedia.com/en/news/2158858-bp-kosmos-reduce-gta-lng-expansion-plans.

Balde, Ousseynou. "Les Etats-Unis Offrent Plus de 700 Millions FCFA au FONSIS." SenePlus, 30 August 2020. www.seneplus.com/economie/les-etats-unis-offrent-plus-de-700-millions-fcfa-au-fonsis.

Bauer, Andrew (ed)., Gubad Libadoglu, Eric Li, and Ben Utter. *Managing the Public Trust: How to Make Natural Resource Funds Work for Citizens*. Revenue Watch Institute and Vale Columbia Center, 2014.

Bauer, Andrew, and David Mihalyi. *Premature Funds: How Overenthusiasm and Bad Advice Can Leave Countries Poorer*. Natural Resource Governance Institute, January 2018. resourcegovernance.org/sites/default/files/documents/premature-funds.pdf.

Bauer, Andrew. "Six Reasons Why Sovereign Wealth Funds Should Not Invest or Spend at Home." *Natural Resource Governance Institute* (blog), 2015. resourcegovernance.org/blog/six-reasons-why-sovereign-wealth-funds-should-not-invest-or-spend-home-0.

BBC News. "Kenya Oil Discovery after Tullow Oil Drilling." 26 March 2012. www.bbc.com/news/world-africa-17513488.

Bond prospectus of the $1bn Eurobond issued by Senegal on 13 March 2018 due 2048. Government of Senegal, 2018.

BP. "BP Announces Final Investment Decision for Phase 1 of the Greater Tortue Ahmeyim LNG Development." December 21, 2018. www.bp.com/en/global/corporate/news-and-insights/press-releases/bp-announces-final-investment-decision-for-phase-1-of-the-greater-tortue-ahmeyim-lng-development.html.

BP. "Greater Tortue Ahmeyim Phase 1." BP, N.d. www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/what-we-do/worldwide/greater-tortue-ahmeyim-fact-sheet-english.pdf.

BP. "Senegal." Accessed 30 October 2020.

www.bp.com/en/global/corporate/what-we-do/bp-worldwide/bp-in-senegal.html.

BP. "BP p.l.c. Group Results Third Quarter and Nine Months 2020." BP, 27 October 2020. www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/investors/bp-third-quarter-2020-results.pdf.

Collier, Paul. "Under Pressure." *Finance & Development*, December 2013. www.imf.org/external/pubs/ft/fandd/2013/12/collier.htm.

Comité National ITIE Sénégal, and BDO Consulting. *Rapport ITIE 2019*. Senegal: Initiative pour la Transparence des Industries Extractives au Sénégal, December 2020. eiti.org/files/documents/rapport_itie-senegal_2019-vf.pdf.

Cust, Jim, and David Mihalyi. "The Presource Curse." *Finance & Development*, December 2017. www.imf.org/external/pubs/ft/fandd/2017/12/cust.htm.

Diouf, Awa and Bertrand Laporte. *Oil Contracts and Government Take: Issues for Senegal and Developing Countries*. FERDI, 2018. ferdi.fr/dl/df-8He21bpvzZr1yEQjSiHMzjtg/ferdi-p209-oil-contracts-and-government-take-issues-for-senegal-and.pdf.

Diouf, Awa. "Note politique 2020/01 La fiscalité sur l'or noir au Sénégal." Initiative Prospective Agricole et Rurale, 2020. www.ipar.sn/IMG/pdf/np2020_01_fr.pdf.

Dundee Capital Markets, Dundee Securities Ltd. "African Petroleum: Liberian Drilling Campaign Now Underway." Internet Archive: Wayback Machine, 23 February 2017. web.archive.org/web/20170223054622/www.africanpetroleum.com.au/system/files/AfricanPetroleum_DundeeSecurities_08Jan2013.pdf.

Editorial Dept. "The Complete Guide To FID's." OilPrice.com, 23 February 2020. oilprice.com/Energy/Energy-General/The-Complete-Guide-To-FIDs.html.

Erickson, Peter, Sivan Kartha, Michael Lazarus, and Kevin Tempest. "Assessing Carbon Lock-In." *Environmental Research Letters* 10, no. 8 (August 2015): 084023. doi.org/10.1088/1748-9326/10/8/084023.

Extractive Industries Transparency Initiative. "More Costs than Income so Far: The Quest for Oil in São Tomé and Principe." 9 March 2018. eiti.org/news/more-costs-than-income-so-far-quest-for-oil-in-sao-tome-principe.

EY. Cited in Offshore Energy. "EY: Oil & Gas Megaprojects Exceed Budgets. Cost Overruns Reach USD 500B." Offshore Energy, 14 August 2014. www.offshore-energy.biz/ey-oil-gas-megaprojects-exceed-budgets-cost-overruns-at-500b/.

FAR Limited. "01 January - 31 March 2020 Q1 Report." Melbourne: FAR Limited, 2020. far.live.irmau.com/irm/PDF/c4be136b-3254-439c-a950-a109521d5780/QuarterlyActivitiesandCashflow.

FAR Limited. *Annual Report 2019: FAR's Journey to First Oil*. FAR Limited, N.d. www.annualreports.com/HostedData/AnnualReports/PDF/ASX_FAR_2019.pdf.

FAR Limited. "The World's Largest Oil Discovery 2014." Presented at the Melbourne Mining Club Cutting Edge Series, Melbourne Mining Club, 15 March 2016. www.melbourneminingclub.com/wp-content/uploads/2015/11/CE-Presentations-March-15-2016.pdf.

Faye, Mamadou. "Texte de l'avis d'appel d'offres." Portail des marchés publics du Sénégal. Accessed 24 March 2021. www.marchespublics.sn/index.php?option=com_loffres&task=txt&key=34307&Itemid=104.

Fitch Solutions. *Senegal's 2019 Petroleum Code Revision: Main Points Of Interest*. 29 March 2019.

FONSIS S.A. *Rapport Annuel 2019 Fonds Souverain d'Investissements Stratégiques* |FONSIS|. FONSIS S.A., 2020.

FONSIS S.A. "Fonds Souverain d'Investissements Stratégiques." FONSIS S.A., N.d. www.fonsis.org/sites/default/files/rapport-annuel/Brochure_FONSIS_2020_version_finale_v2.pdf.

FONSIS S.A. "Notre Métier." Accessed 25 March 2021. www.fonsis.org/fr/ce-que-nous-faisons/notre-metier.

FONSIS S.A. "Présentation." Accessed 11 December 2020. www.fonsis.org/fr/qui-sommes-nous/presentation.

FONSIS S.A. *Santiago Principles Self-Assessment Fonds Souverain d'Investissements Stratégiques S.A.* International Forum of Sovereign Wealth Funds, N.d.

Gallarati, Livia. "BP, Kosmos Reduce GTA LNG Expansion Plans." Argus, 11 November 2020. www.argusmedia.com/en/news/2158858-bp-kosmos-reduce-gta-lng-expansion-plans.

Global Infrastructure Facility. "Project Details." Accessed 6 October 2020. www.globalinfrafacility.org/all-projects-list.

Hedley, Thomas. "Woodside Acquires Cairn Energy's Stake in Senegal's Sangomar Development."Africa Oil & Power, 10 September 2020. www.africaoilandpower.com/2020/09/10/woodside-acquires-cairn-energys-stake-in-senegals-sangomar-development/.

Heller, Patrick R P and David Mihalyi. *Massive and Misunderstood: Data-Driven Insights into National Oil Companies.* Natural Resource Governance Institute, April 2019.

Iannucci, Esmarie. 'FAR Advances Woodside Transaction'. Mining Weekly, 20 January 2021. www.miningweekly.com/article/far-advances-woodside-transaction-2021-01-20/rep_id:3650.

International Budget Partnership. "Open Budget Survey: Rankings." Accessed 10 December 2020. www.internationalbudget.org/open-budget-survey/rankings.

International Monetary Fund. *IMF Country Report No. 19/27 Senegal Staff Report for the 2018 Article IV Consultation and Seventh Review under the Policy Support Instrument and Request for Modification of Assessment Criteria—Debt Sustainability Analysis—Press Release; Staff Report; and Statement by the Executive Director for Senegal.* International Monetary Fund, January 2019

International Monetary Fund. *IMF Country Report No. 19/28 Senegal Selected Issues.* International Monetary Fund, 2019.

International Monetary Fund. IMF Country Report No. 19/34 Senegal Fiscal Transparency Evaluation. International Monetary Fund, 2019.

International Monetary Fund. *IMF Country Report No. 20/11: Senegal: Request for a Three-Year Policy Coordination Instrument—Press Release; Staff Report; and Statement by the Executive Director for Senegal.* International Monetary Fund, January 2020.

International Monetary Fund. *IMF Country Report No. 20/225 Senegal First Review under the Policy Coordination Instrument and Request for Modification of quantitative targets - press release; staff report; and statement by the Executive Director for Senegal.* International Monetary Fund, 2020.

International Monetary Fund. *IMF Country Report No. 20/274 Islamic Republic of Mauritania: Fifth Review Under the Extended Credit Facility Arrangement, and Request for Augmentation of Access—Press Release; Staff Report; and Statement by the Executive Director for the Islamic Republic of Mauritania.* International Monetary Fund, September 2020.

International Monetary Fund. "IMF Staff Completes Review Mission to Senegal." IMF. 17 November 2020. www.imf.org/en/News/Articles/2020/11/17/pr20341-senegal-imf-staff-completes-review-mission.

International Monetary Fund. "International Financial Statistics." Accessed 6 November 2020. data.imf.org/?sk=4C514D48-B6BA-49ED-8AB9-52B0C1A0179B.

International Monetary Fund. "World Economic Outlook Database." 4 November 2020. www.imf.org/en/Publications/WEO/weo-database/2020/October/weo-report.

International Renewable Energy Agency. *Renewable Capacity Statistics 2021*. Renewable Capacity Statistics. Abu Dhabi: International Renewable Energy Agency, 2021. www.irena.org/-/media/Files/IRENA/Agency/Publication/2021/Apr/IRENA_RE_Capacity_Statistics_2021.pdf.

Journal Officiel de la République du Sénégal. "Loi N° 2012-34 Du 31 Décembre 2012." Accessed 11 September 2020. www.jo.gouv.sn/spip.php?article9611.

Kosmos Energy. (2021, February 22). 4Q 2020 Results. investors.kosmosenergy.com/static-files/3bd3f0ef-3129-415d-94b8-841eb6938eca

Kosmos Energy. "Climate Risk and Resilience Report 2020." Climate Risk and Resilience Report. Dallas: Kosmos Energy, September 2020. www.kosmosenergy.com/wp-content/uploads/2020/09/Kosmos-CRR-Report-2020.pdf.

Kosmos Energy. "Kosmos Energy Announces Significant Gas Discovery Offshore Senegal." 27 January 2016. investors.kosmosenergy.com/news-releases/news-release-details/kosmos-energy-announces-significant-gas-discovery-offshore.

Kosmos Energy. "Kosmos Energy Welcomes Approval of Inter-Governmental Cooperation Agreement between Mauritania and Senegal." 12 February 2018. investors.kosmosenergy.com/news-releases/news-release-details/kosmos-energy-welcomes-approval-inter-governmental-cooperation.

Kufour, 2007, cited in BBC. "Ghana 'Will Be an African Tiger.'" 19 June 2007. news.bbc.co.uk/1/hi/world/africa/6766527.stm.

L'Initiative pour la Transparence dans les Industries Extractives Sénégal. "Aperçu du secteur" Accessed 4-6 November 2020. itie.sn/apercu-du-secteur-2/.

Manley, David, and Rob Pitman. *Natural Resource Charter Benchmarking Framework*. London and New York: Natural Resource Governance Institute, 2017. resourcegovernance.org/sites/default/files/documents/natural-resource-charter-benchmarking-framework-report-2017-web_0.pdf.

Manley, David, David Mihalyi, and Anna Fleming. *A Race to the Bottom and Back to the Top: Taxing Oil and Gas During and After the Pandemic*. Natural Resource Governance Institute, 22 October 2020.

Manley, David, and Patrick R P Heller. "Summary: Risky Bet: National Oil Companies in the Energy Transition." Natural Resource Governance Institute, February 2021. resourcegovernance.org/sites/default/files/documents/risky-bet-national-oil-companies-in-the-energy-transition-summary.pdf.

Manley, David, Thomas Scurfield, and Aaron Sayne. "Gas-to-Power Challenges Point To Expansion of Renewables." *Natural Resource Governance Institute* (blog), 28 May 2020. resourcegovernance.org/blog/gas-to-power-challenges-expansion-renewables-ghana-algeria.

Marques de Morais, Rafael. "Stealing with Presidential Decrees." Maka Angola, 2017. www.makaangola.org/2017/03/stealing-with-presidential-decrees/.

McKinsey. "FID." Energy Insights by McKinsey, Accessed 30 October 2020. www.mckinseyenergyinsights.com/resources/refinery-reference-desk/fid/.

Mihalyi, David, and Thomas Scurfield. "How Did Africa's Prospective Petroleum Producers Fall Victim to the Presource Curse?" The World Bank, 8 September 2020. doi.org/10.1596/1813-9450-9384.

Mihalyi, David, and Thomas Scurfield. "How Africa's Prospective Petroleum Producers Fell Victim to the Presource Curse." *The Extractive Industries and Society*, November 20, 2020. doi.org/10.1016/j.exis.2020.11.003.

Mills, JEA. "State of the Nation Address by His Excellency John Evans Atta Mills." President of the Republic of Ghana,' (Accra), 2009.

Ministère des Affaires Etrangères et des Sénégalais de l'Extérieur, République du Sénégal. "Projet de Loi autorisant le Président de la République à ratifier l'Accord de Coopération inter-Etats portant sur le développement et l'exploitation des réservoirs du champ Grand Tortue/Ahmeyim entre la République du Sénégal et la République Islamique de Mauritanie, signé le 09 février 2018 à Nouakchott". (Dakar, 2018). www.dri.gouv.sn/sites/default/files/an-documents/L-2018-21.pdf.

Ministère des Finances et du Budget, République du Sénégal. *Document de Programmation Budgétaire et Économique Pluriannuelle (DPBEP) 2021-2023*. June 2020. www.budget.gouv.sn///articles/fichiers/5ef5fb44-921c-41a2-9938-861c0a2a028a.pdf.

Ministère des Finances et du Budget, République du Sénégal. *Projet de loi partage des revenus secteur pétrolier*. 2020.

Ministère du Pétrole et des Énergies, République du Sénégal. *Note Synthétique Stratégie Gas to Power : Le gaz naturel : instrument majeur pour l'atteinte de l'object d'électrification universelle à moindre coût !* December 2018.

Ministère du pétrole et des énergies. "Distribution (Aval)," 2019. www.energie.gouv.sn/distribution-aval/.

Ministère du Pétrole et des Energies. "Vision 2025 de l'électrification rurale." SE4ALL Sénégal. 17 December 2020. www.acces-universel-electricite.sn/vision-et-objectif.html.

Murphy, Joe. "BP, Partners Downsize GTA Expansion." Natural Gas World, 13 November 2020. www.naturalgasworld.com/bp-partners-downsize-gta-expansion-83398.

Must, Elise, and Siri Aas Rustad. "'Mtwara Will Be the New Dubai': Dashed Expectations, Grievances, and Civil Unrest in Tanzania," *International Interactions* 45, no. 3 (2019): 500–531. doi.org/10.1080/03050629.2019.1554569.

National Oil Company of Liberia. *Background Briefing on Liberia's Oil Sector*. National Oil Company of Liberia, July 2012.

Natural Resource Governance Institute, and Columbia Center on Sustainable Investment. *Natural Resource Fund Governance: The Essentials*. New York and London: Natural Resource Governance Institute and Columbia Center on Sustainable Investment, August 2014. ccsi.columbia.edu/files/2015/05/Natural-Resource-Fund-Governance-The-Essentials_EN.pdf.

Natural Resource Governance Institute. *Natural Resource Charter: Second Edition*. Natural Resource Governance Institute, 12 June 2014.

Natural Resource Governance Institute. NRGI Reader: The Resource Curse: The Political and Economic Challenges of Natural Resource Wealth. Natural Resource Governance Institute, March 2015.

Natural Resource Governance Institute. "Risky Bet: National Oil Companies in the Energy Transition." January 16, 2021. resourcegovernance.org/analysis-tools/publications/risky-bet-national-oil-companies-energy-transition.

Niang, Ousmane, and Alpha Ba. *La gouvernance économique: Une perception positive des Sénégalais sur l'orientation et l'avenir du pays. Dépêche No. 308, Afrobaromètre*. Afrobarometer, 19 July 2019.

Oguh, C. "Liberia to begin oil production in 2017." *Financial Nigeria* 13, 2015.

Ouki, Mostefa. *Algerian Gas in Transition: Domestic transformation and changing gas export potential OIES PAPER: NG 151*. The Oxford Institute of Energy Studies, 2019.

Ouki, Mostefa. *Mauritania -Senegal: an emerging New African Gas Province– is it still possible?" OIES PAPER: NG 163*. The Oxford Institute of Energy Studies, 2020.

Payne, Julia. "Glencore, Banks and Chad Reach Deal on USD 1 Bln-plus Oil-Backed Loan." Reuters, 21 February 2018. uk.reuters.com/article/us-glencore-chad-idUSKCN1G52B9.

Pitman, Robert, and Kaisa Toroskainen. *Beneath the Surface: The Case for Oversight of Extractive Industry Suppliers*. London and New York: Natural Resource Governance Institute, September 2020. resourcegovernance.org/sites/default/files/documents/beneath_the_surface.pdf.

Public Interest and Accountability Committee. *Annual Report on the Management and Use of Petroleum Revenues for the Period 2018*. Ghana: Public Interest and Accountability Committee, 2019.

Readhead, Alexandra, Daniel Mulé and Anton Op de Beke. *Examining the Crude Details: Government audits of oil and gas project costs to maximize revenue collection*. Oxfam, 2018.

République du Sénégal. «Contrat de Recherche et de Partage de Production d'Hydrocarbures: Rufisque Offshore, Sangomar Offshore, Sangomar Offshore Profond.» n.d.

République du Sénégal. «Loi 98-05 du 8 janvier 1998 portant code pétrolier, Pub. L. No. 98–05.» §, Dakar, 1998. www.droit-afrique.com/upload/doc/senegal/Senegal-Code-1998-petrolier.pdf.

République du Sénégal. "Loi N° 2019-17 du 20 Décembre 2019 Portant Loi Finances Pour L'année 2020, 2019-17.»§, Dakar, 2019.

République du Sénégal. Sénégal Loi organique relative aux lois de finances. Loi organique n° 2020-07 du 26 février 2020, Pub. L. No. 2020-07 (2020). www.droit-afrique.com/uploads/Senegal-Loi-2020-07-lois-de-finances.pdf.

Reuters Staff. "BP Issues Force Majeure to Golar over Tortue Ahmeyim LNG Project." Reuters, 8 April 2020. www.reuters.com/article/us-golar-lng-lng-bp-idUSKBN21P2J7.

Reuters Staff. "UPDATE 1-FAR Says It Is in Default over Senegal Sangomar Project." Reuters, 24 June 2020. uk.reuters.com/article/far-senegal-idUKL4N2E11Z4.

Rystad Energy Ucube Database. www.rystadenergy.com/energy-themes/oil--gas/upstream/u-cube/

Société Géologique de France. "Quelles Sont Les Différences Entre Réserves et Ressources En Hydrocarbures ?". Accessed 4 February 2021. www.geosoc.fr/quid-sgf/133-quid/ressources-energetiques/735-quelles-sont-les-differences-entre-reserves-et-ressources-en-hydrocarbures.html.

The Analyst. "Liberia: NOCAL, AP Quell Crude Oil Hysteria -Calls 840 Million Barrels Report 'Estimation'." Allafrica, 22 January 2013. allafrica.com/stories/201301220952.html.

The Republic of Senegal. "Hydrocarbon Exploration and Production Sharing Contract: Saint Louis Offshore Profond." n.d.

The World Bank. "International Debt Statistics." Accessed 6 November 2020. datatopics.worldbank.org/debt/ids/country/SEN.

The World Bank. "Oil Rents (% of GDP) - Ghana." The World Bank | Data. Accessed 5 May 2021. data.worldbank.org/indicator/NY.GDP.PETR.RT.ZS?locations=GH.

The World Bank. *Project to Promote a Shift towards Lower Carbon Power Generation in Senegal (P169744): Project Information Document*. 28 March 2019.

The World Bank. *Report No. 47321-GH: Economy-Wide Impact of Oil Discovery in Ghana*. Washington, D.C.: The World Bank, 30 November 2009. openknowledge.worldbank.org/bitstream/handle/10986/18903/ 473210ESW0P1121IC0disclosed03111101.pdf ?sequence=1&isAllowed=y.

U.S. Embassy in Senegal. "USTDA Supports Senegal's First Major Gas Pipeline, August 28, 2020." 31 August 2020. sn.usembassy.gov/ustda-supports-senegals-first-major-gas-pipeline-august-28-2020/.

UNESCO figures: UNESCO Institute for Statistics. "Government Expenditure on Education, Total (% of GDP) - Senegal." The World Bank, Accessed 6 November 2020. worldbank.org/indicator/SE.XPD.TOTL.GD.ZS?locations=SN.

United Nations Economic Commission for Africa. *Economic Report on Africa 2019: Fiscal Policy for Financing Sustainable Development in Africa*. United Nations, 23 March 2019.

United States Agency for International Development. "Senegal Power Africa Fact Sheet." Accessed 25 March 2021. www.usaid.gov/powerafrica/senegal.

Upstream Analytics. *Senegal-Mauritania LNG Hubs Face Headwinds*. Rystad Energy, 22 September 2020.

Ward, Andrew. "Senegal's Journey from Blackouts to Gas and Green Energy." London: *Financial Times*, 19 April 2018. www.ft.com/content/d6432b72-2ea8-11e8-97ec-4bd3494d5f14.

West, Johnny. *Les Actifs Échoués Du Sénégal : L'impact Du Covid-19 et de La Transition Énergétique Sur Le Secteur Pétrolier Offshore*. OpenOil, November 2020. openoil.net/wp/wp-content/uploads/2016/12/Senegal_v2-francais.pdf.

Woodside. *2019 Annual Report Incorporating Annex 4E*. Perth: Woodside, 2020.

Woodside. "Senegal." Accessed 30 October 2020. www.woodside.com.au/our-business/senegal.

Woodside Petroleum Ltd. *2020 Annual Report Incorporating Appendix 4E*. Perth: Woodside Petroleum Ltd, 2021. files.woodside/docs/default-source/investor-documents/major-reports-(static-pdfs)/2020-full-year-results-and-annual-report/2020-woodside-annual-report.pdf?sfvrsn=11372a48_4.

ABOUT THE AUTHORS

William Davis and David Mihalyi are senior economic analysts at NRGI.

ACKNOWLEDGMENTS

The authors would also like to thank the following stakeholders whom NRGI interviewed for the research (and/or reviewed drafts), including Charles Nyirahuku at African Development Bank; Ayana McIntosh-Lee, Nick Allen and other reviewers from BP; Papa Alioune Badara Paye at EITI Senegal; Awa Diouf and Bertrand Laporte at FERDI; Corinne Deléchat, Thomas Benninger, Alexandra Fotiou, Samuele Rosa, Bruno Versailles and other members of the IMF team working on Senegal; Sophie Durham, Mamadou Mar Faye and Khady Ndiaye at Kosmos Energy; Lee Bailey, Andrew Bauer, Hervé Lado, David Manley, Aubrey Menard, Matthieu Salomon, Aaron Sayne, Thomas Scurfield, Amir Shafaie and Evelyne Tsague at NRGI; Cheikhou Oumar Sy at OSIDEA; Malick Mbengue Fall at OSIWA; Thialy Faye at Oxfam; Joseph O Medou at Petrosen; Demba Seydi at PWYP Senegal; and Keith Myers at Westwood Energy. The report does not necessarily reflect the views of our various reviewers or their institutions.

Produced with funding from

OPEN SOCIETY
Initiative for West Africa

The Natural Resource Governance Institute, an independent, non-profit organization, helps people to realize the benefits of their countries' oil, gas and mineral wealth through applied research, and innovative approaches to capacity development, technical advice and advocacy.
Learn more at www.resourcegovernance.org

Natural
Resource
Governance
Institute