Institute of Social and Economic Research
University of Alaska Anchorage
Web Notes

The Path to a Fiscal Solution: Use Earnings from All Our Assets

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"I wanted to transform oil wells pumping oil for a finite period into money wells pumping money for infinity."

Governor Jay Hammond, father of the Alaska Permanent Fund and the Alaska Permanent Fund Dividend

Thanks to a combination of good decisions and a little luck, today Governor Hammond's vision has become a reality. More than $60 billion in financial accounts now generates more income for the state government than petroleum production. Yet we continue to rely mostly on current petroleum revenues to pay for public services—and as oil production declines, "sliding down the falling Prudhoe Bay revenue curve" is proving to be a formula for fiscal and economic disaster.

In fiscal year 2016, General Fund revenues are expected to be only about $2.2 billion. That will leave an apparent "deficit" of about $3.3 billion, based on spending of $5.5 billion.

But the state doesn't have to face such a huge shortfall. There is a straightforward solution that Jay Hammond foresaw: using both current revenues and earnings from the state's portfolio of assets (financial accounts and future petroleum revenues) to pay for public services.

In 2016, those earnings, properly managed, could add $2.2 billion to General Fund revenues. That's the amount that would still be available, after earnings were first used to pay Permanent Fund dividends and increase the principal of the Permanent Fund. That $2.2 billion would drop the 2016 deficit to $1.1 billion—still a fiscal challenge, but a much more manageable one.

FY 2016 ALASKA STATE GENERAL FUND
Million $

CURRENT APPROACH: USE CURRENT REVENUES ONLY			PROPOSED: ADD USE OF FINANCIAL EARNINGS
GF REVENUES	$ 2,195	$ 4,366	GF REVENUES = SUSTAINABLE SPENDING TARGET
GF Non-Petroleum Revenues	$ 528	$ 528	
GF Petroleum Revenues	$ 1,634	$ 1,634	
GF Investment Earnings	$ 33	$2,204	GF NET SUSTAINABLE FINANCIAL EARNINGS
GF SPENDING	$ 5,500	$ 5,500	
GF "DEFICIT"	$ (3,305)	$ (1,134)	SUSTAINABLE SPENDING SHORTFALL

In Web Note 19, we estimated that if state General Fund spending in 2016 were to be held at the sustainable level of $4.5 billion, that spending could grow with inflation and population in future years and still maintain the value of state assets for future generations. This note suggests a method for managing and using our assets to implement that strategy.

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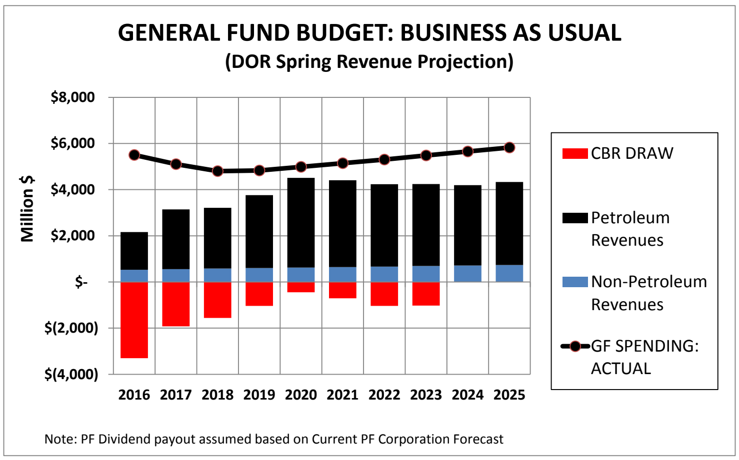
Northrim Bank

Business as Usual versus Sustainable Spending

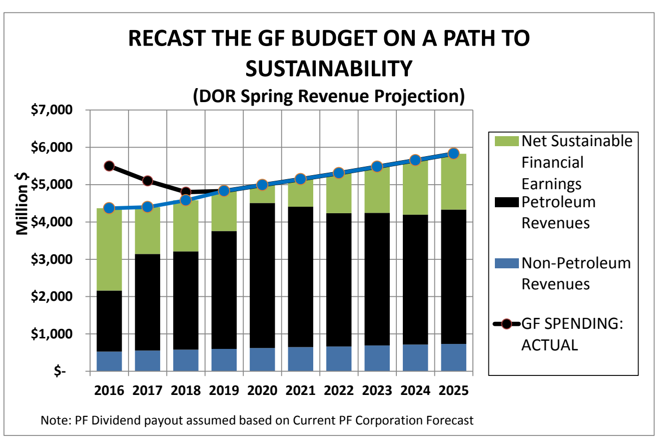
As currently structured, the General Fund revenue account includes non-petroleum revenues, petroleum revenues, and the modest investment earnings on the General Fund cash balance. In fiscal year 2016 these sources are estimated to total $2.195 billion. Since General Fund spending will be about $5.5 billion, the apparent deficit will be about $3.3 billion.

The figure below shows the likely outcome, assuming oil prices bounce back as the Alaska Department of Revenue forecasts and the legislature continues to cut the budget down towards $4.5 billion over the next several years. Using just existing revenue sources and drawing on the Constitutional Budget Reserve (CBR) to cover shortfalls, the CBR soon disappears and the deficit continues to grow, leaving no clear fiscal path forward.



But using only current revenues ignores the earnings of the Permanent Fund and other state assets. The fiscal situation improves dramatically if we replace the current modest General Fund investment earnings with *General Fund net sustainable financial earnings*. Those are earnings that can be added to the General Fund—that is, earnings that are not needed to pay the Permanent Fund dividend or add to the Permanent Fund principal, in order to maintain the value of the state asset portfolio (financial accounts and future petroleum revenues).

Now, with the same oil price and budget cut assumptions, the General Fund reaches balance in 2019, as the figure below shows. And from that time forward the budget is sustainable—growing with inflation and population. The path to fiscal sustainability is clear.



General Fund Net Sustainable Financial Earnings for 2016

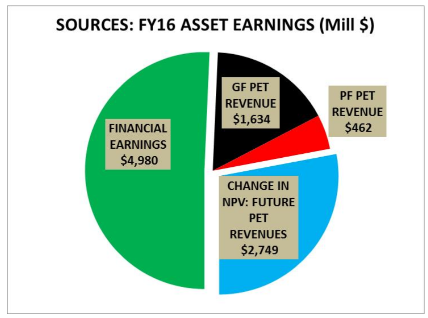
General Fund net sustainable financial earnings is the amount we can draw from state financial accounts for General Fund spending and still preserve the value of our total asset portfolio (including both financial accounts and future petroleum revenues) for generations to come. Calculating that amount involves three steps—determining the value of our asset portfolio, estimating the earnings of the portfolio, and allocating the earnings to uses.

Assets

As we just noted, the state asset portfolio includes both financial accounts and the value of the petroleum revenues we will collect in future years, based on the production of our depleting resource—just as Jay Hammond understood. That portfolio today has a value estimated at $131 billion. (See ISER Web Note 19 for details. It is available at: http://www.iser.uaa.alaska.edu/Publications/webnote/2015_01-WebNote19-2016MSYandMODEL.pdf)

Sources of Earnings

Total earnings are $9.825 billion, 7.5% of asset value. (This represents a long-run average achievable target rate of return—with good management.) The financial portion of those earnings is $4.98 billion.



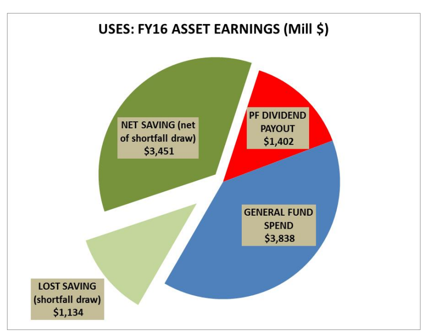
Earnings from the stock of future petroleum revenues still in the ground are $4.85 billion, also estimated at a 7.5% rate of return. (This is the discount rate used to calculate the present value of the future revenue stream. Each year that revenue stream moves one year closer to the present, and so it increases in value by 7.5%.)

Part of this $4.85 billion is "realized" in current petroleum revenues paid into the General Fund ($1.634 billion) and the Permanent Fund ($.462 billion). The rest—$2.749 billion—represents an increase in the value of the future petroleum revenues from oil and gas remaining in the ground.

Uses of Earnings

Of the $9.825 billion of total earnings, $4.585 billion (3.5% of the value of assets) is dedicated to *savings* needed to maintain the value of those assets for future generations, assuming inflation of 2.5% and population growth of 1%. (Unfortunately, because of the shortfall in 2016, $1.134 billion of this savings does not end up in the bank, but on the sustainable spending path the full 3.5% would be saved.)

The remainder—$5.240 billion—is available for *spending*. Of the available earnings, $1.403 billion funds the Permanent Fund dividend (based on the current projection of the Permanent Fund Corporation), leaving $3.838 billion for the General Fund.



The $3.838 billion of General Fund spending comes from two sources—current petroleum revenues of $1.634 billion, and financial earnings of $2.204 billion—*General Fund net sustainable financial earnings*.

Summary of Calculations

- Begin with the value of assets.

ASSETS (MILL $)	
BALANCE--start of year	$ 131,000
FINANCIAL ACCOUNTS	$ 66,400
FUTURE PETROLEUM REVENUES--NPV	$ 64,600

- Calculate the earnings, based on the long-run average achievable rate of return.

- Allocate the earnings first to savings, to maintain the value of the portfolio of assets for future generations.

ASSET EARNINGS (MILL $)		share of asset value	
SOURCES	@	7.5%	$ 9,825
FINANCIAL			$ 4,980
FUTURE PETROLEUM REVENUES--NPV			$ 4,845
USES			$ 9,825
SAVE	@	3.5%	$ 4,585
Reinvest for Inflation Proofing	@	2.5%	$ 3,275
Reinvest for Population Growth	@	1.0%	$ 1,310
SPEND	@	4%	$ 5,240
PF Dividend			$ 1,402
Available for GF @ Sustainable Level			$ 3,838
a GF Petroleum Revenues (2a)			$ 1,634
b GF Net Sustainable Financial Earnings (2b)			$ 2,204

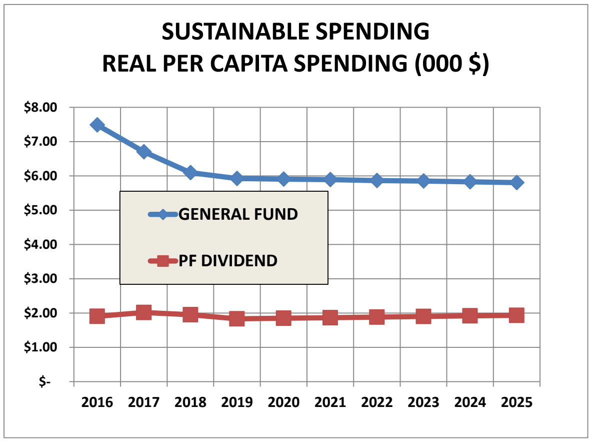
- With the remaining earnings, first fund the Permanent Fund dividend.

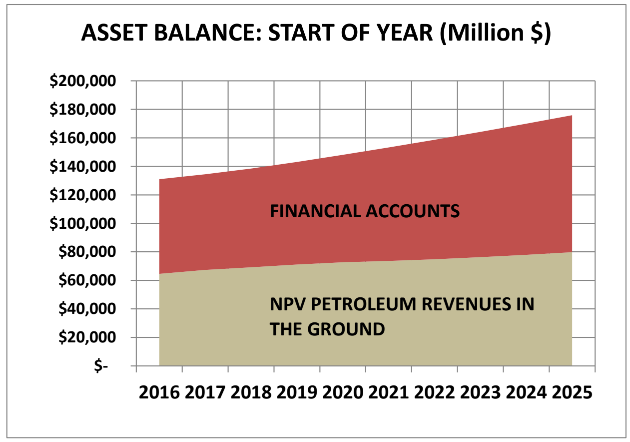
- Use the rest to pay for General Fund expenditures. This amount includes both petroleum revenues and *General Fund net sustainable financial earnings*.

GENERAL FUND BUDGET (MILL $)	
GF REVENUES = SUSTAINABLE SPENDING TARGET	$ 4,366
GF Non-Petroleum (excluding investment earnings)	$ 528
Sustainable Earnings from Assets	$ 3,838
2a GF Petroleum Revenues	$ 1,634
2b GF Net Sustainable Financial Earnings	$ 2,204
GF SPENDING	$ 5,500
SUSTAINABLE SPENDING SHORTFALL	$ (1,134)

Future Years

The result of imposing this budget discipline in future years is both a sustainable spending level for the General Fund and a sustainable Permanent Fund dividend. The state asset portfolio (financial accounts and future petroleum revenues) grows at a rate that generates the earnings to fund the sustainable General Fund and dividend levels. Over time the financial accounts portion of the state asset portfolio grows to offset our depleting petroleum resource.





GENERAL FUND BUDGET (MILL $)	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Source
GF REVENUES = SUSTAINABLE SPENDING TARGET	$ 4,366	$ 4,397	$ 4,580	$ 4,829	$ 4,987	$ 5,147	$ 5,305	$ 5,477	$ 5,651	$ 5,826	
GF Non-Petroleum (excluding investment earnings)	$ 528	$ 554	$ 581	$ 600	$ 623	$ 647	$ 665	$ 692	$ 715	$ 733	DOR Fall
Sustainable Earnings from Assets	$ 3,838	$ 3,843	$ 3,999	$ 4,229	$ 4,364	$ 4,500	$ 4,640	$ 4,785	$ 4,936	$ 5,093	
2a GF Petroleum Revenues	$ 1,634	$ 2,588	$ 2,629	$ 3,158	$ 3,884	$ 3,762	$ 3,570	$ 3,550	$ 3,481	$ 3,600	DOR Spr
2b GF Net Sustainable Financial Earnings	$ 2,204	$ 1,255	$ 1,370	$ 1,071	$ 480	$ 738	$ 1,070	$ 1,235	$ 1,455	$ 1,493	SS Calc
GF SPENDING	$ 5,500	$ 5,100	$ 4,800	$ 4,829	$ 4,987	$ 5,147	$ 5,305	$ 5,477	$ 5,651	$ 5,826	
SUSTAINABLE SPENDING SHORTFALL	$ (1,134)	$ (703)	$ (220)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	

ASSETS (MILL $)	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Source
BALANCE--start of year	$ 131,000	$ 134,451	$ 138,454	$ 143,080	$ 148,088	$ 153,271	$ 158,635	$ 164,187	$ 169,934	$ 175,882	
FINANCIAL ACCOUNTS	$ 66,400	$ 67,102	$ 69,274	$ 71,941	$ 75,372	$ 79,622	$ 83,822	$ 87,884	$ 91,990	$ 96,085	ISER
FUTURE PETROLEUM REVENUES--NPV	$ 64,600	$ 67,349	$ 69,180	$ 71,139	$ 72,716	$ 73,649	$ 74,813	$ 76,303	$ 77,944	$ 79,797	ISER

ASSET EARNINGS (MILL $)	share of asset value	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Source
SOURCES	@ 7.5%	$ 9,825	$ 10,084	$ 10,384	$ 10,731	$ 11,107	$ 11,495	$ 11,898	$ 12,314	$ 12,745	$ 13,191	
FINANCIAL		$ 4,980	$ 5,033	$ 5,196	$ 5,396	$ 5,653	$ 5,972	$ 6,287	$ 6,591	$ 6,899	$ 7,206	
FUTURE PETROLEUM REVENUES--NPV		$ 4,845	$ 5,051	$ 5,189	$ 5,335	$ 5,454	$ 5,524	$ 5,611	$ 5,723	$ 5,846	$ 5,985	
USES		$ 9,825	$ 10,084	$ 10,384	$ 10,731	$ 11,107	$ 11,495	$ 11,898	$ 12,314	$ 12,745	$ 13,191	
SAVE	@ 3.5%	$ 4,585	$ 4,706	$ 4,846	$ 5,008	$ 5,183	$ 5,364	$ 5,552	$ 5,747	$ 5,948	$ 6,156	
Reinvest for Inflation Proofing	@ 2.5%	$ 3,275	$ 3,361	$ 3,461	$ 3,577	$ 3,702	$ 3,832	$ 3,966	$ 4,105	$ 4,248	$ 4,397	
Reinvest for Population Growth	@ 1.0%	$ 1,310	$ 1,345	$ 1,385	$ 1,431	$ 1,481	$ 1,533	$ 1,586	$ 1,642	$ 1,699	$ 1,759	
SPEND	@ 4%	$ 5,240	$ 5,378	$ 5,538	$ 5,723	$ 5,924	$ 6,131	$ 6,345	$ 6,567	$ 6,797	$ 7,035	
PF Dividend		$ 1,402	$ 1,535	$ 1,539	$ 1,494	$ 1,560	$ 1,631	$ 1,705	$ 1,782	$ 1,861	$ 1,942	PFC
Available for GF @ Sustainable Level		$ 3,838	$ 3,843	$ 3,999	$ 4,229	$ 4,364	$ 4,500	$ 4,640	$ 4,785	$ 4,936	$ 5,093	
a GF Petroleum Revenues (2a)		$ 1,634	$ 2,588	$ 2,629	$ 3,158	$ 3,884	$ 3,762	$ 3,570	$ 3,550	$ 3,481	$ 3,600	
b GF Net Sustainable Financial Earnings (2b)		$ 2,204	$ 1,255	$ 1,370	$ 1,071	$ 480	$ 738	$ 1,070	$ 1,235	$ 1,455	$ 1,493	

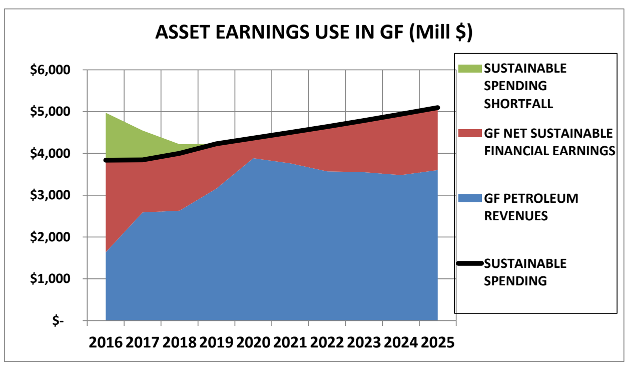
Mechanics of Saving

The amount of savings (increase in value) necessary to maintain the value of the portfolio of state assets has to take into account the depletion of petroleum resources as they are produced. So some extra savings must occur in the financial accounts to compensate for this loss. (The deposit of 25% of petroleum royalties into the Permanent Fund is only an approximation of the amount necessary to compensate for petroleum depletion.)

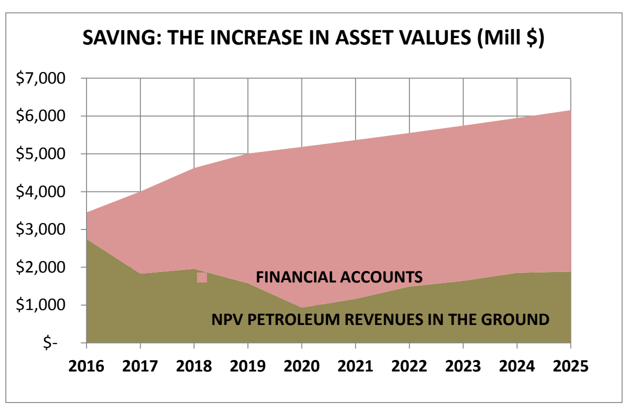
The change in value of future petroleum assets is automatic. It is the 7.5% increase in the net present value of the future revenue stream, minus current year revenues withdrawn from that future stream.

The rest of the increase in the value of the portfolio comes from reinvested financial earnings. The amount necessary to maintain the value of the total portfolio is easy to calculate. It is whatever financial earnings are left over after funding the dividend and the General Fund at the sustainable level.

This graph shows how asset earnings would be used to fund sustainable General Fund expenditures. Because General Fund petroleum revenues fluctuate from year to year, the use of *General Fund net sustainable financial earnings* also varies from year to year, to compensate for that variation and stay within the sustainable level.



As a result, the composition of the increase in the value of the portfolio varies from year to year.



The increase in the value of the asset portfolio in 2016 is shown in the next table. It falls short of maintaining the value of the portfolio by $1.134 billion—the amount necessary to cover the General Fund shortfall.

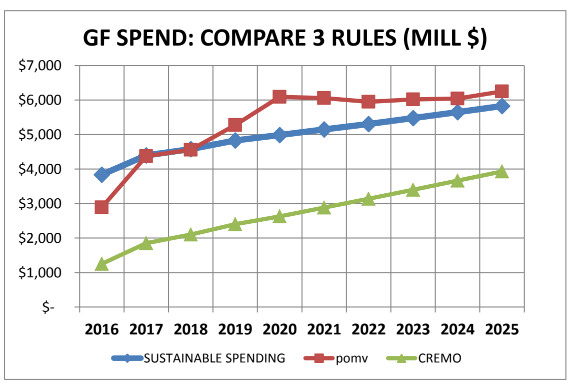
SAVINGS: DETAIL	
FINANCIAL ASSETS --start of year	$ 66,400
+ Earnings	$ 4,980
+ PF Petroleum Revenues	$ 462
- PF Dividend	$ (1,402)
- GF Net Sustainable Financial Earnings (2b above)	$ (2,204)
- Extra Draw to Cover Sustainable Spending Shortfall	**$ (1,134)**
FINANCIAL ASSETS --end of year	$ 67,102
ITEM: CHANGE	$ 702
PETROLEUM ASSETS --start of year	$ 64,600
+ Earnings	$ 4,845
- GF Petroleum Revenues	$ (1,634)
- PF Petroleum Revenues	$ (462)
PETROLEUM ASSETS --end of year	$ 67,349
ITEM: CHANGE	$ 2,749

Alternate Savings Rules

The sustainable spending strategy does not produce a simple fixed rule for saving or spending from state assets. Rather, the saving and spending rules depend on the entire portfolio of assets, including the depleting petroleum asset. But perhaps a simple financial rule or alternative institutional structure could *approximate* the sustainable spending result.

One possibility is the POMV (percent of market value) rule, wherein a fixed percentage of the market value of financial assets would be available for appropriation each year to supplement current revenues. Another would be to deposit all petroleum revenues into an expanded Permanent Fund and draw a fixed percentage of the market value for appropriation each year (the Cremo Plan, proposed by Roger Cremo in the 1990s).

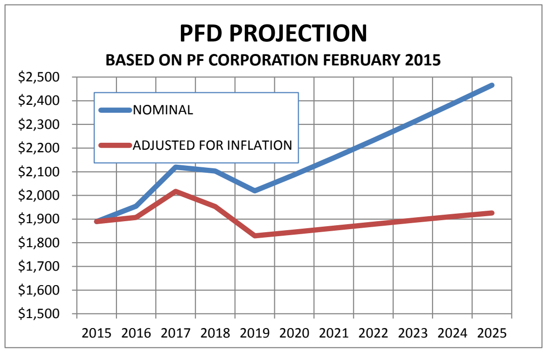
The graph below compares revenues available for General Fund spending under these two alternatives, assuming a 4% draw, compared with sustainable spending as described above.



POMV at 4% results in an oversupply of funds for the General Fund compared to the sustainable amount since savings using that rule are insufficient to offset depletion. (But with reinvestment of a portion of the 4% draw, the sustainable target could be reached). The Cremo Plan, by contrast, generates insufficient funds, since it ignores future earnings from oil in the ground.

Permanent Fund Dividend Hold-Harmless

Since 1982, the Permanent Fund dividend has essentially been the only use of Permanent Fund earnings, beyond adding to the fund principal to protect it from inflation. The method of determining *General Fund net sustainable financial earnings* in this paper includes a hold-harmless assumption for the dividend: the amount available for the General Fund is determined *after* payment of the dividend, at the level based on the Permanent Fund Corporation's current earnings forecast.



Implementation of Sustainable Spending Strategy

For decades, Alaskans have recognized that our petroleum tax base is not sustainable and on many occasions have tried, unsuccessfully, to adopt a fiscal plan. Today the need for a plan is more urgent than ever, and although we know what options we have for formulating a plan, progress has been slight, for political reasons.

Fortunately, there is a strategy that can move us in the direction of fiscal sustainability while sidestepping many of the political roadblocks—such as fear of losing the Permanent Fund dividend or the imposition of new taxes—standing in the way of a fiscal plan.

That strategy is adopting a sustainable spending target and using all state assets to work toward that target. It focuses on what should be done immediately—and avoids getting bogged down in decisions that can be postponed.

Here are the steps to move Alaska toward a sustainable spending target:

1. Estimate the value of the state asset portfolio available to support the Permanent Fund dividend and the General Fund.
2. Maximize return on the portfolio. Balance risk and return, invest for the long term, and use all available earnings.
3. Calculate sustainable earnings from the total portfolio, using the method described earlier.
4. Calculate the portion of earnings needed for *savings*, using the method described earlier.
5. Fund the Permanent Fund dividend from sustainable earnings.
6. Allocate the remaining sustainable earnings (*General Fund net sustainable financial earnings*) to the General Fund, calculated using the method described above.
7. Add non-petroleum revenues to get to the General Fund sustainable spending target.
8. Continuously monitor and adjust the sustainable spending target for changing market conditions.

And finally—and only if reaching the sustainable spending target proves to be impossible—the state would need to consider adding new non-petroleum revenues or changing the way the Permanent Fund dividend is calculated.