Land Grant and Severance Tax Permanent Fund Distributions
and
Liquidity Plans for a Market Downturn

Investments & Pensions Oversight Committee

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July 11, 2018

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Fund Changes in Value

- One-year ending May 31, 2018:

LGPF:
May 2017: **$16.11B**
May 2018: **$17.49B**
+$1.4B

STPF:
May 2017: **$4.88B**
May 2018: **$5.12B**
+$233M

Clients:
May 2017: **$958M**
May 2018: **$1.06B**
+$102M

Tobacco:
May 2017: **$183M**
May 2018: **$194M**
+11M

Water:
May 2017: **$44.75M**
May 2018: **$44.53M**
$-0.22M

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Distribution growth

- Year-over-year comparisons:

LGPF:
2018: **$689.2M**
2019: **$747.5M**
+58.3M

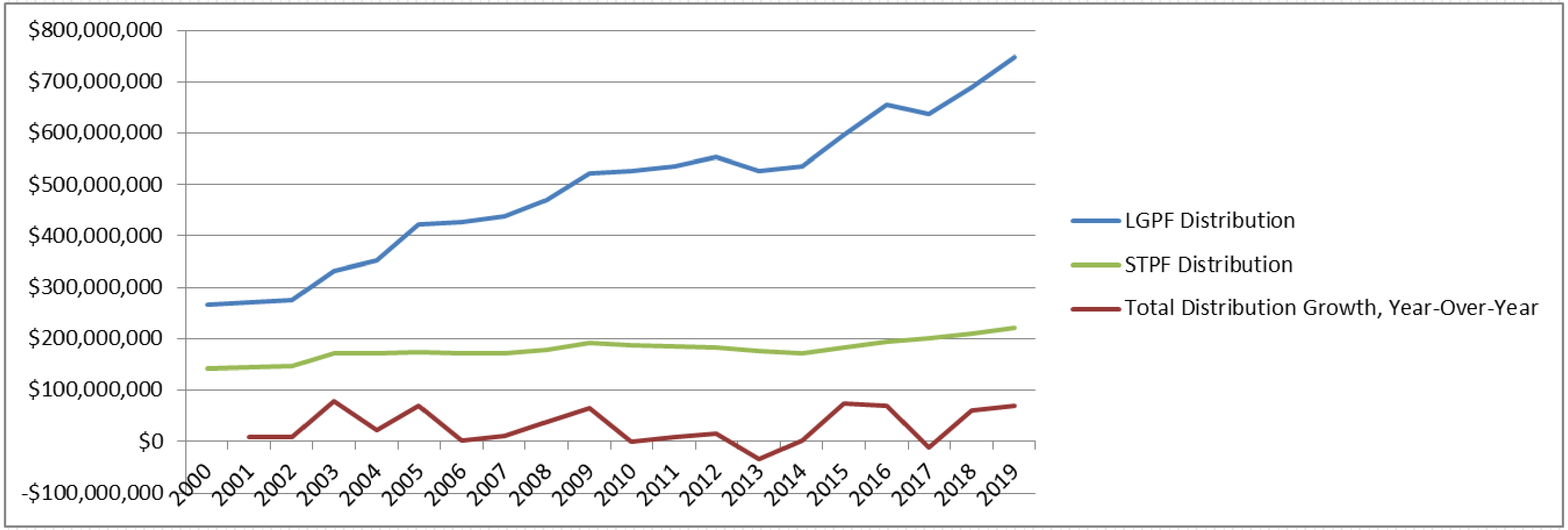
STPF:
2018: **$210.4M**
2019: **$220.6M**
+$10.2M

Tobacco:
2018: **$35.7M**
2019: **$37.0M**
+1.3M

Water:
2018: **$4M**
2019: **$4M**

Impact Growth – Part 1

- LGPF & STPF distribution growth



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Impact Growth – Part 2

- LGPF & STPF distribution growth

Fiscal Year	LGPF Distribution	LGPF Distribution Growth, Year-Over-Year	STPF Distribution	STPF Distribution Growth, Year-Over-Year	Total Distribution Growth, Year-Over-Year
2000	$265,733,808		$141,813,994		
2001	$271,048,484	$5,314,676	$144,650,280	$2,836,286	8,150,962
2002	$276,469,453	$5,420,969	$147,543,286	$2,893,006	8,313,975
2003	$332,784,132	$56,314,679	$170,954,868	$23,411,582	79,726,261
2004	$352,525,968	$19,741,836	$172,434,107	$1,479,239	21,221,075
2005	$422,198,985	$69,673,017	$173,249,126	$815,019	70,488,036
2006	$426,443,668	$4,244,683	$171,797,507	-$1,451,619	2,793,064
2007	$438,945,139	$12,501,471	$170,972,506	-$825,001	11,676,470
2008	$469,998,264	$31,053,125	$177,171,816	$6,199,310	37,252,435
2009	$521,520,996	$51,522,732	$191,292,480	$14,120,664	65,643,396
2010	$525,512,604	$3,991,608	$187,072,285	-$4,220,195	-228,587
2011	$535,903,003	$10,390,399	$184,570,731	-$2,501,554	7,888,845
2012	$553,418,314	$17,515,311	$183,423,501	-$1,147,230	16,368,081
2013	$526,846,546	-$26,571,768	$176,172,687	-$7,250,814	-33,822,582
2014	$535,156,608	$8,310,062	$170,472,647	-$5,700,040	2,610,022
2015	$595,993,902	$60,837,294	$182,722,980	$12,250,333	73,087,627
2016	$655,785,169	$59,791,267	$193,509,941	$10,786,961	70,578,228
2017	$638,074,458	-$17,710,711	$200,442,327	$6,932,386	-10,778,325
2018	$689,190,724	$51,116,266	$210,377,644	$9,935,317	61,051,583
2019	$747,542,992	$58,352,268	$220,621,474	$10,243,830	68,596,098

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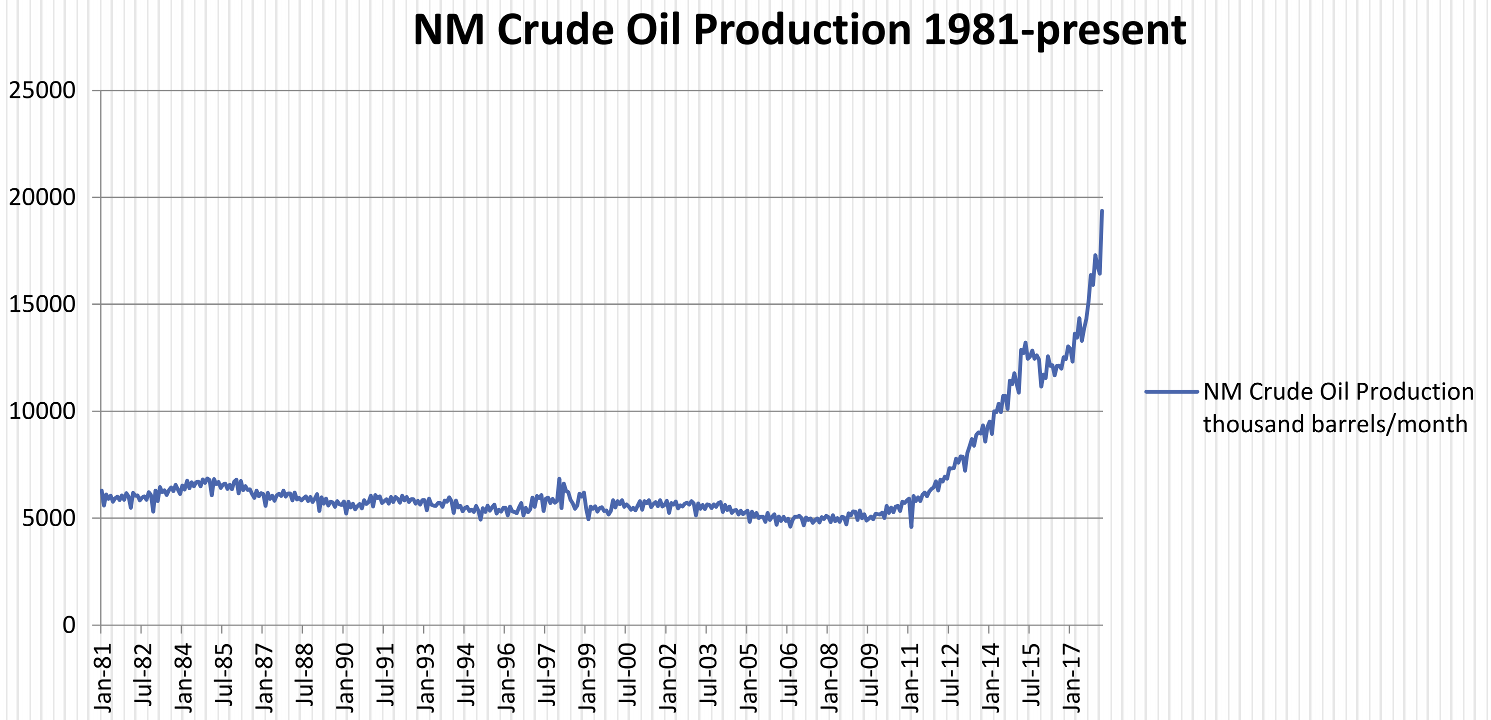
Production boom



Source: US Energy Information Administration

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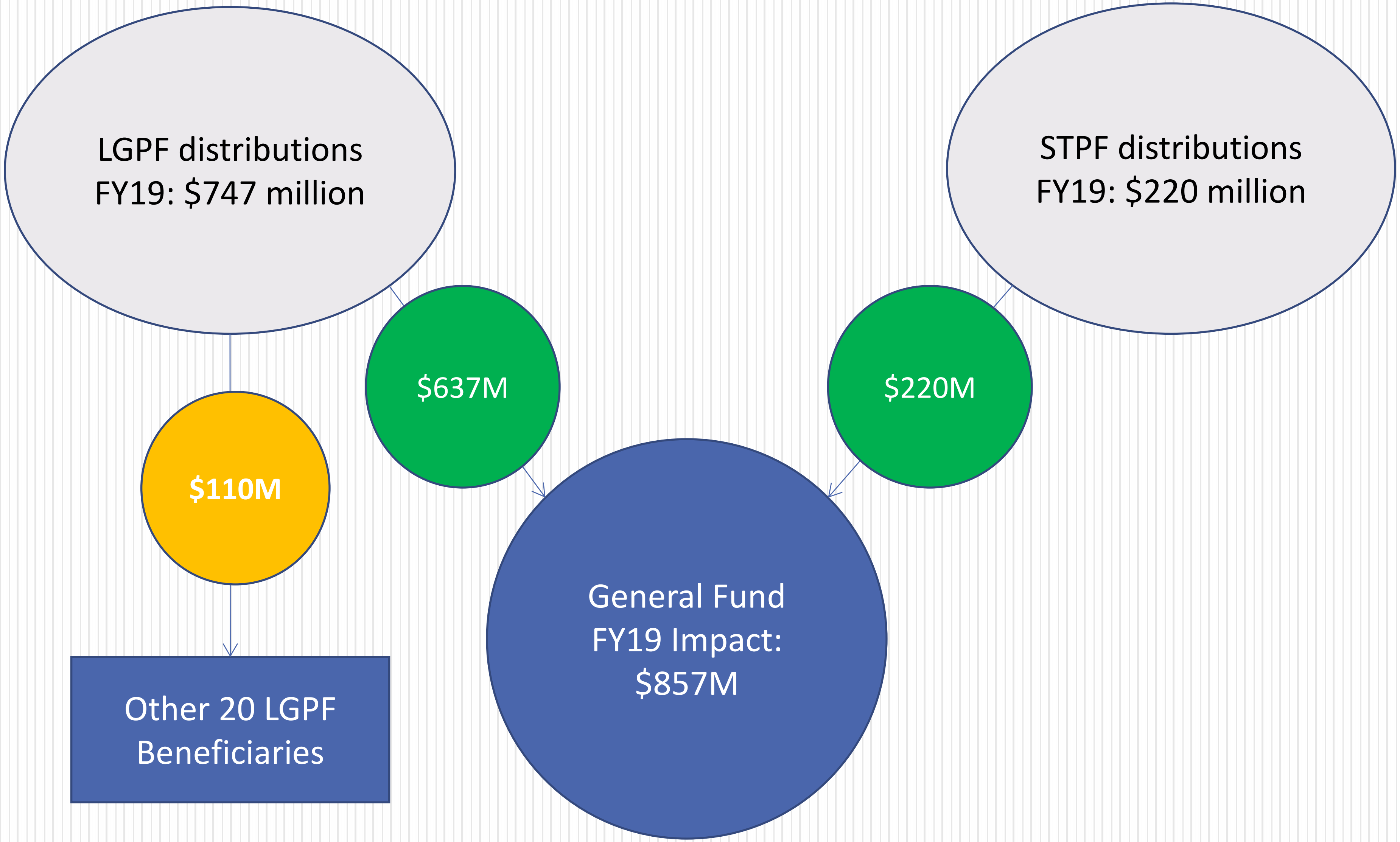
Permanent Fund Distributions

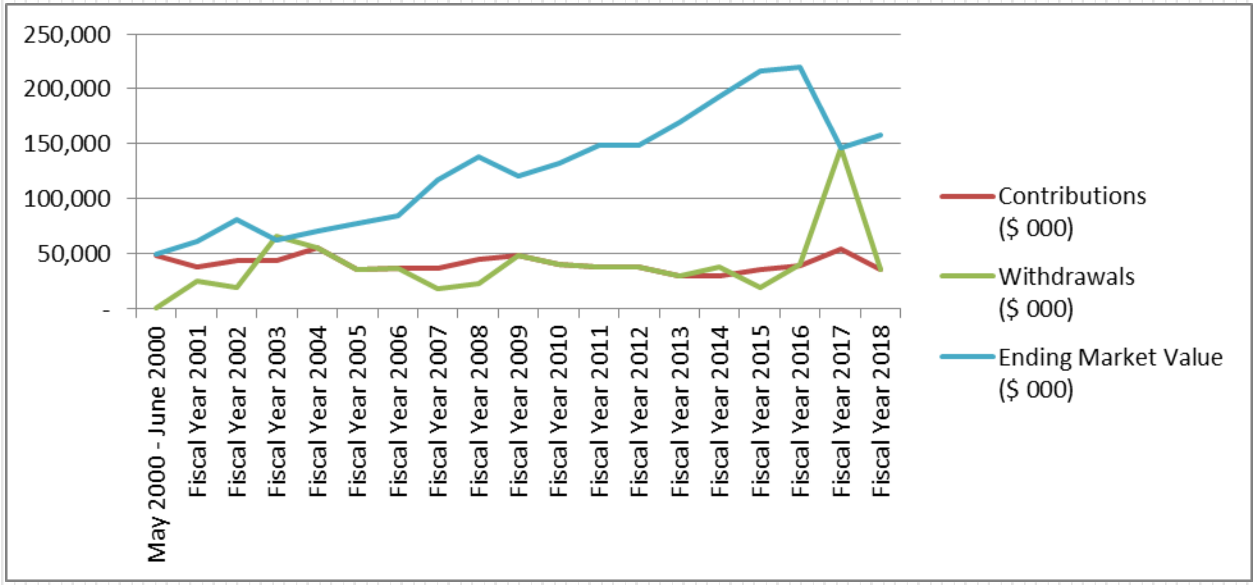


IPOC follow up

- **Questions:**
  - New Mexico investments (Sen. Sapien)
  - Legislation for job-creating investments (Rep. Larranaga)
  - Effect of inflation/interest rates on fund (Sen. Candelaria)
  - Replacing Tobacco Permanent Fund dollars (Rep. Trujillo)

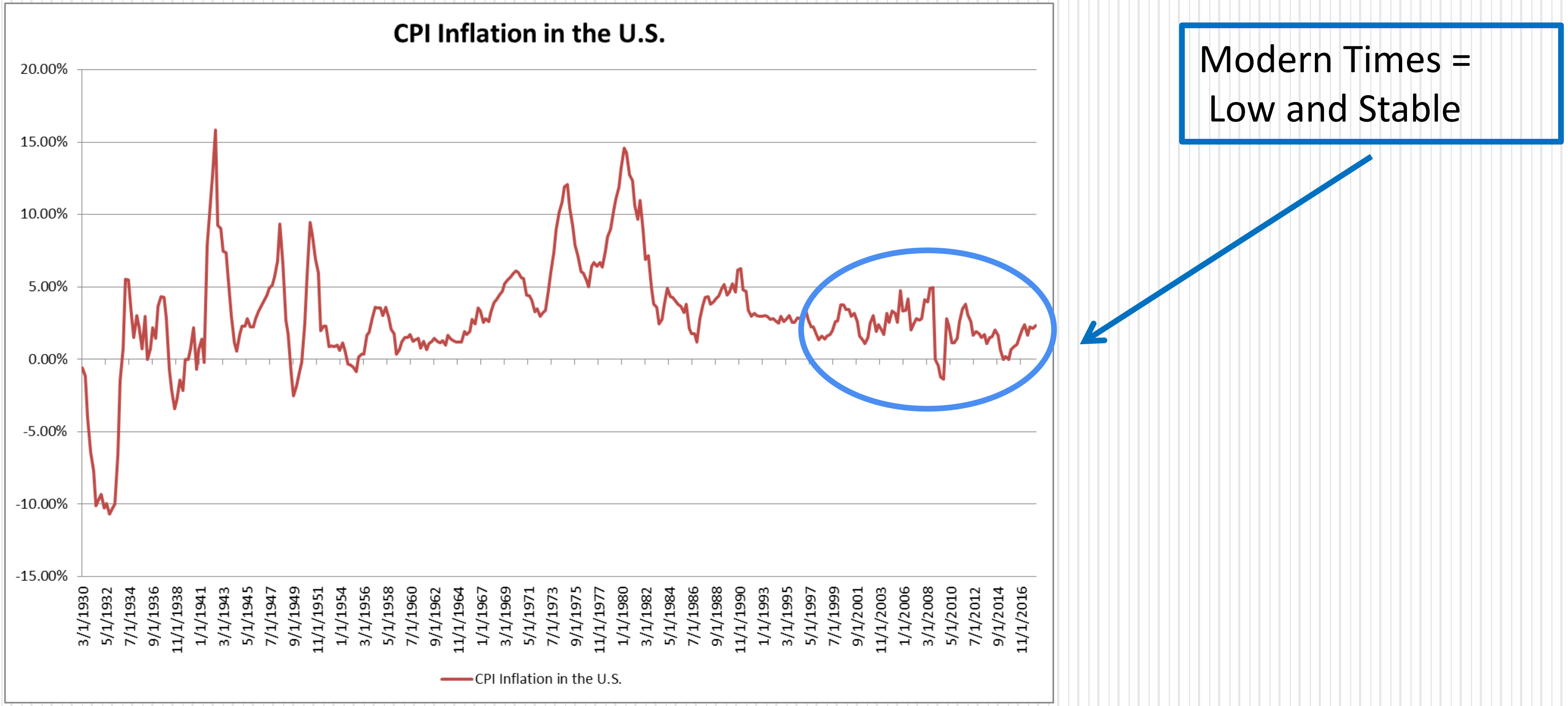
Tobacco Settlement Fund

- Established in statute in 1999, the fund originally was seen as a future endowment, where of ~$40mm in annual payments to NM, half would be spent, half saved to the permanent fund
- Cash in, since inception: $769.1 million
- Cash out, since inception: **$748.5 million (97.3%)**
- Current value: ~$158.0 million



Inflation Rates Over Time

- Over the long run, inflation has averaged around 3% per annum. Volatility of inflation rates has been high, however, with lows averaging about -10% (deflation) to approaching 15% annual rates.
- The past 25 years have been tame by comparison, with inflation generally in a downtrend. Average inflation over the last 25 years has been about 2.25% and has held under 5% at peaks.



Why Has Inflation Been Low and Stable For So Long?

- The question above has been debated widely and for quite some time. In the last 25 years, we have had a quite varied economy.; we've seen:
  - two big cycles in unemployment;
  - a soaring, then crashing, soaring then crashing, and again soaring stock market;
  - a housing boom and massive housing recession;
  - short-term rates above 5% as well as near zero;
  - plus, some massive Fed experiments with unconventional monetary policy (i.e., asset purchases or quantitative easing, QE).
- None of this volatility has been able to move inflation out of its tame, roughly 0-5% range.
- Answers to the question are widely varied and no one is sure, but answers mainly revolve around a vague acknowledgment of basic economics: price rises occur when spending demand exceeds the supply of goods and services. Structural changes in the information-age vastly changed how spending demand is created and how goods and services are supplied, causing a "great moderation" in inflation patterns. Not particularly satisfying as an answer, though the myriad of offshoot theories contain some interesting and creative thinking.

What Should We Expect and What Are We Doing in the Investment Portfolios?

- Few forecasters see the CPI sustainably exceeding the 5% “lid” that has been on inflation for almost three decades, nor plunging into deflation (below 0% inflation) in the near-to-medium-term (3-10 years). Those who must make longer-term forecasts (actuaries, pension managers, endowment/sovereign wealth managers) assume inflation will have a lower average than in the past for decades to come. There are theorists on both sides of the distribution, however:
  - One side acknowledges the very large debt load among governments and consumers as well as the trillions in unfunded liabilities such as public retirement systems, Medicare, Medicaid, Social Security and other promises of future payments/benefits. They theorize the whole thing could collapse and cause a massive deflation (below 0% inflation rates).
  - The other end of the spectrum acknowledges the massive amount of money pumped into the global financial system since the 2008-2009 crisis as fuel for another 1970s-style surge in inflation rates.
- The Council expects roughly 2.25% inflation in our 7-10 year outlook; general investment consultant RVK uses 2.00% average annual inflation in developing their long term investment return assumptions; and the Council uses 2.50% annual inflation in our very long term (50 year) Intergenerational Equity modeling of the LGPF and the STPF permanent funds.
- In the investment portfolios, the allocation to inflation-related assets is significantly larger than it was 10 years ago—though not particularly for inflation-concern reasons (“inflation concern” might be reason #3 or #4 in the list of reasons for the Council’s exposure to these asset types). On a targeted basis, Real Estate investments have moved from 3% to 12% and Real Asset/Real Return investments have gone from 0% to 12%. The Council has not moved into the “hard-core” inflation-related assets such as commodities, precious metals or long-dated “TIPS” bonds.

What Is “Liquidity”?

Portfolio “liquidity” can mean several things

- Portfolio liquidity can mean several things. We will discuss four types of portfolio liquidity, and focus on the last of the four:

- **Asset Liquidity** – How easily (or not) an asset can be sold for cash.

- **“Natural” Liquidity** – Refers to the natural cash flows in a portfolio: cash income, return of capital, contributions, distributions, fundings, and so forth.

- **“Normal” Liquidity** – Refers to liquidity available in “normal” market environments and conditions. The combination of Asset Liquidity and Natural Liquidity.

- **“Crisis” Liquidity** – In serious market downturns, the liquidity picture changes – often drastically.

What Is "Liquidity"?

Asset Liquidity

Asset Liquidity – Our ability to sell for cash. General consultant RVK maintains estimates of relative liquidity for the asset types we own (higher numbers mean greater asset liquidity). Below is a table for Land Grant Permanent Fund asset liquidity. The Severance Tax Permanent Fund has a similar asset allocation and therefore a similar liquidity score.

Asset Liquidity, Land Grant Permanent Fund

	Weight			RVK Liquidity Score		
Land Grant Permanent Fund			100%			57
Domestic Equity		20%			95	
Int'l Equity		20%			90	
Fixed Income		24%			65	
Core	42%			85		
Non-Core	58%			50		
Private Equity		12%			5	
Real Estate		12%			15	
Core	50%			25		
Non-Core	50%			5		
Real Return		12%			16	
Financial Assets	20%			60		
Private Assets	80%			5		

What Is “Liquidity”?

“Natural” Liquidity

“Natural” Liquidity – This type of liquidity measures the major cash flows of the portfolio. And can indicate how much Asset Liquidity a portfolio may need to hold.

Land Grant Permanent Fund "Natural" Liquidity Estimate			
CY 2017 Natural Liquidity (Deficit)/Surplus Estimate ($ Mil)			**$85**
Inflows		$1,415	
Cash Income	$375		
Land Office Contribution	$490		
Non-Income Inv Distributions	$550		
Outflows		-$1,330	
Beneficiary Distributions	-$665		
Investment Capital Calls	-$625		
Cash Investment Mngt Fees	-$40		

Severance Tax Permanent Fund "Natural" Liquidity Estimate			
CY 2017 Natural Liquidity (Deficit)/Surplus Estimate ($ Mil)			**-$142**
Inflows		$286	
Cash Income	$111		
State Contribution	$0		
Non-Income Inv Distributions	$175		
Outflows		-$428	
State Distribution	-$205		
Investment Capital Calls	-$210		
Cash Investment Mngt Fees	-$13		

What Is "Liquidity"?

"Natural" Liquidity

"Normal" Liquidity – Normal liquidity is the combination of Asset Liquidity and Natural Liquidity during "normal" markets. Considering the previous two slides:

- The LGPF holds 64% of assets in moderately liquid to very liquid investments (those with RVK liquidity scores of 50 or higher) against a cash liquidity surplus of $142 million.
- The STPF is not so well-off, holding about $22 in liquid assets for every $1 of cash liquidity need.

A general conclusion that can be reached through this analysis is that the LGPF likely holds far more in liquid assets than is necessary to ensure funding needs are met in normal markets, while the STPF is likely nearing its liquidity constraints.

What Is "Liquidity"?

"Crisis" Liquidity

"Crisis" Liquidity – In market downturns -- from garden-variety bear markets to full blown crises such as the Great Financial Crisis in 2008-2009 – portfolio liquidity demands typically jump:

- *The Asset Liquidity of our investments becomes significantly impaired*:
  - assets can take longer to sell; bid/ask spreads widen, making them more expensive to sell; markets can become less deep, making it harder to sell larger quantities of assets for cash.
  - declining prices of our most liquid risk assets (stocks) make these investments more attractive to hold/less attractive to sell. In "normal" markets, we feel little hesitancy to sell liquid risk assets (when necessary) to meet portfolio cash requirements. But in down markets, selling stocks that have very good future return potential at steep losses can become unpalatable. This significantly reduces the Asset Liquidity of the portfolio.

- *Natural Liquidity begins to dry up:*
  - dividends can be reduced or halted by companies, lowering income from the stock portfolio;
  - riskier debt securities in the fixed income portfolio can default reducing aggregate cash payments;
  - interest rates normally fall during these periods and debt securities can be refinanced at lower rates or mature and be replaced with lower-yielding securities; and
  - rents at properties in the real estate portfolio can fall, reducing cash inflows.

What Is “Liquidity”?

“Crisis” Liquidity

Also:

- *Capital calls in the private asset portfolios can shift toward outflows of cash* – Lower prices in the markets may induce the private asset managers, to the degree that they are still in their investment periods and have uncalled capital to access, to call capital to take advantage of better-priced deals. At the same time, they may be reluctant to sell investments which may have otherwise been harvested and returned cash to us.

- *Portfolio rebalancing takes on a whole new meaning* -- In times of stress, the prices of the most liquid but riskier assets (U.S. equity, international equity, MLPs, REITs, high yield bonds) will fall in value significantly further than our less risky assets (Treasuries, short-term bonds, investment-grade bonds) as well as our private market assets (private equity, core real estate, real assets). This can cause the asset allocation of the portfolio to become unbalanced relative to long term policy allocations and create a need for cash to invest in these liquid risk assets to bring their portfolio weight back toward long term targets.

- *Opportunistic investing needs* – Broadly declining asset prices can create pockets of market dislocation, yielding opportunities to buy assets at “fire sale” prices. This can happen among even the “safest” of assets. Having the liquidity available to capitalize on these assets can bring very high future rates of return.

The Role of Fixed Income Investments

Income, Downside Protection, Liquidity

Fixed income investments reside in modern 'prudent investor' portfolios primarily for the following three reasons:

- *Income Production* -- The income component of the total rate of return from fixed income investments is by far the predominant source of total return, and therefore these are often efficient assets to hold in terms of generating income.

- *"Protection" in Risk Market Selloffs* -- In risk market selloffs, particularly in bear markets (20%-35% drops in the equity markets) and especially in crisis markets (>35% equity market selloffs), interest rates very often fall, giving fixed income investments the feature of price gains in addition to interest income. These gains can help offset losses on equities and other risk assets.

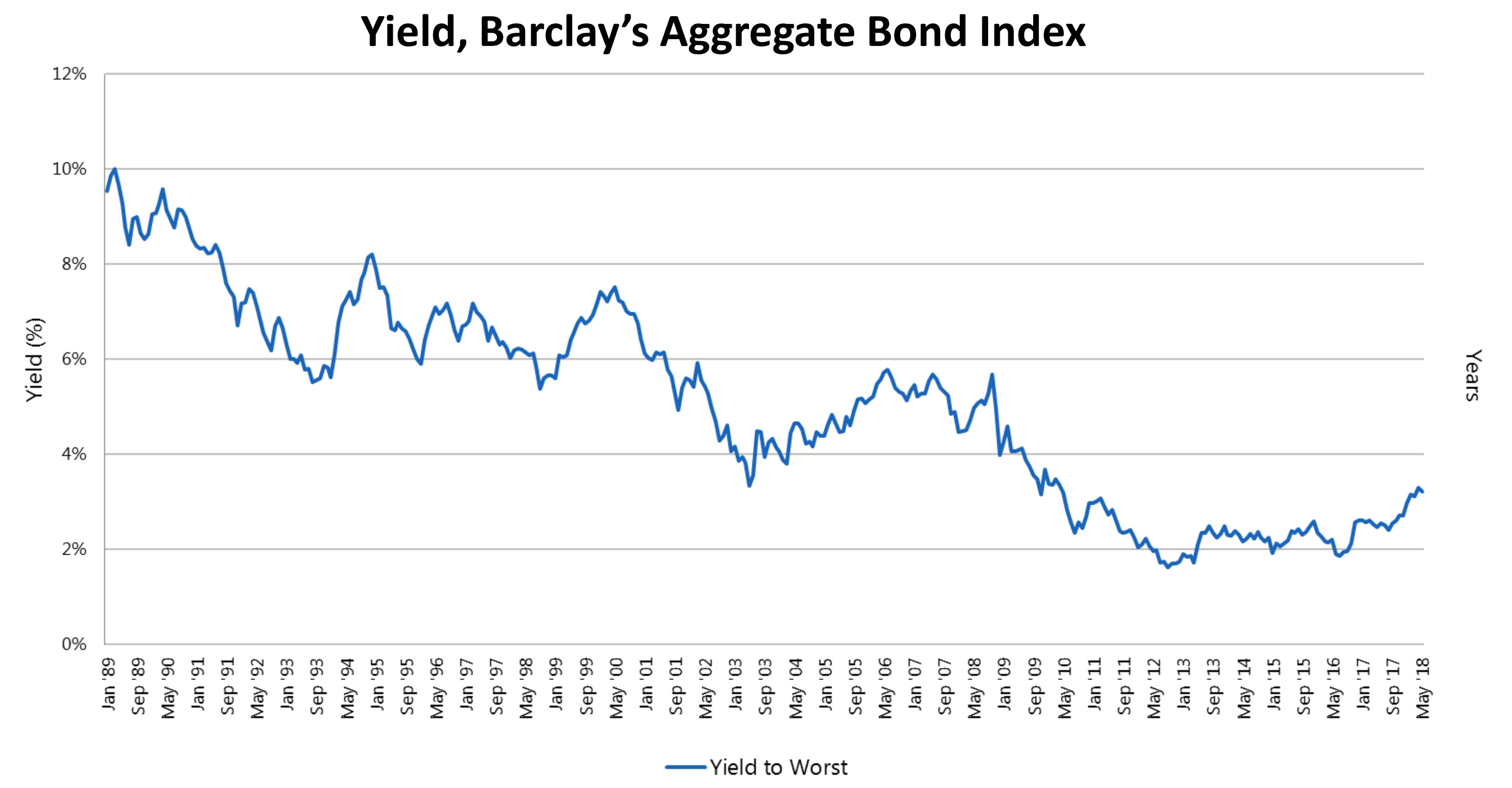
- *Liquidity Provision* – In normally-functioning financial markets, fixed income investments—in particular Treasury securities—are among the most liquid investments in the portfolio. And as we've seen from the previous page, during periods of risk market selloff, they can be the only practical source of liquidity.

Unfortunately today, fixed income allocations are doing the first two of these jobs rather poorly, and this has consequences in how much fixed income a portfolio should hold.

The Role of Fixed Income Investments

Income Production

First among reasons for fixed income allocations in modern ‘prudent investor’ portfolios is income production. The chart below shows the yield-to-maturity (yield to “worst”) of the bellweather fixed income benchmark, the Barclay’s Aggregate Index, over the last three decades. As can be seen, a portfolio of core bonds is currently providing a very low amount of income per dollar invested, relative to history.



The Role of Fixed Income Investments

"Downside Protection"

The second primary reason for fixed income allocations in modern 'prudent expert' portfolios is fixed income's traditional ability to generate capital gains against value declines in risk assets in bear or crisis markets. The table below shows the increasing inability of fixed income portfolios to generate this traditional benefit, as interest rates have fallen to near 80-year lows.

Stocks, Bonds and Interest Rates, "Crisis" Markets						
Bear Market		Ten Year Treasury Int Rate			Annualized Returns	
Begin	End	Begin	End	Chg	Stocks	Bonds
Mar 2000	Oct 2002	6.36%	3.57%	-279	-23.70%	9.00%
Oct 2007	Mar 2009	4.68%	2.53%	-215	-43.20%	3.00%
Modeled		2.75%	1.50%	-125	-35.00%	2.50%

The Role of Fixed Income Investments

Review

In Review:

- *Income Production* – Currently limited. Yields are at low levels not seen since the late 1940s.
- *Protection in Risk Market Selloffs* – Currently less effective than historically. Modeled scenario against an 18-month, 35% selloff in equities, our current allocation to short term, core, and core-plus bonds would produce less than 2% annualized returns.
- *"Crisis" Liquidity* – Our bonds allocation is expected to continue to perform well in terms of providing available liquidity for portfolio needs.

The key, then, is to size the allocation correctly, such that it can adequately provide the benefit of crisis liquidity, but not be so large as to cause the fund to pay (in terms of accepting the low expected rate of return from bonds) for weak income production and poor "offset" protection against risk market selloff.

Meeting the Liquidity Challenge

New Methods

Investors have been attacking the new liquidity issue in a number of ways:

- **Lengthening "Duration"** – Some investors have continued to hold traditional Core Bonds as part of their portfolio in order to provide liquidity and "downside protection" in risk market selloffs. However, many have moved to very long dated bonds in order to try to re-gain some of the positive price performance in risk market selloffs (the longer the maturity of a bond, the more the price moves with changes in interest rates).
- **New Approaches** -- "Crisis Risk Offset" or "Risk Mitigating Strategies" are new approaches which combine long-dated bonds, trend-following trading strategies and hedge fund strategies into an asset group that historically has held up reasonably well during periods of stock market sell offs.
- **Targeted Liquidity** – Other investors have split their fixed income allocation in to two sub-portfolios, one that is more return and income-seeking and the other that is specifically for liquidity purposes in a risk market selloff.

The NMSIC has followed the third method. A robust liquidity study was performed in early 2017 to determine expected liquidity needs in a serious downturn in the markets, and then constructed a targeted portfolio of very high quality, very liquid, shorter-term investments to meet that contingent need.