



Annex V
Annex VI
Annex VII
Annex VIII
Annex IX

**The
Petroleum
Information**

2023

Informative Elements	Responsável Unit
1. Budget statement and financial statement of the Petroleum Fund of Timor-Leste	UGFP
2. Estimate of the Estimated Sustainable Income for the budget year itself and the previous budget year	UGFP
3. Independent auditor's report certifying the amounts of the Sustainable Income estimates referred to in the previous paragraph	UGFP
4. Estimated reduction in the Estimated Sustainable Income in subsequent budgetary years, due to transfers from the Petroleum Fund of amounts greater than the Estimated Sustainable Income, if this is provided for in the OGE bill	UGFP
5. Independent auditor's report certifying the estimates of reduction of the Estimated Sustainable Income referred to in the previous paragraph	UGFP

The Petroleum Fund Sections in the Budget Book – Informative Elements

The Petroleum Fund is the main source of funding for the state budget. Section 1 provides the key financial information about the Petroleum Fund and includes an overview of the ESI for 2023. Section 2 provides detailed analysis on the ESI assumptions and the changes over time, as required by the Petroleum Fund Law. Section 3 and 4 includes the Minister of Finance’s reports to Parliament on the 2023 ESI, and the estimated reduction in future ESI as a result of the transfer exceeding the 2023 ESI, along with the independent auditor’s certifications.

1. Key information about the Petroleum Fund

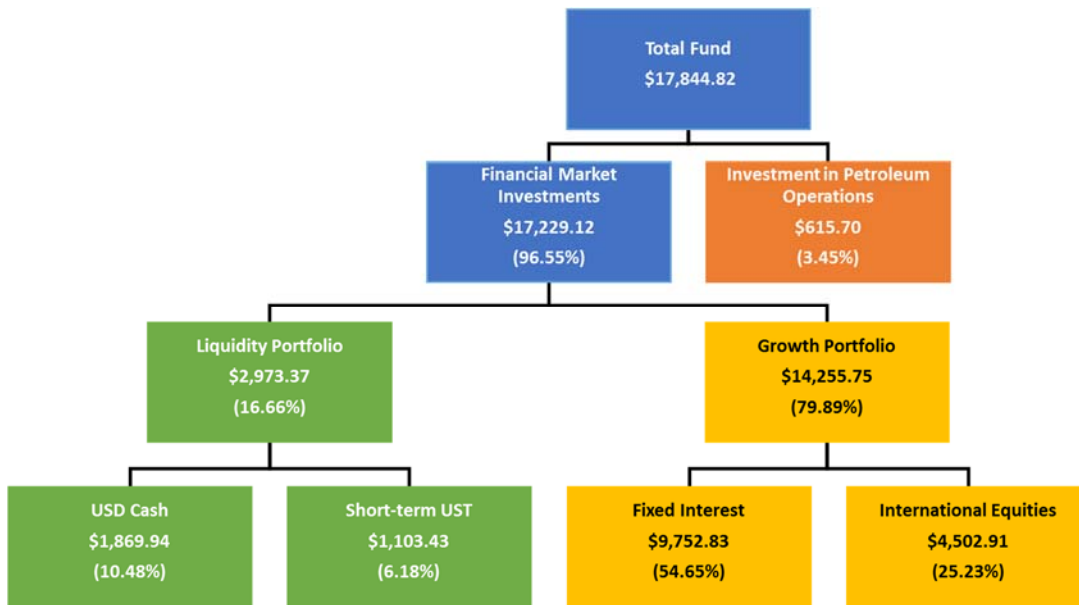
1.1 The Fund’s Holdings

The Petroleum Fund was valued at \$17,844.816 million as at June 2022. The Fund’s structure is shown in Figure 1, along with its holdings.

The investments in financial market investments were separated into two portfolios in July 2021. The Liquidity Portfolio is a low-risk portfolio of cash and low-maturity bonds and holds no equities. It is designed to finance expected withdrawals over the next three years on a rolling basis. The Growth Portfolio allocation includes a 35% allocation to equities, with the remainder in government bonds. Equities offer higher expected returns over the long-run, although the returns are more volatile over the short run. The horizon on the growth portfolio allows for more risk than the liquidity portfolio.

In addition to investments in financial markets, the Fund invested in private debt instruments issued by Timor Gap E.P. to finance the national petroleum company’s investment in the Greater Sunrise project. The loans are independently valued once a year.

Figure 1: Petroleum Fund’s holdings as at June 2022



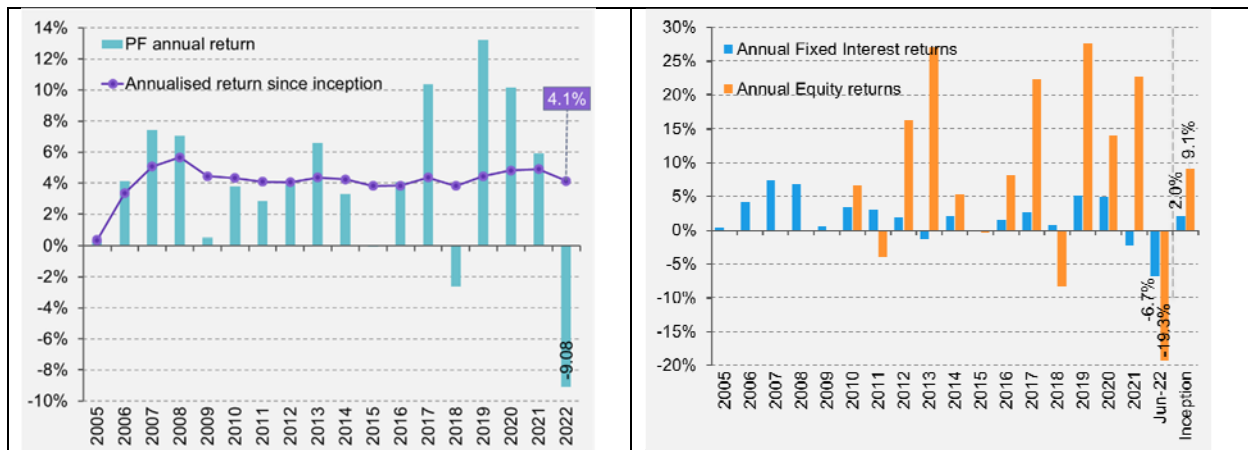
Note: Weights are as a percentage of the Total Fund.

Source: Petroleum Fund Policy and Management Office, Ministry of Finance, September 2022.

1.2 Investment performance

The Petroleum Fund’s annual return since its inception is 4.1% as at June 2022 (Figure 2). The equity portfolio has been the driver of the Fund’s returns, delivering an average 9.1% annual return since being introduced in 2010.

Figure 2: Petroleum Fund investment returns



Source: Petroleum Fund Policy and Management Office, Ministry of Finance, September 2022.

The Petroleum Fund benefited from unusually strong performance during 2019 to 2021, as shown in Figure 2 and Table 1. Investment income totalled about \$5 billion over the three years from 2019 to 2021, which was much higher than long-run return expectations. The decline in the Fund’s value in 2022 gives back some of the gains in the past two years that were associated with the very accommodative monetary

and fiscal policy response to COVID. Both equities and bonds have fallen in value this year as central banks quickly raised interest rates in an effort to control persistently high inflation. The reported investment income for the year to June was negative \$1,938 million,¹ most of which is unrealised because withdrawals have been funded from the liquidity portfolio. Financial market performance since June has continued to be volatile.

Table 1: Petroleum Fund investment income since 2019 (\$m)

	2019	2020	2021	June 2022
Investment income	2,100.924	1,773.298	1,088.338	(1,938,409)

Source: Petroleum Fund Policy and Management Office, Ministry of Finance, September 2022.

The liquidity portfolio has fulfilled its role and remained stable in value during the falls in equities and bonds this year. The investment strategy for the growth portfolio does not involve trying to time markets. Longer-term investors can earn the higher expected return from equities by maintaining their exposure and the Fund has benefited from this approach in the past.

1.3 Petroleum Wealth and the 2023 ESI

The Estimated Sustainable Income (ESI) represents the sustainable level of withdrawals from the Petroleum Fund to finance the State Budget. The ESI is specified in the Petroleum Fund Law as 3% of Petroleum Wealth, which is equal to the value of the Petroleum Fund’s investments plus the net present value of expected petroleum revenue from proven reserves and approved development fields.

The ESI is calculated each year for the annual budget and certified by an independent auditor. The 2023 ESI is determined by the expected value of the Petroleum Fund at the end of 2022, plus the present value of petroleum revenues.

The expected value of the Petroleum Fund at the end of 2022 adjusts the balance at the beginning of the year for estimates of this year’s investment income, petroleum revenue and government withdrawals. Investment income and petroleum revenue account for actual data and then incorporate estimates for the remainder of the year. The expected investment return for 2022 is assumed to be -7.89% after accounting for the performance until June. The input for withdrawals assumes that the government fully executes its 2022 supplementary budget. As of June, \$450 million had been withdrawn from the Fund.

Based on the estimates in Table 2, the Petroleum Fund is projected to finish the year valued at \$16,225.1 million. This is subject to some uncertainty given the volatility in investment returns and the balance will be higher if the full budgeted amount is not withdrawn. The present value of future oil revenues is \$113.1 million, resulting in Petroleum Wealth of \$16,338.2 million. The 2023 ESI is therefore \$490.1 million (Table 3).

¹ The reported investment income for 2022 includes an \$85.65 million write-down in the value of the loans to Timor Gap E.P. for December 2020. The valuation was not available until February 2022. The write-down is incorporated in the Petroleum Fund’s balance and investment income in the 2020 Annual Report.

Table 2: Estimate of the Petroleum Fund's ending balance in 2022 (\$m)

Beginning balance of the Petroleum Fund in 2022	\$19,565.0
Estimated investment income	(\$1,418.5)
Estimated petroleum revenue	\$631.1
Estimated government withdrawals	(\$2,552.6)
Estimated ending balance in 2022	\$16,225.1

Source: Petroleum Fund Policy and Management Office, Ministry of Finance, September 2022.

Table 3: Calculation of the 2023 ESI (\$m)

Estimated beginning balance of the Fund in 2023	\$16,225.1
Estimated net present value of petroleum revenue	\$113.1
Estimated Petroleum Wealth 2023	\$16,338.2
2023 ESI (3% of Petroleum Wealth)	\$490.1

Source: Petroleum Fund Policy and Management Office, Ministry of Finance, September 2022.

The 2023 ESI is lower than the 2022 ESI of \$554.1 million because of the decline in the Fund's balance. The 2023 ESI is also lower than the projections in the 2022 Budget Book, mainly because of the increase in government withdrawals following the supplementary budget and the negative investment income assumed for 2022. Section 2 provides more detailed analysis on the ESI as required by Schedule 1 of the Petroleum Fund Law.

The total of budgeted withdrawals in 2023 can be broken down into the ESI amount and the excess withdrawal that is justified by the Government to be in the long-term interest of Timor-Leste.

Table 4: ESI and budgeted withdrawals (\$m)

2023 ESI	\$490.1
Withdrawals in excess of the ESI	\$855.9
Budgeted withdrawals in 2023	\$1,346.1

Source: Petroleum Fund Policy and Management Office, Ministry of Finance, September 2022.

1.4 Fund Projections

The Petroleum Fund's balance changes with petroleum revenue, investment returns, and withdrawals to finance the government's budget.

During the initial years of the government's frontloading of expenditure, the Petroleum Fund was able to grow in value mainly because high petroleum revenue exceeded government withdrawals. The balance then plateaued as petroleum revenue declined. In the past few years, the Fund's balance grew as a result of higher than expected investment returns.

The Petroleum Fund is projected to decline in the coming years, as shown in Table 6. Outflows are expected to exceed inflows and investment returns. With respect to the components, petroleum production from Bayu-Undan will end in 2022 and projected petroleum receipts are limited to an inflow of \$115.2 million in 2023 relating to VAT on decommissioning and other taxes (Table 5). The projections do not include Greater Sunrise as the development is not yet approved.

Table 5: Petroleum Fund Revenues 2021-2027, \$million

	2021	2022	2023	2024	2025	2026	2027
Total Petroleum Fund Revenue	1,807.9	-787.4	677.1	534.3	501.8	466.6	427.8
Petroleum Fund Investment Return	1,088.3	-1,418.5	561.9	534.3	501.8	466.6	427.8
Total Petroleum Revenue	719.6	631.1	115.2	0.0	0.0	0.0	0.0
FTP/Royalties	115.0	153.5	0.0	0.0	0.0	0.0	0.0
Profit oil	194.8	254.1	0.0	0.0	0.0	0.0	0.0
Income Tax	173.5	113.9	34.5	0.0	0.0	0.0	0.0
Additional Profit Tax	204.0	92.0	0.0	0.0	0.0	0.0	0.0
Value Added Tax	7.1	4.8	46.1	0.0	0.0	0.0	0.0
Other Tax Payments	25.1	12.9	34.5	0.0	0.0	0.0	0.0

Source: Petroleum Fund Policy and Management Office, Ministry of Finance, September 2022.

In terms of the other elements that determine the Fund's balance, the expenditure projections in the Grand Options Program mean that withdrawals from the Petroleum Fund are expected to remain well above its expected investment returns. The long-term nominal return assumption is 3.6% p.a., with the liquidity portfolio and growth portfolio expected to return 2.5% and 4.1%, respectively. As the Fund's balance declines, the relative size of the lower-risk, lower-return liquidity portfolio will grow as it is topped up each year from the growth portfolio to cover the next three years of expected withdrawals.

Table 6: Estimated Petroleum Fund Savings, \$million

	2021	2022	2023	2024	2025	2026	2027
Opening PF Balance	18,905.0	19,565.0	16,225.1	15,556.1	14,664.0	13,717.6	12,669.7
Petroleum Revenue (excl. PF Interest)	719.6	631.1	115.2	0.0	0.0	0.0	0.0
Petroleum Fund Interest, Net*	1,088.3	-1,418.5	561.9	534.3	501.8	466.6	427.8
Total Withdrawals	1,147.9	2,552.6	1,346.1	1,426.4	1,448.3	1,514.5	1,575.3
Closing PF Balance	19,565.0	16,225.1	15,556.1	14,664.0	13,717.6	12,669.7	11,522.2

Source: Petroleum Fund Policy and Management Office, Ministry of Finance, September 2022.

* Net of management fees and market revaluation.

The Fiscal Sustainability section describes alternative paths for expenditure and the Fund's life.

2. Detailed analysis of the 2023 ESI and future years

Section 1 summarises the ESI calculations and excess withdrawals. This section provides the details of the assumptions that underlie the 2023 ESI calculation and explains why the current estimate differs from the estimate in 2022. It concludes with scenario analysis. This section meets the requirements in Schedule 1 of the Petroleum Fund Law to clearly identify and explain all assumptions in the ESI calculation and identify any changes made in these assumptions relative to previous calculations.

As noted in section 1, the fiscal guideline specified in the Petroleum Fund Law is the ESI. The ESI represents the maximum amount that can be withdrawn from the Petroleum Fund in a fiscal year so as to leave a sufficient Fund balance for an amount of equal real value to be appropriated in all later years. The ESI is

set to be 3 percent of the Petroleum Wealth, which comprises the balance of the Fund and the Net Present Value of future petroleum revenue.

Total Petroleum Wealth is estimated to be \$16,338.2 million on 1 January 2023. This is \$1,265.0 million lower than the figure previously calculated in the 2022 Budget. The decrease results from higher than expected withdrawals in 2022 and negative projected investment income for 2022. The details are described in the next section. Table 7 shows the estimated Petroleum Wealth and the ESI from 2021 onwards, assuming that withdrawals from the Fund are equal to the projected withdrawals in this budget book.

The ESI for 2023 is \$490.1 million. The ESI estimates for the following financial years decline as a result of the projections for continued excess withdrawals and lower expected future investment incomes.

Table 7: Petroleum Wealth and the Estimated Sustainable Income (ESI), \$million

	2021*	2022*	2023	2024	2025	2026	2027
Estimated Sustainable Income (PW x 3%)	547.9	554.1	490.1	466.7	439.9	411.5	380.1
Total Petroleum Wealth (PW)	18,262.4	18,469.3	16,338.2	15,556.1	14,664.0	13,717.6	12,669.7
Opening PF Balance	18,065.7	18,323.8	16,225.1	15,556.1	14,664.0	13,717.6	12,669.7
Net Present Value of Future Revenues	196.8	145.5	113.1	0.0	0.0	0.0	0.0

*Source: Petroleum Fund Policy and Management Office, Ministry of Finance, September 2022. *ESI and opening balance for 2021 and 2022 figure as estimated in Budget 2021 and 2022, respectively. Actuals outcome are higher and are incorporated in the ESI 2023 calculation.*

The key assumptions behind the calculations are set out in Table 8 and are discussed below.

Table 8: Key Assumptions behind the ESI Calculation in 2023

Asset recognition	Forecast petroleum revenues are included only for projects with approved development plans. Bayu-Undan (BU) is the only operating field.
Petroleum Reserves and Production Forecasts	The project operator provides production estimates. Santos, the project operator, provided 3 scenarios in June 2022 for Low, Base, and High forecasts. The average of the Low-Base case production is used for ESI 2023.
Oil price forecast	Brent crude oil has been shown to be the best indicator of the price of BU liquid products, namely condensate and LPG. ESI for Budget 2023 is prepared using the average of the Energy Information Agency's (EIA) Low case and Reference case for Brent in its Annual Energy Outlook (AEO) for 2022, released in March 2022.
Prices for specific petroleum products	BU produces condensate, Liquefied Petroleum Gas (LPG) and Liquefied Natural Gas (LNG). Forecast assumptions for prices of condensate and LPG are derived from historical differentials observed with Brent. The historical relationship has been

	relatively stable, with condensate averaging about 97 percent and the LPG averaging about 71 percent of the benchmark.
Production costs	This is the central estimate of future capital and operating costs as provided by the project operator Santos. The estimate includes proposed drilling and higher decommissioning cost provisions.
Discount rate	Under Schedule 1 of the Petroleum Fund Law, the interest rate used to discount future petroleum revenue is the expected rate of return on the portfolio of financial assets held in the Fund. The Fund's investment strategy, which includes the Liquidity and Growth portfolios, is described in section 1. The expected long-term nominal return on the Financial Market Investments was revised up to 3.6 percent.

Source: Petroleum Fund Policy and Management Office, Ministry of Finance, September 2022

Changes in the ESI 2023

The current estimate of the 2023 ESI is \$37.9 million lower than the estimate in the Budget Book 2022. While the starting balance and petroleum revenues are higher in 2022, this is more than offset by increases in expected withdrawals and the negative expected investment return.

Table 9: Calculation of ESI 2022, Budget 2022 vs Budget 2023

Calculation of 2023 Estimated Sustainable Income (Per Schedule 1 Petroleum Fund Act)		2023 ESI From Budget 2022	2023 ESI From Budget 2023
Fund Balance on January 1, 2022	\$mm	18,323.8	19,565.0
Estimated Revenues during budget year 2022	\$mm	45.6	631.1
Estimated Withdrawals during budget year 2022	\$mm	(1,311.4)*	(2,552.6)**
Estimated Investment return (net of fees) in 2022	\$mm	442.3	(1,418.5)
Fund Balance on January 1, 2023	\$mm	17,500.3	16,225.1
Future petroleum revenues (as of January 1, 2023)	\$mm	104.2	115.2
Effective Discount Rate	%	2.5%	3.6%
Net Present Value (NPV) of Future Revenues	\$mm	103.0	113.1
Petroleum Wealth (Fund Balance + NPV)	\$mm	17,603.2	16,338.2
Real sustainable return assumed	%	3.0%	3.0%
Estimated Sustainable Income (ESI) for 2023	\$mm	528.1	490.1

Note: Approved withdrawals as in original Budget 2022 (*) and as in approved Budget 2022 Rectification (**)

Source: Petroleum Fund Policy and Management Office, Ministry of Finance, September 2022

Figure 3 shows the incremental changes in ESI 2023 since the 2022 Budget. Increases in ESI are shown in blue and decreases are shown in red. Each increment is rounded independently to the nearest US\$1 million, which means that the sum of the increments displayed may not match the totals displayed. Each change is briefly described below. The starting point is the estimated of ESI 2023 in Budget 2022, which was US\$528.1 million.

Update using actual 2020 and 2021 data. The 2023 ESI that was estimated in September 2021 for Budget 2022 was based on forecasted data for the remainder of 2020 (excluding loans value) and 2021. The actual history is now available for both years and is incorporated in the current forecast of the 2023 ESI. The

actual petroleum revenues collected in 2020 was \$326.2m and \$719.6 million for 2021. There was no tax refund during the periods. The actual revenues are much higher than the earlier estimation in the Budget Book 2022. The actual withdrawal in both 2020 and 2021 were lower compared to the approved withdrawals. The total amount transferred was \$886.3 million vs \$963.9 million in 2020, and \$1,147.9 vs \$1,377.6 million, respectively. The Fund's investment return in 2020 was \$1,773.3 million (equivalent to 10.17%) after adjusting for the Timor Gap's loan valuation at \$615.7 million. For 2021, the investment return is \$1,088.3 million (5.92%), although this is subject to the final valuation of the Timor Gap loans as at the end of 2021. The combination of petroleum revenues, withdrawals and the adjusted investment return resulted in a higher closing balance of the Fund at the end of 2020 (\$18,905.0m vs \$18,289.3m) which then flows into 2021 (\$19,565.0m vs \$18,323.8m) and the beginning balance of 2022. As a result of these changes, the ESI 2023 increased by \$41.6 million.

Changes resulting from using revised expected withdrawals, petroleum revenues and investment return for 2022 ("Update 2022" in Figure 3). In each year the estimate of ESI is based on the assumption that the Government will withdraw from the PF an amount equal to that year's ESI. Withdrawals in excess of the ESI in the calculation year (that is, in 2022 with respect to the 2023 ESI) will reduce the ESI going forward. The current estimate is based on the assumption that 2022 withdrawals from the PF will be US\$2,552.6 million following the approved Budget 2022 Rectification. This affects the ESI because the previous forecast assumed the withdrawal from the PF in 2022 is \$1,311.6 million.

The estimated petroleum revenues in 2022 is revised up from \$45.6 million in Budget 2022 to \$631.1 million. This is to reflect actual collection until June of \$582.5 million and an expected \$48.6 inflow for the remainder of the year. The expected nominal return for 2022 is revised down from 2.5% to -7.89% after accounting for the weak performance for the year to date.² The combination of these factors causes a lower estimate of the opening balance in January 2023, which results in the ESI 2023 decreasing by \$37.7 million.

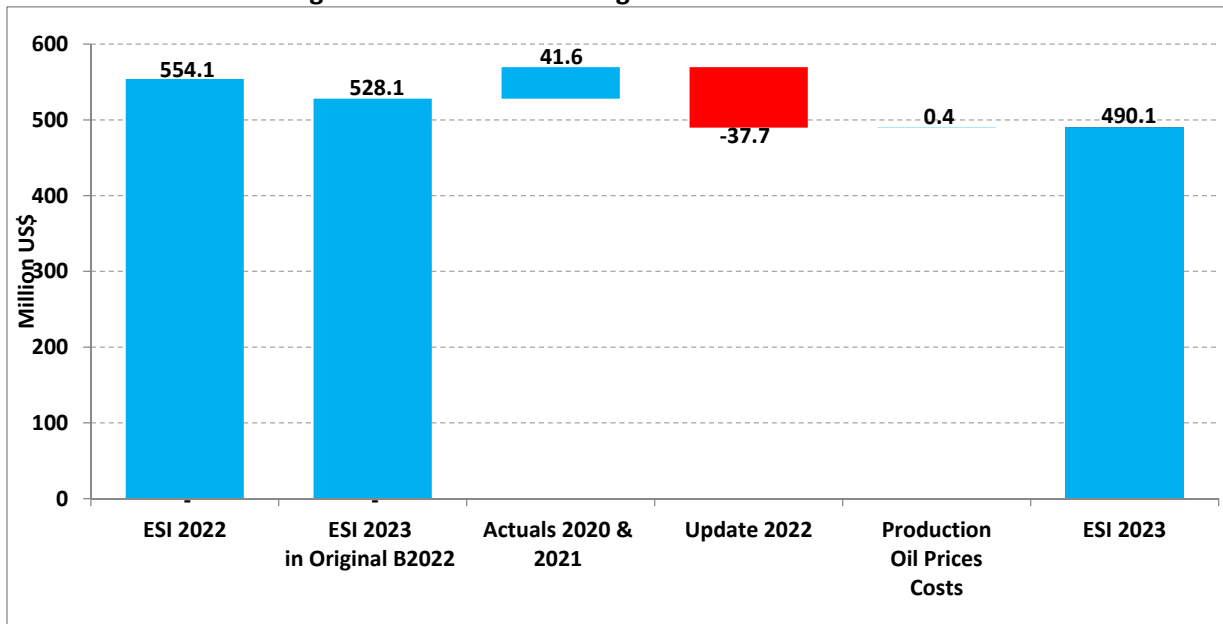
Changes resulting from new production, oil price, and cost forecasts. The BU is a mature field that has experienced a natural decline in production due to lower pressure and water infiltrating into the reservoir. The production forecasts for 2022 used this year are lower for liquids and slightly lower for gas. However, production is expected to cease by the end of 2022 under all 3 scenarios provided by the operator.

The actual average Brent benchmark price from January to August 2022 was \$106.6 per barrel. Applying the weighted average of the actual price and the average EIA low-base prices for the remainder of the year, the 2022 price is revised up to \$83.9/barrel, compared to \$40.1/barrel used in Budget 2022.³ The combined forecasts of oil price, production and costs, increased the estimated revenues from oil and gas in 2022 as discussed above. A slightly higher estimate of NPV for 2023, which is mainly related to a slight increase in VAT on the decommissioning cost and other taxes, increased the ESI 2023 by US\$ 0.4 million.

² The total Fund's performance until 30 June is a negative return of 9.08%. The realised return for 2022 will depend on the market movements in the second half of the year.

³ The EIA's Short-term Energy Outlook released on 7th September 2022 reports the reference (base) scenario of the expected average Brent price for 2022 as \$104.2/b and \$96.9/b in 2023.

Figure 3. Incremental Changes from ESI 2022 to ESI 2023

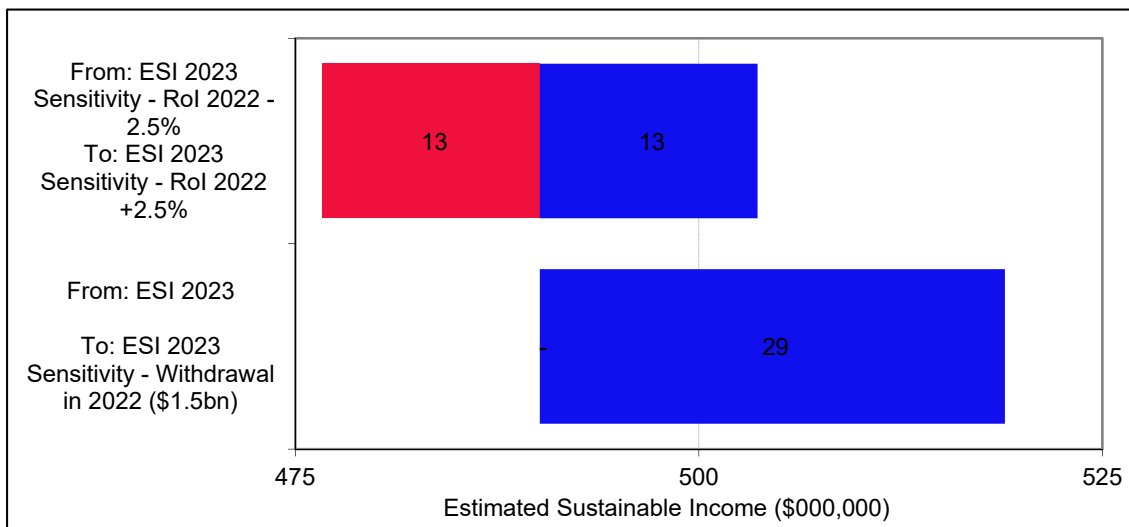


Source: Petroleum Fund Policy and Management Office, Ministry of Finance, September 2022

ESI Sensitivity Analysis

The Government’s objective is to prepare an ESI that is prudent overall, as required by the Petroleum Fund Law. While the calculations are based on the best information available, each input is subject to significant uncertainty. Figure 4 shows how the 2023 ESI of \$490.1 million would change if the assumptions for key variables were changed individually. Each sensitivity calculation is briefly described below.

Figure 4: Sensitivity Analysis –Estimated Sustainable Income, \$million



Source: Petroleum Fund Policy and Management Office, Ministry of Finance, September 2022

1. As noted above, the ESI is calculated on the assumption that the Government will withdraw the full amount approved by the Parliament of \$2,552.6 million in 2022. If the withdrawal in 2022 is \$1,552.6 million, the ESI would increase by \$29 million.
2. The calculated ESI assumes that the expected investment return on the financial market investment portfolio is -7.89%, which accounts for the year-to-date return in 2022. If the return changes by \pm 2.5% of the estimated return, the ESI would change (up or down) by \$13 million.

As discussed above, Bayu-Undan field production is expected to cease by the end of 2022. Hence, until new discoveries of oil and gas, future ESI and sustainability of the Fund will be determined by the level of withdrawals and investment returns.

3. **Minister's letter to Parliament specifying the 2023 ESI and 2022 the ESI, and the Independent Auditor's certification report**
4. **Minister's letter to Parliament estimating the reduction in ESI for future years as a result of transferring an amount exceeding the 2023 ESI, and the Independent Auditor's certification report**

