Modeling Alaska Fiscal Proposals:
Implications of Fiscal Assumptions and Choices Over Time

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About me . . .

- Former Director and Professor of Economics at ISER
- Studied Alaska fiscal issues
- Retired end of June 2016
- Now a “Professor Emeritus”
- All of my work on fiscal issues is voluntary
  - Not being paid by anyone
  - My attempt at public service
  - All opinions are my own

My main goal is to illustrate a way of comparing fiscal proposals

- A wide range of fiscal proposals are under discussion.
- I made a model to project how proposals would affect:
  - state spending
  - state revenues
  - uses of the Permanent Fund
  - balances of the CBRF and the Permanent Fund
  - How the projections change with different assumptions about:
    - oil revenues
    - investment returns
- I'll talk about
  - the model and some projections for several proposals
  - What it means for proposals to be "fiscally sustainable"

I am not advocating for or against any fiscal proposal.

My goal is only to help Alaskans understand the fiscal discussion and to suggest ways of thinking about and comparing different options and proposals.

My focus is on:

Unrestricted General Fund (UGF) revenues and spending
Permanent Fund earnings and draws

- These are what most of the fiscal discussion is about and what we have the most control over.

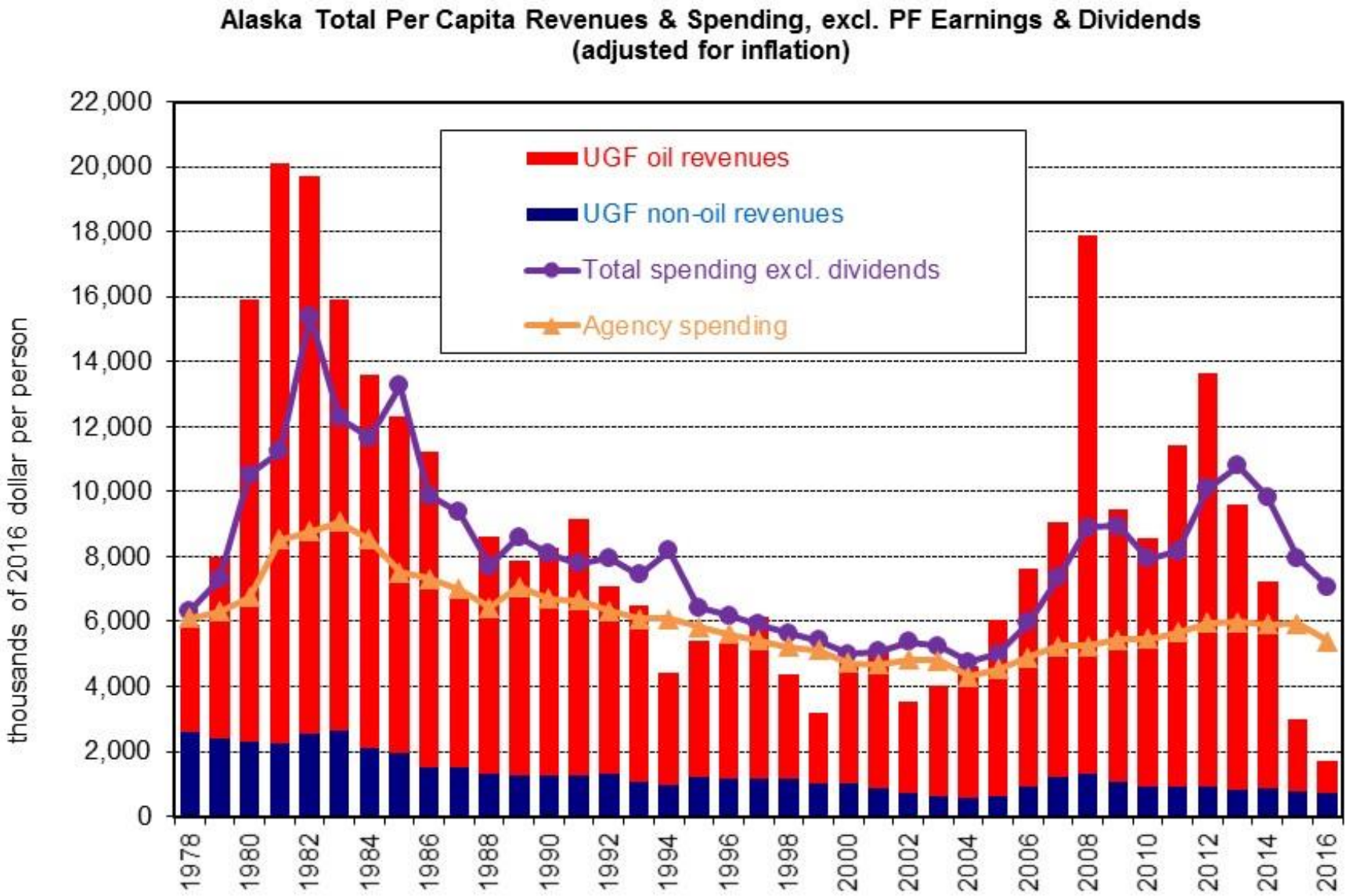
- Alaska also receives and spends two other major kinds of revenues which can mostly be used only for specific purposes:
  - Federal revenues (highway constructions, Medicaid, etc.)
  - Designated General Funds (University tuition, Marine Highway receipts, etc.)

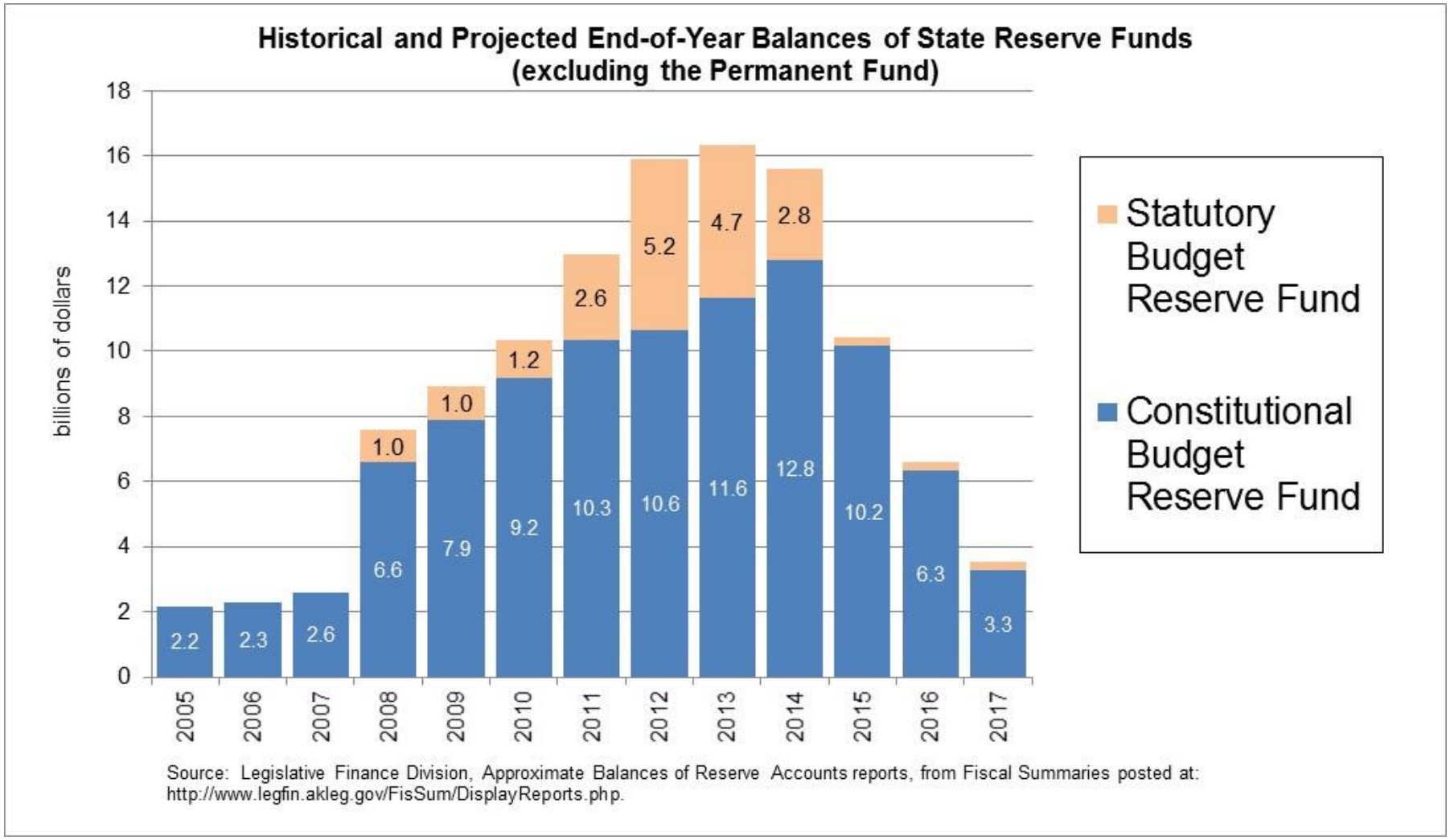
- These other revenues pay for a large part of what state government does and have a big impact on the economy—but they are less relevant to our current fiscal challenge

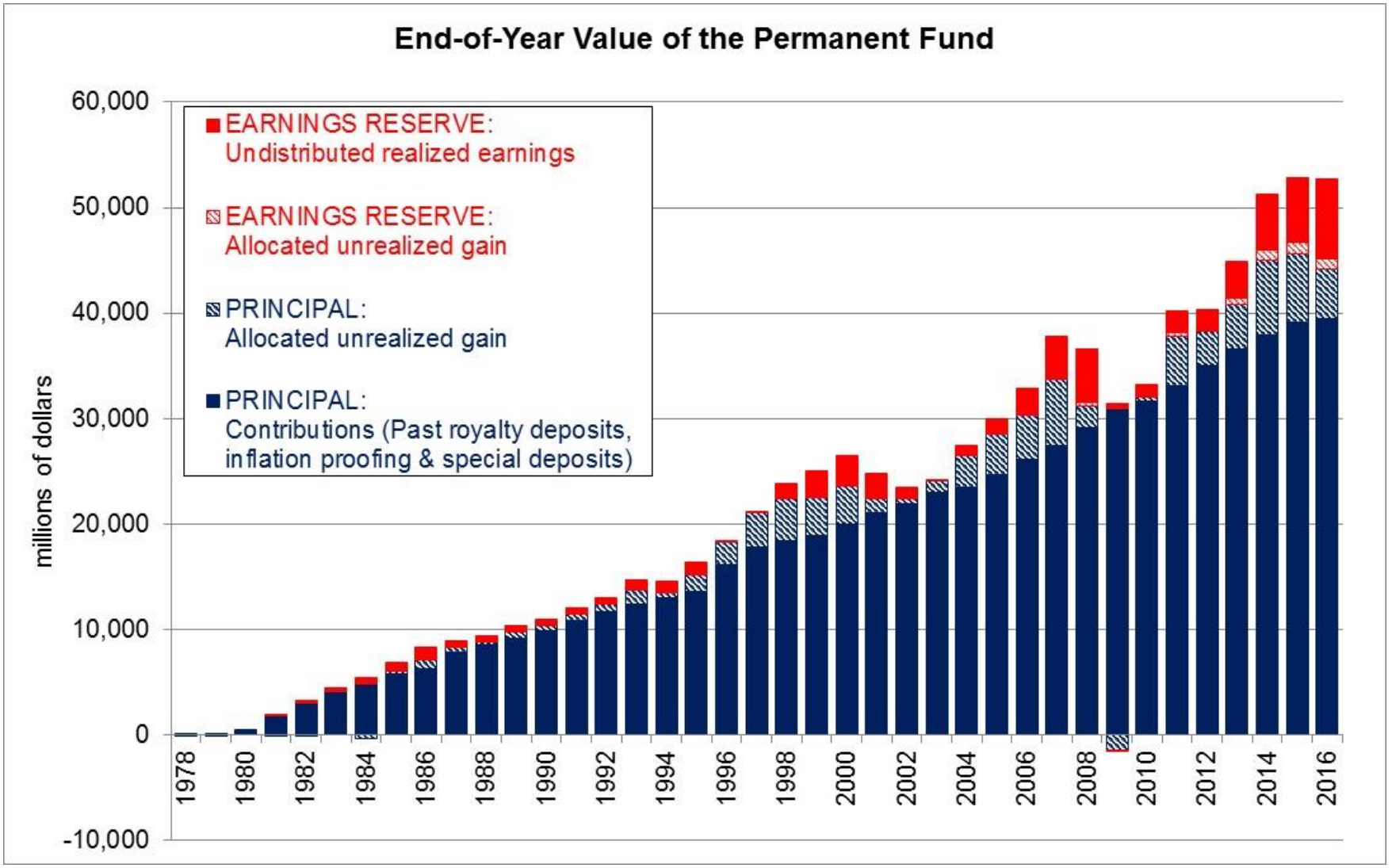
I will *not* talk about oil credits or oil taxes.

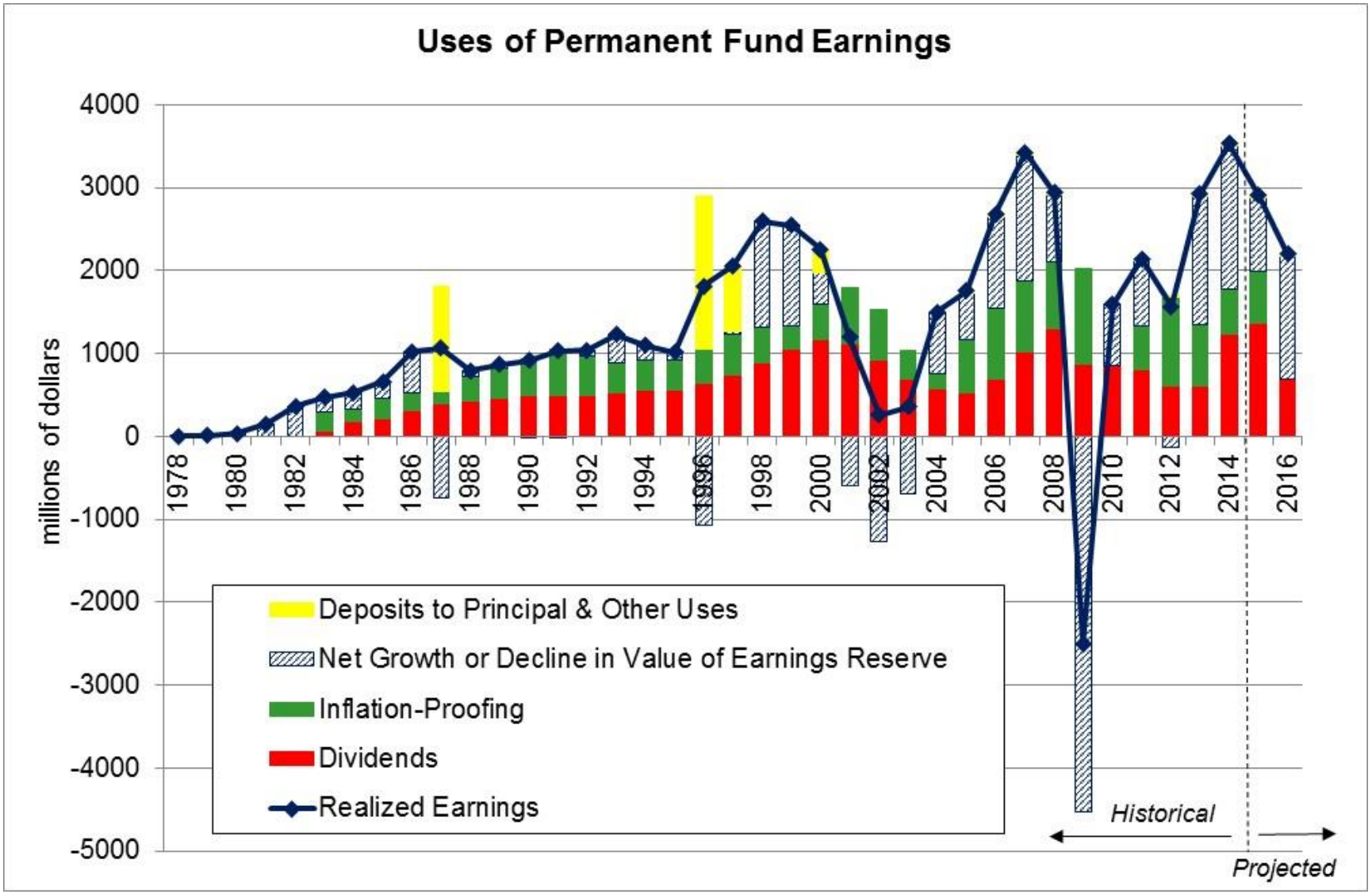
- These are important and contentious issues
- They are complex issues on which I have limited expertise.
- My model treats changes to oil credits as change to spending
- My model treats changes to oil taxes as changes to revenues

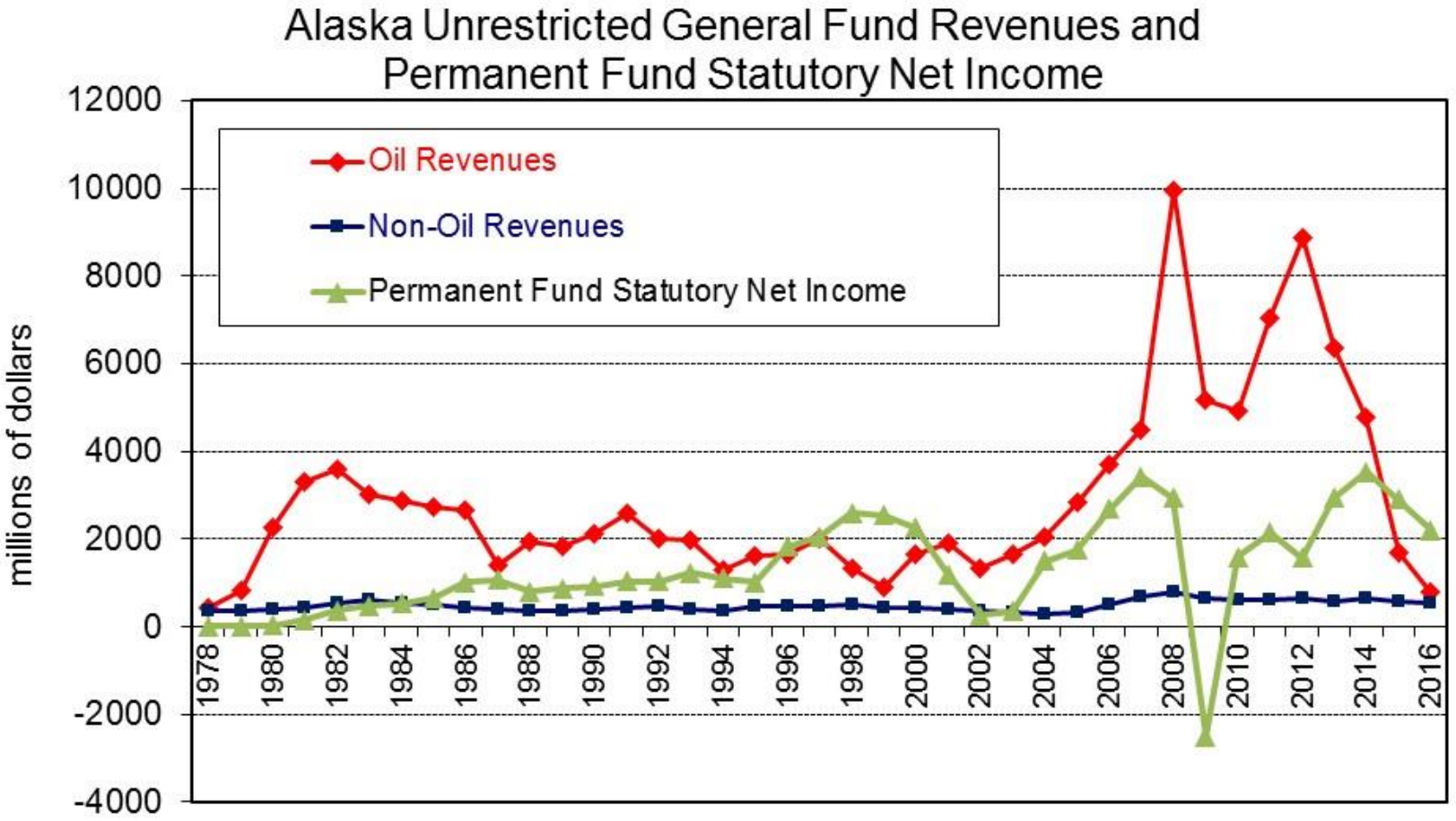
A long-term look at our UGF revenues and spending . . .




Historical and Projected End-of-Year Balances of State Reserve Funds
(excluding the Permanent Fund)
billions of dollars
18
16
14
12
10
8
6
4
2
0
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2.2
2.3
2.6
6.6
1.0
7.9
1.0
9.2
1.2
10.3
2.6
10.6
5.2
11.6
4.7
12.8
2.8
10.2
6.3
3.3
Statutory Budget Reserve Fund
Constitutional Budget Reserve Fund
Source: Legislative Finance Division, Approximate Balances of Reserve Accounts reports, from Fiscal Summaries posted at:
http://www.legfin.akleg.gov/FisSum/DisplayReports.php.


End-of-Year Value of the Permanent Fund
EARNINGS RESERVE:
Undistributed realized earnings
EARNINGS RESERVE:
Allocated unrealized gain
PRINCIPAL:
Allocated unrealized gain
PRINCIPAL:
Contributions (Past royalty deposits, inflation proofing & special deposits)
millions of dollars
60,000
50,000
40,000
30,000
20,000
10,000
0
-10,000
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016


Uses of Permanent Fund Earnings
millions of dollars
4000
3000
2000
1000
0
-1000
-2000
-3000
-4000
-5000
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
Deposits to Principal & Other Uses
Net Growth or Decline in Value of Earnings Reserve
Inflation-Proofing
Dividends
Realized Earnings
Historical
Projected


Alaska Unrestricted General Fund Revenues and Permanent Fund Statutory Net Income
millions of dollars
12000
10000
8000
6000
4000
2000
0
-2000
-4000
Oil Revenues
Non-Oil Revenues
Permanent Fund Statutory Net Income
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016

Key issues in the current fiscal discussion:

Given the drastic decline in our oil revenues, what changes, if any, should we make in how we use PF earnings?

- Should we begin using some of the earnings to help pay for state spending ("general fund draws")?

- What changes, if any, should we make to the dividend program?
  - Keep the formula the same?
  - Change to a Percent of Market Value (POMV) formula?
  - Reduce dividend draws to draw more for the general fund?

I developed an “Alaska fiscal model” to compare fiscal proposals.

- There is nothing magic about my model
- It’s just a big Excel spreadsheet
- It tracks the implications over time of:
  - Assumed state revenues and investment earnings
  - Choices about spending, revenues, and uses of PF earnings
- I set it up so that it’s easy to change assumptions and choices
- The projections should be similar but not necessarily identical to other models (for minor technical reasons)
- The details are complicated so I won’t talk about them
  - (I’m glad to discuss them with anyone who is interested)

My model is only a starting point for thinking about fiscal proposals

- A relatively simple model
- It's main value is that it provides:
  - A way of illustrating how different proposals work
  - A way do quick big-picture comparison of fiscal options
  - A way of exploring the effects of modifying a proposal
- It is not a substitute for detailed modeling by organizations with specific responsibility and expertise:
  - Legislative Finance Division
  - Department of Revenue
  - OMB
  - Alaska Permanent Fund Corporation
  - Proposers of specific legislation

All the model projections are in millions of dollars

300 stands for $300 million or $0.3 billion
1400 stands for $1400 million or $1.4 billion
8100 stands for $8100 million or $8.3 billion

etc.

My model is work in progress

- It’s complex and tricky to make this kind of model
- The projections I show today may have errors!!
- I apologize in advance!!!
- Sometimes you only find errors by showing people what you’ve done

My model's projections, like any fiscal projections, depend critically on assumptions about

- Future oil revenues, which depends on
  - Future oil prices
  - Future oil production

- Future investment income, which depends on
  - Permanent Fund total and statutory rates of return

What should we assume for comparing different fiscal proposals???

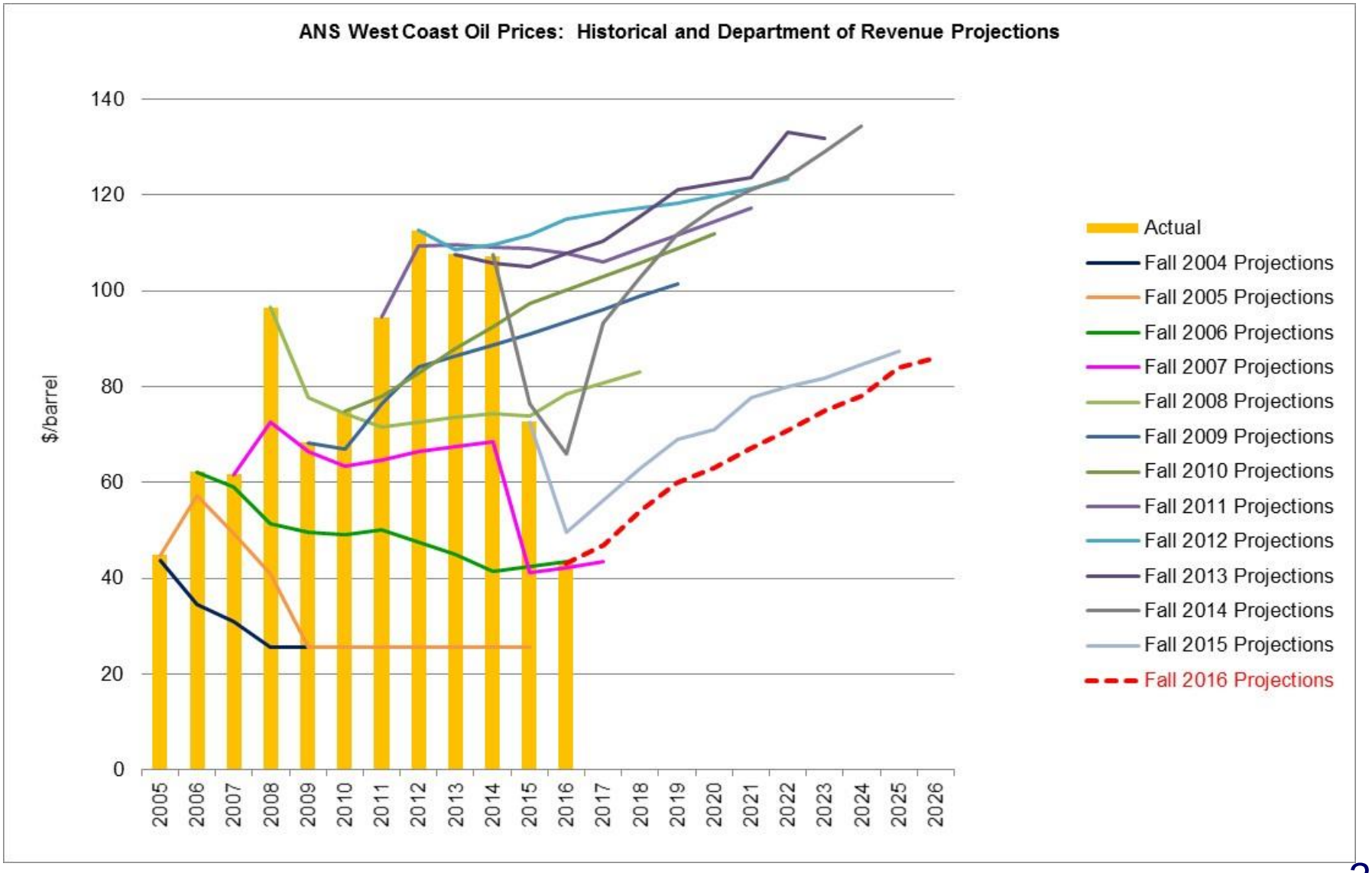
If we make our assumptions optimistic enough,
we don’t have a problem.

If you make our assumptions pessimistic enough,
we have a huge problem.

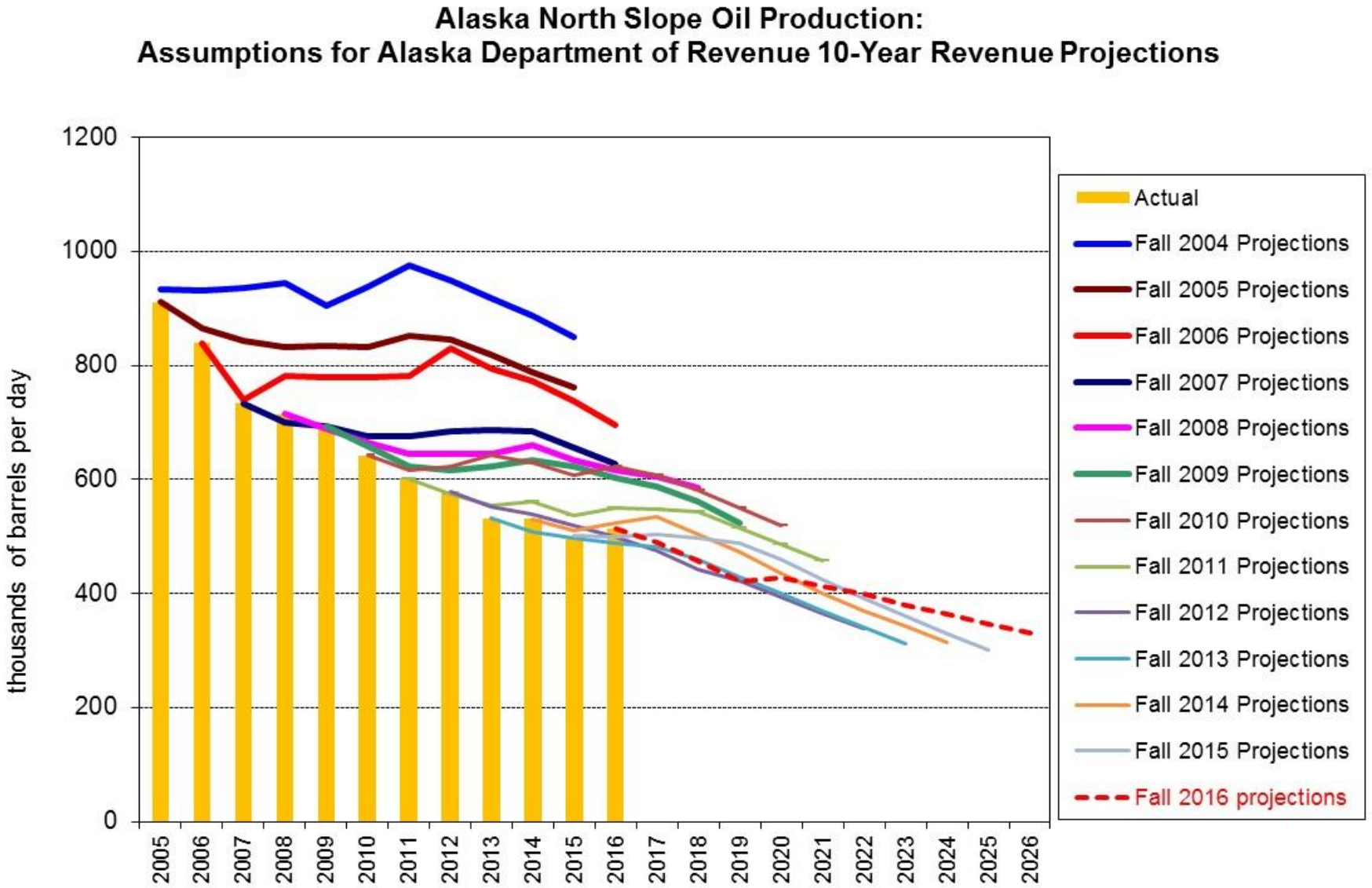
Most analyses of fiscal proposals rely on a single set of assumptions

- Most often they rely on . . .
  - Most recent DOR oil revenue forecasts
  - Permanent Fund consultants' estimates of Permanent Fund rates of return
- But NEITHER of these sets of assumptions are likely to come true!!!

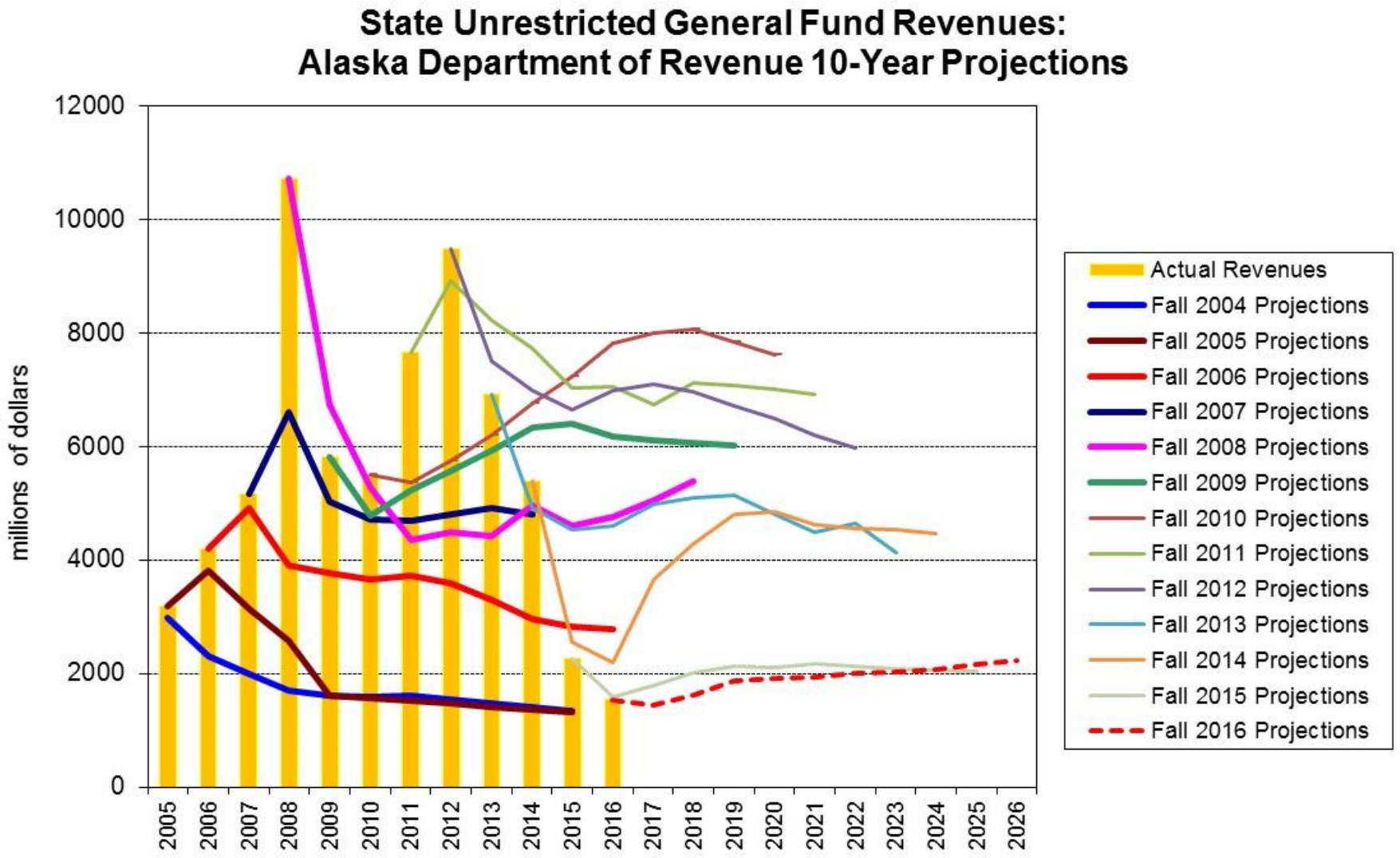
Historically, we have done very poorly at projecting future oil prices, particularly over the longer term . . .



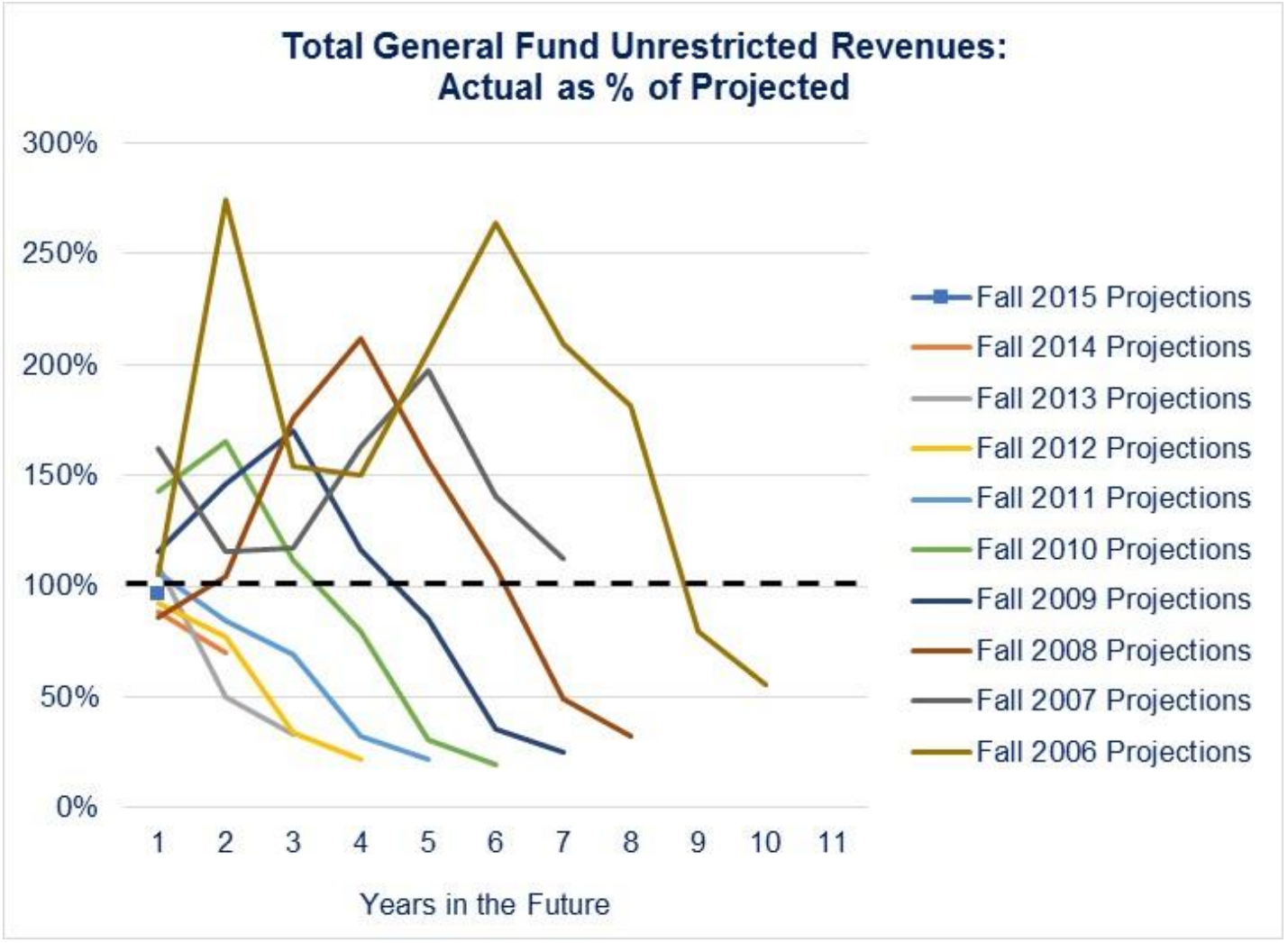
We have also not done very well at projecting North Slope oil production over the longer term . . .



Because we have not done well at projecting oil prices or production, we have not done well at projecting state revenues, particularly over the longer term . . .



Historically, after a few years, our actual revenues have usually been much higher or lower than the revenues which we projected a few years earlier.



In modeling fiscal proposals,
we should look at a range of assumptions about future oil revenues and make sure that we're comfortable with the implications of those assumptions given the likelihood that they might come true.

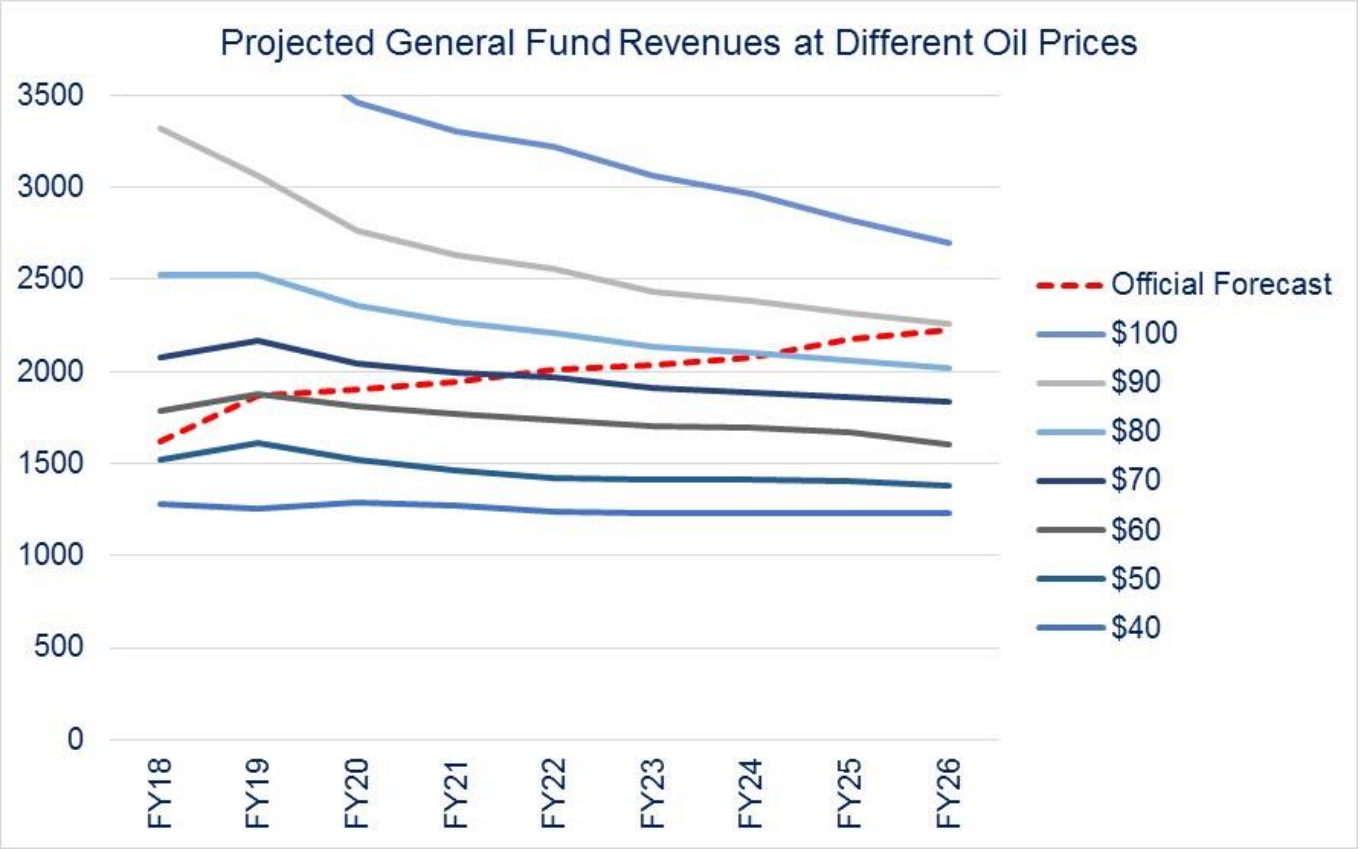
What range of oil revenue assumptions should we be looking at?

- I don't know
- But surely more than just one projection
- We should be discussing this more
- We should be trying to learn about
  - what range of future oil revenues we might face
  - how likely they are

- For today's presentation, I simply show projections based on the most recent DOR Fall 2017 revenue projections, because:
  - I have a limited amount of time
  - I want to focus on the implications of PF rate of return assumptions
  - In general, the higher you assume oil revenues will be, the easier the challenge and the better all proposals work

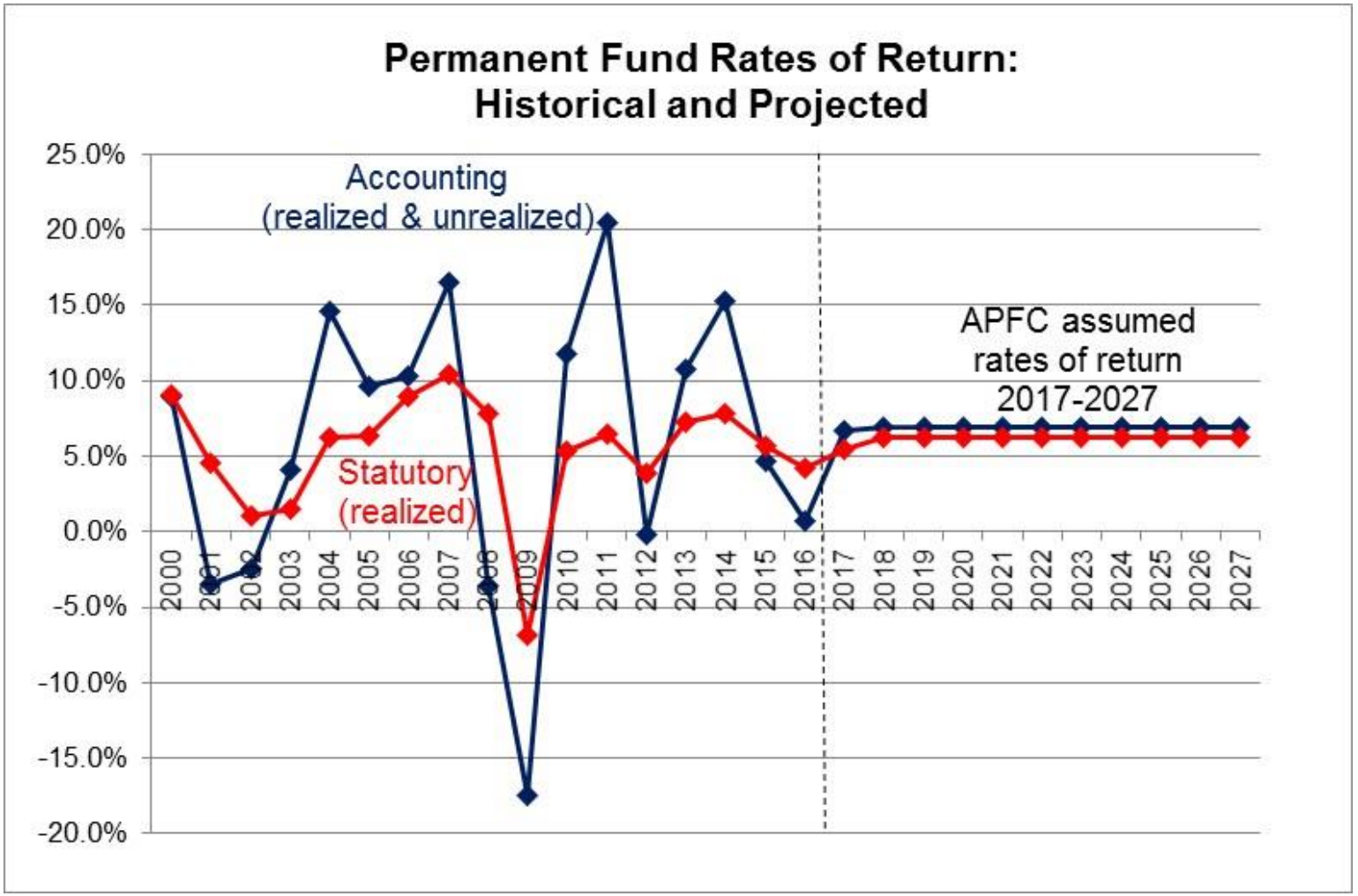
For today's presentation, I only show projections based on the most recent DOR Fall 2017 revenue projections, because:

- I have a limited amount of time
- I want to focus on the implications of PF rate of return assumptions
- If you assume higher oil revenues will be, all proposals work better
- You have to assume really high oil prices to "fix" our fiscal problem



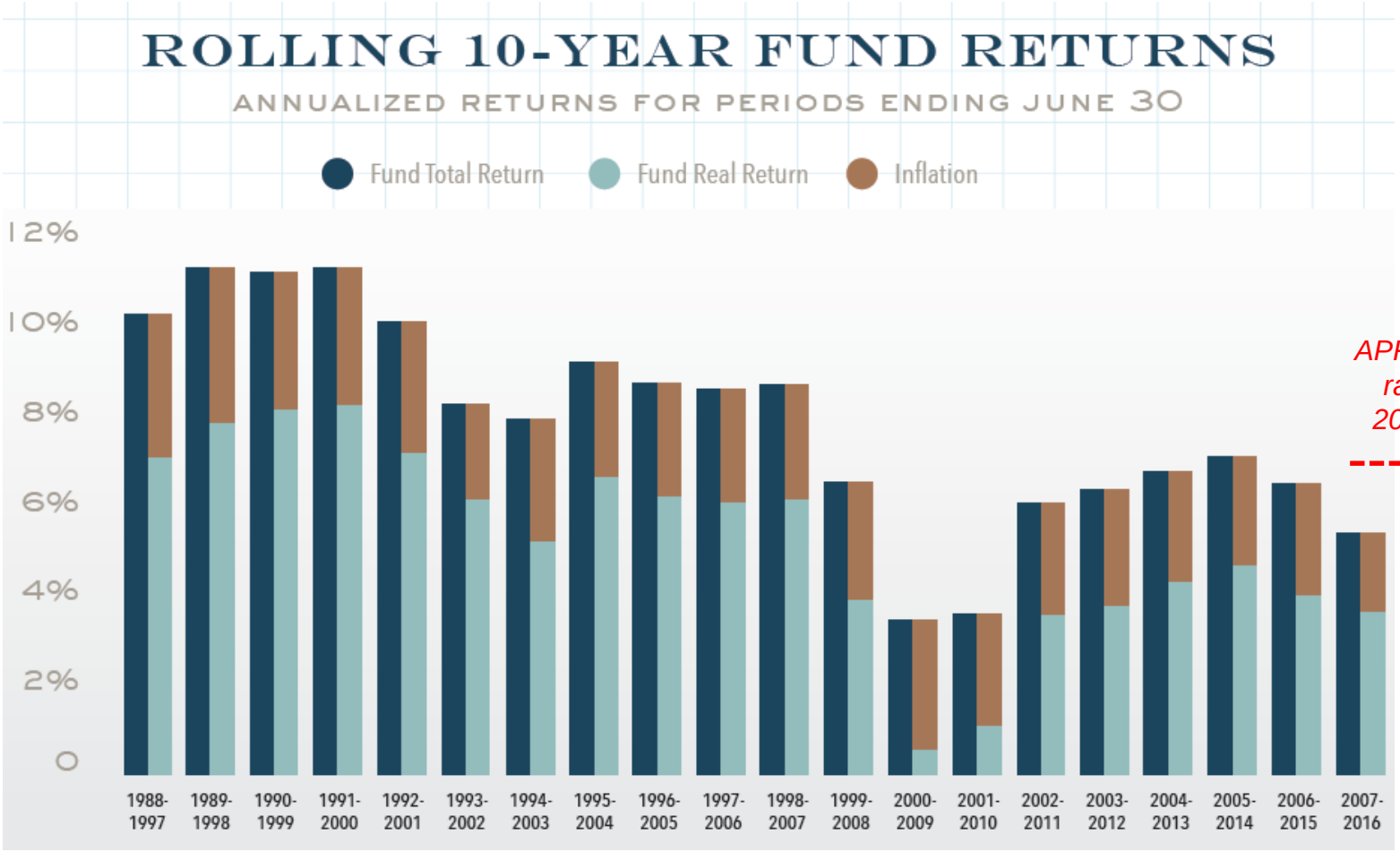
Source: Alaska Department of Revenue

Historically, Permanent Fund rates of return have fluctuated widely. Projections assuming a constant rate of return may be very wrong.



Source: Alaska Permanent Fund Financial History and Projections as of November 30, 2016.
http://www.apfc.org/home/Content/publications/reportArchive.cfm

Historically, Permanent Fund average earnings over longer periods of time have also fluctuated widely. Assumptions about future rates of return won't necessarily come true.

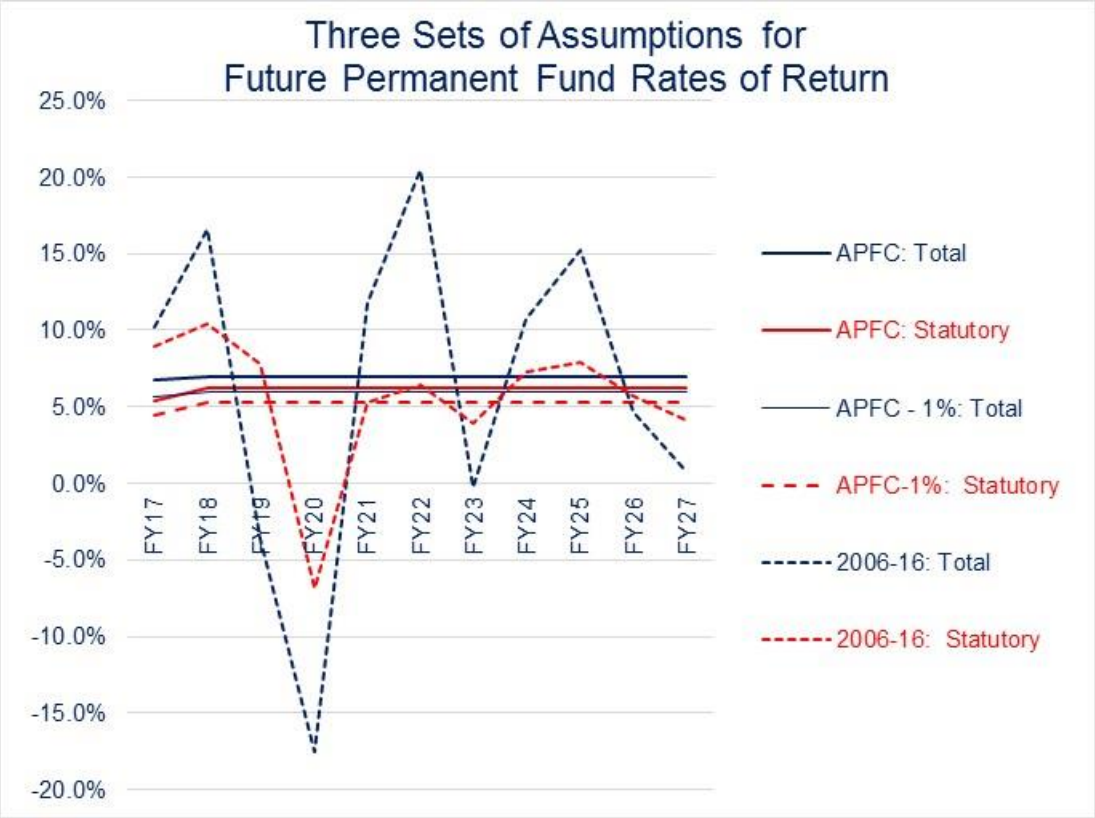


APFC assumed total rate of return for 2018-26 = 6.95%.

Source: Alaska Permanent Fund Corporation, 2016 Annual Report, http://www.apfc.org/home/Content/publications/reportArchive.cfm.

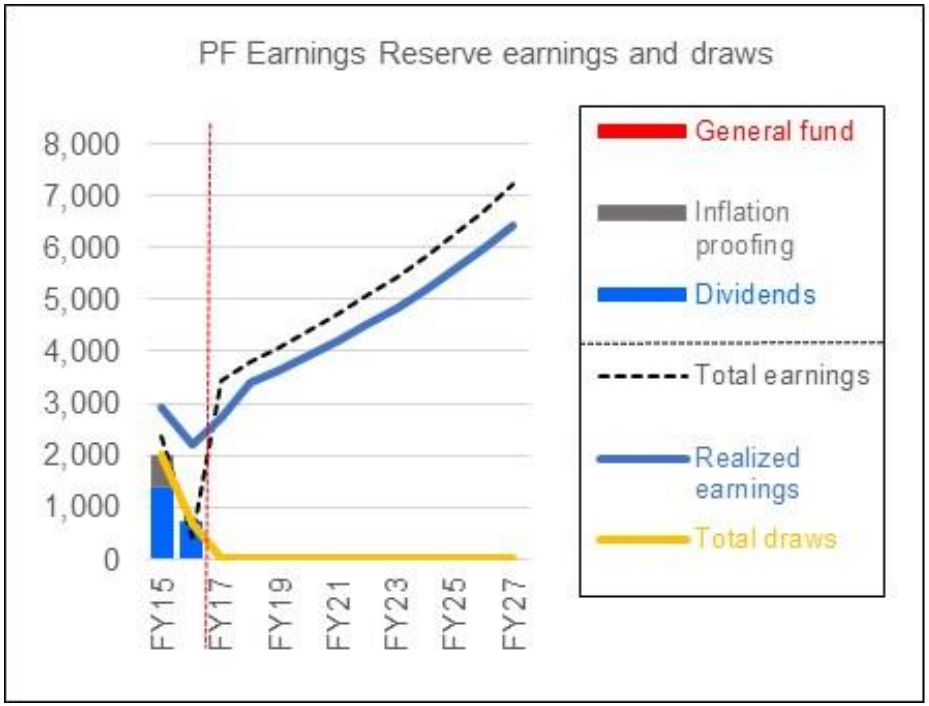
I use three sets of modeling assumptions for future Permanent Fund rates of return

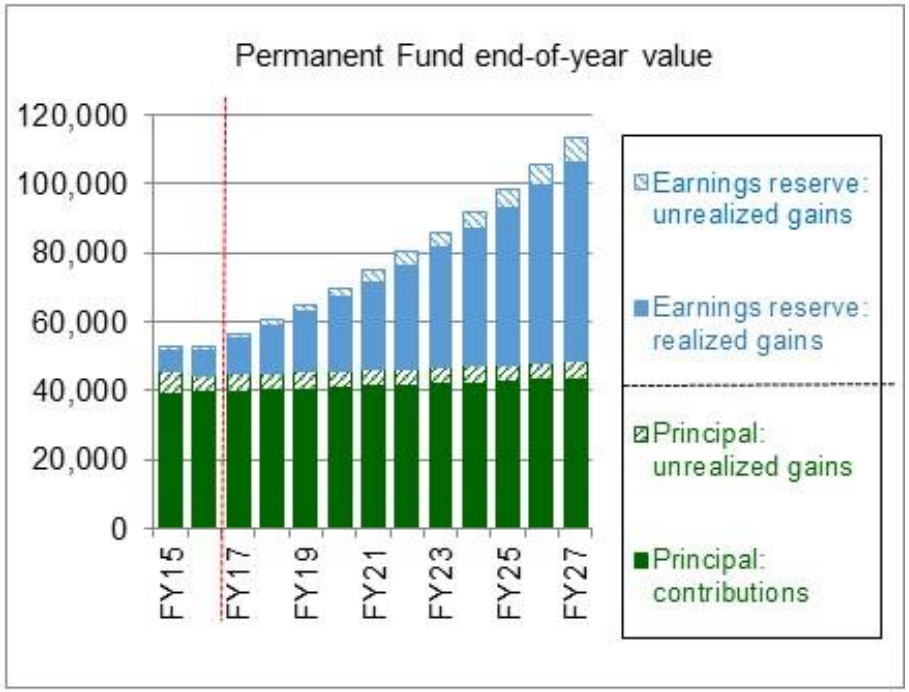
Name	Assumptions
APFC	Alaska Permanent Fund Corporation assumptions (6.95% total, 6.24% statutory)
APFC – 1%	Alaska Permanent Fund Corporation assumptions – 1% (5.95% total, 5.24% statutory)
2006-16	Permanent Fund rates of return for the years 2006-2016



If we don't inflation proof or draw any PF earnings. . .

The PF total value would grow to $113 billion by FY27
The PF earnings reserve would grow to $65 billion by FY27
Annual realized earnings would grow to $6.4 billion in FY27

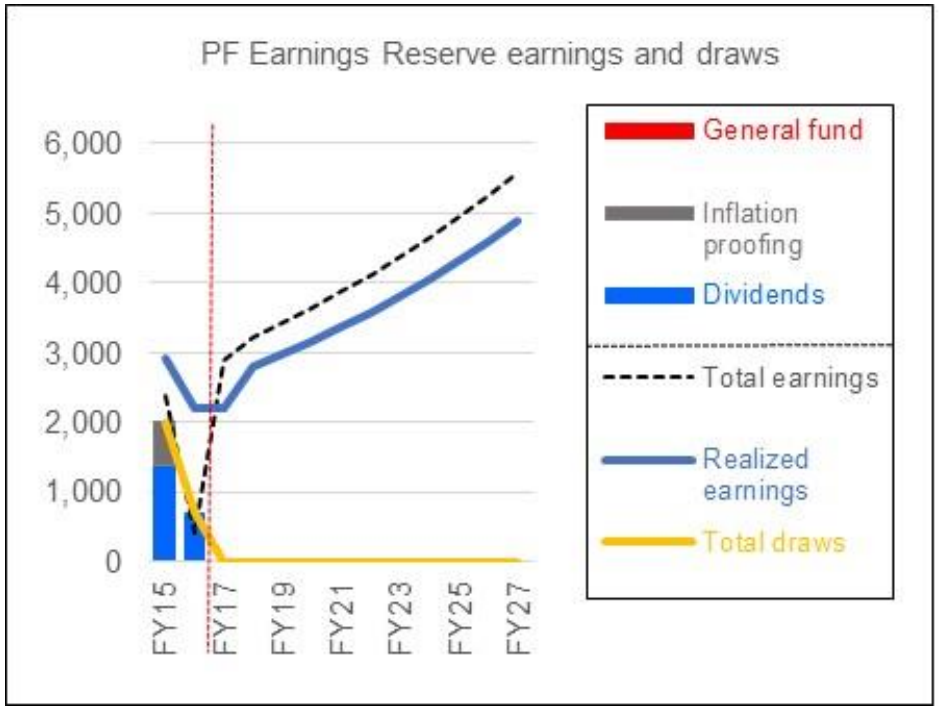


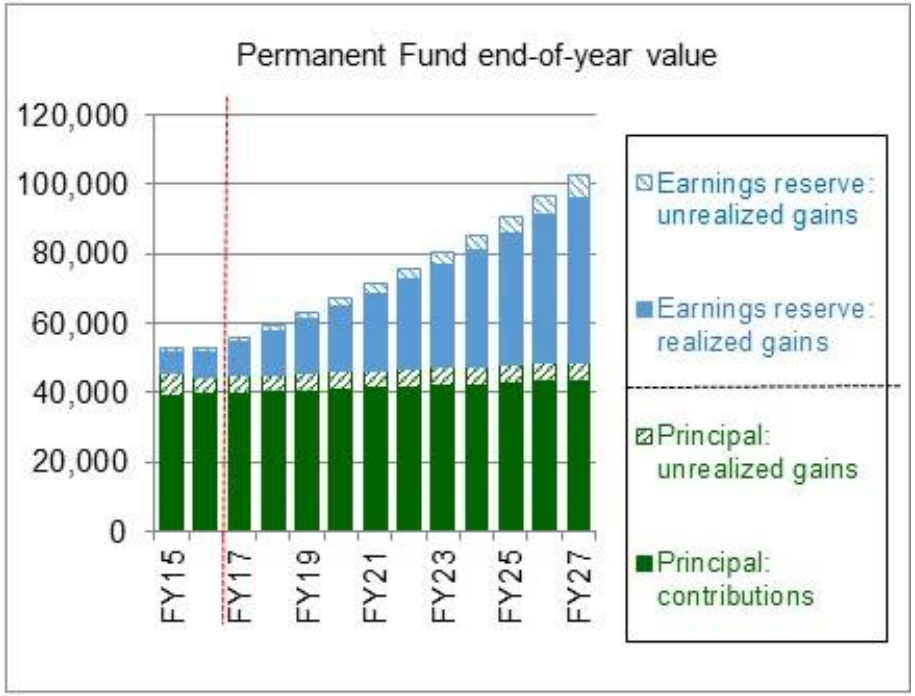


Rate of return assumptions	Inflation proofing	Dividend draw	General fund draw
APFC	none	none	none

Effect of 1% lower earnings . . .

The PF total value would grow to $101 B by FY27 ($13 B less)
The PF earnings reserve would grow to $53 B by FY27 ($11 B less)
Annual realized earnings would grow to $4.9 B in FY27 ($1.3 B less)



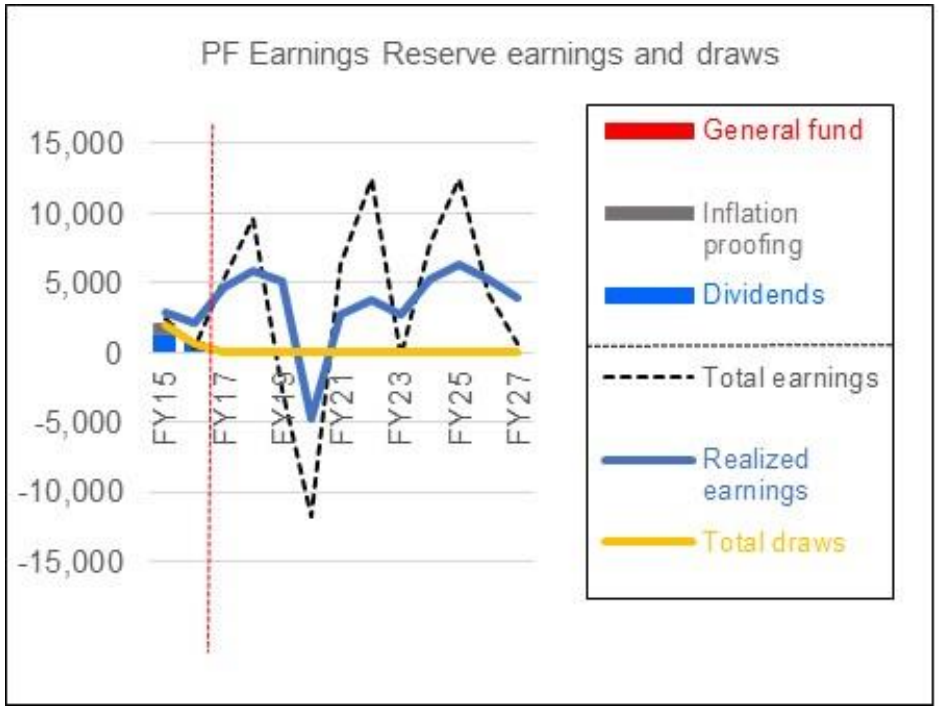


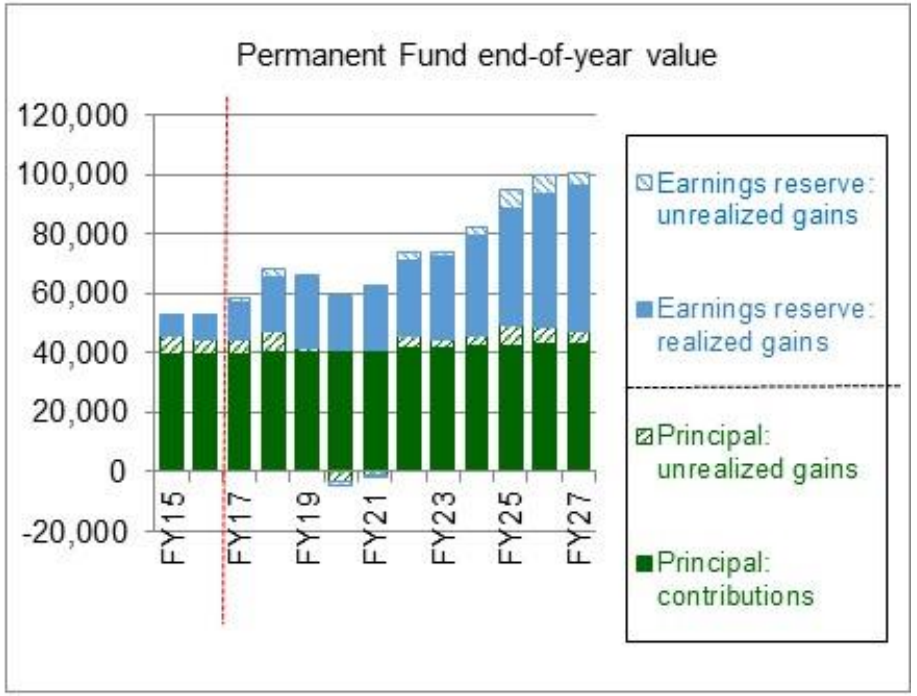
Rate of return assumptions	Inflation proofing	Dividend draw	General fund draw
APFC – 1%	none	none	none

Effect of the same rates of return as for FY06-FY17 . . .

The PF total value would grow to $100 B by FY27 ($13B less)

Earnings and growth would be much more variable!

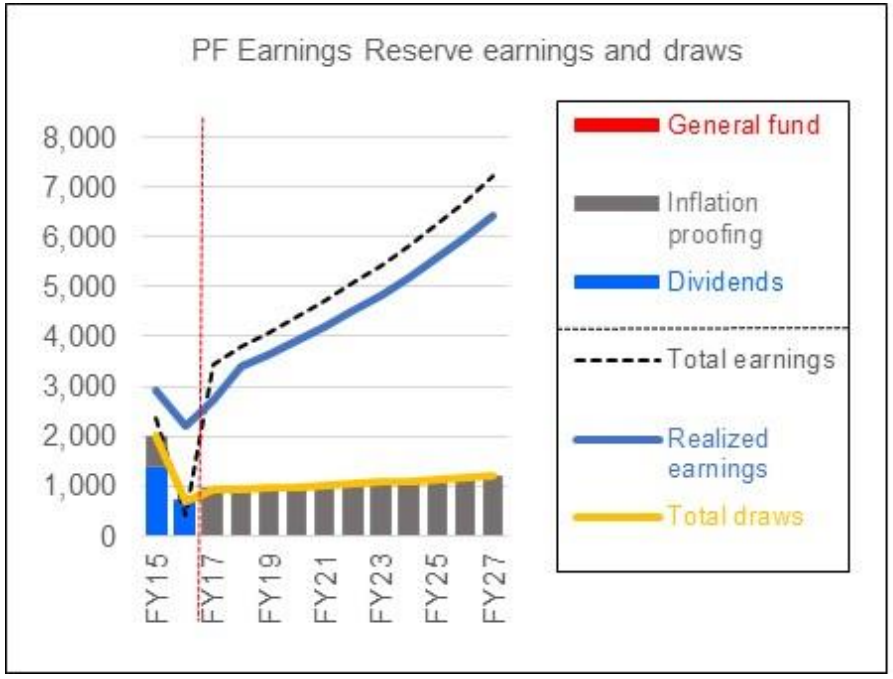


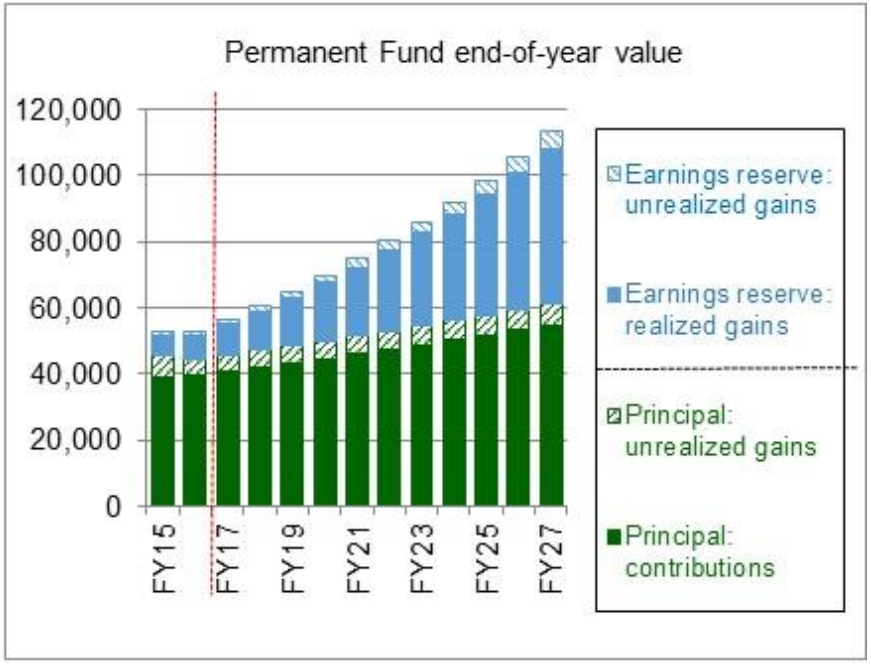


Rate of return assumptions	Inflation proofing	Dividend draw	General fund draw
FY06-FY16	none	none	none

If we fully inflation-proof but don't draw any PF earnings

The fund would grow in the same way
The fund's earnings would grow in the same way
More of the fund would be in the principal and less in the earnings reserve

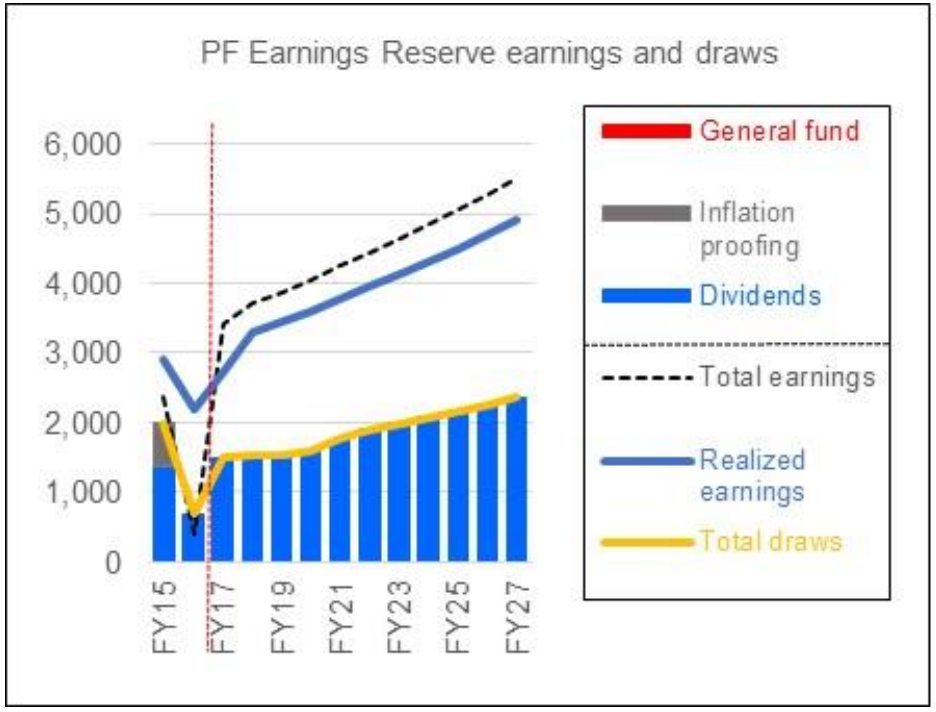


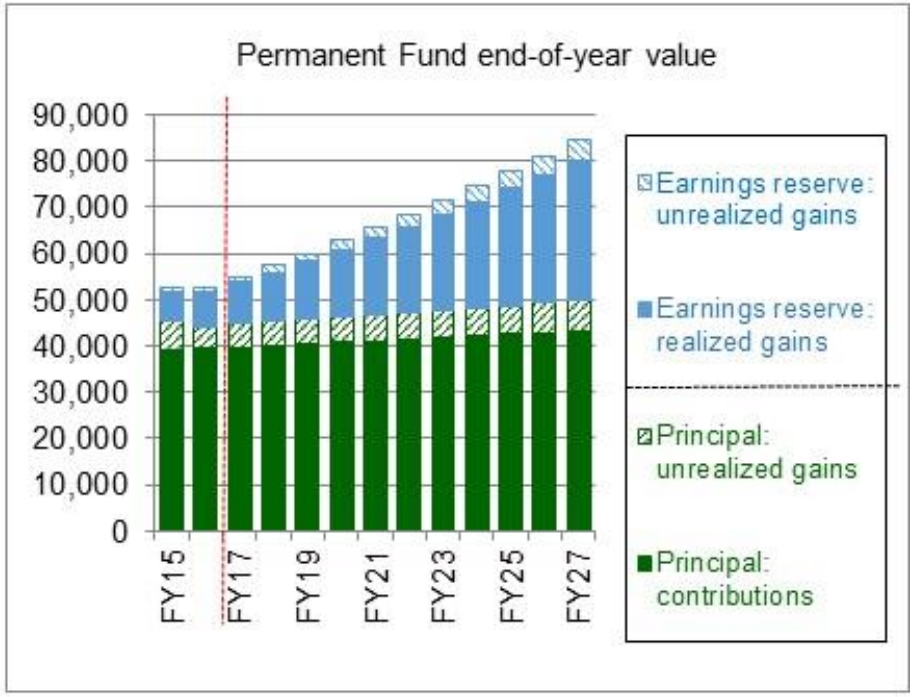


Rate of return assumptions	Inflation proofing	Dividend draw	General fund draw
APFC	full	none	none

If we don't inflation-proof and draw only dividends based on the current formula

The PF total value would grow to $84 B by FY27
The PF earnings reserve would grow to $35 B by FY27
Annual realized earnings would grow to $4.9 B in FY27
Annual dividend payouts would rise from $1.5B in FY17 to $2.4B in FY27
Dividend checks would rise from about $2260 in FY17 to $3560 in FY27





Rate of return assumptions	Inflation proofing	Dividend draw	General fund draw
APFC	none	Current formula	none

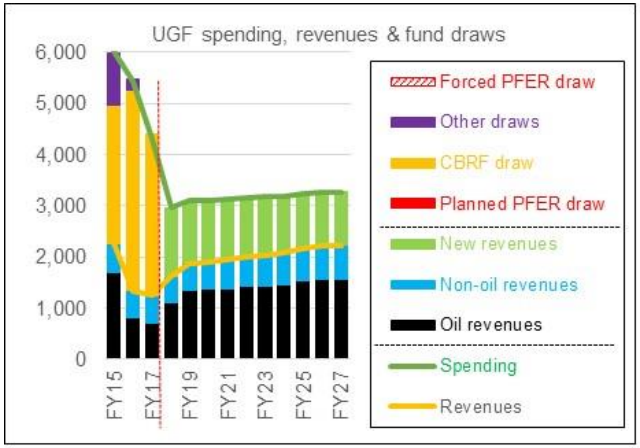
I'll show the model projections for 5 "fiscal proposals" (2 hypothetical, 3 approximations of actual proposals)

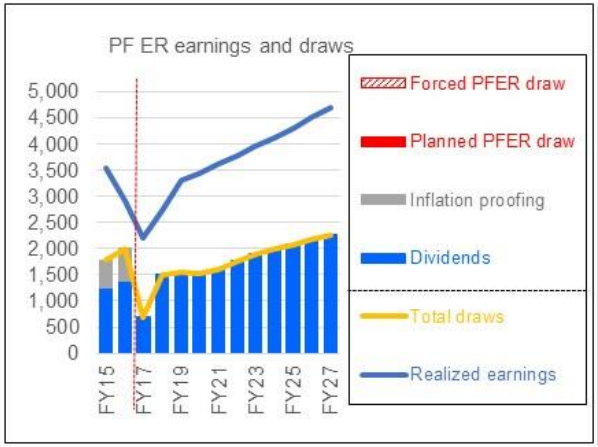
Proposal	UGF Spending	New Revenues	PF general fund draw	Dividends	Other
Cut & tax only	Cut by half the deficit	Add by half the deficit	None	Current formula	
Do nothing	FY17 level	None	Forced draw to cover deficits after CBRF depletion	Current formula	
Dunleavy	Modeled as $800 million cut over 3 years	None	Same as dividend formula	Current formula	Draw $809 million from other funds over 2 years
HB 365	Modeled at $4.65 billion	$655 annual income from an income tax	2.3% POMV (forced additional draw after CBRF Depletion)	Half of current formula	
Governor	Modeled at $4.3 billion	(none included in these projections; I don't include the proposed motor fuel tax increase)	5.25% POMV draw (of which 20% goes to dividends)	20% of POMV general fund draw + 20% of unrestricted royalties	Reduce PF royalty allocation to 25%

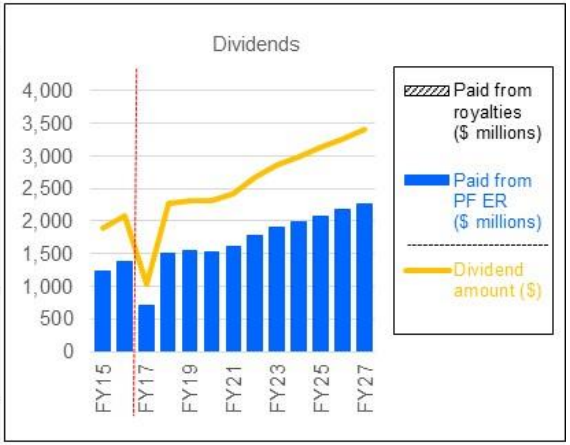
The "Dunleavy," "HB 365" and "Governor" proposals summarized in this table and analyzed in this presentation represent my own (possibly incorrect) understanding of the proposals, and are not necessarily correct representations of what the sponsors have proposed or intend.

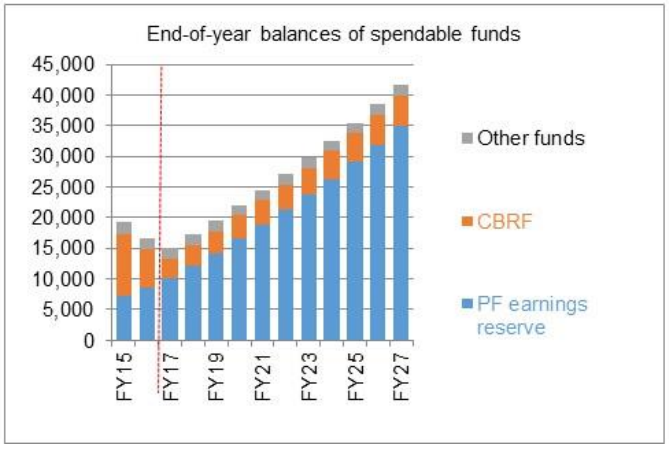
“Cut and Tax Only” Projections

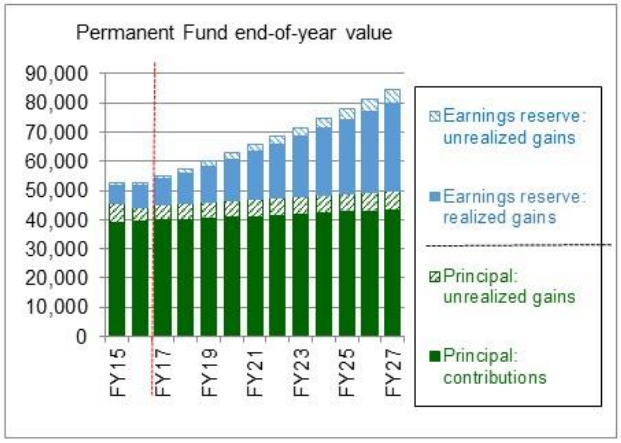
Proposal	UGF Spending	New Revenues	PF general fund draw	Dividends	Other	Oil revenue asmpts.	PF rate-of-return asmpts.
Cut & tax only	Cut by half the deficit	Add by half the deficit	None	Current formula		DOR Fall 2016	APFC





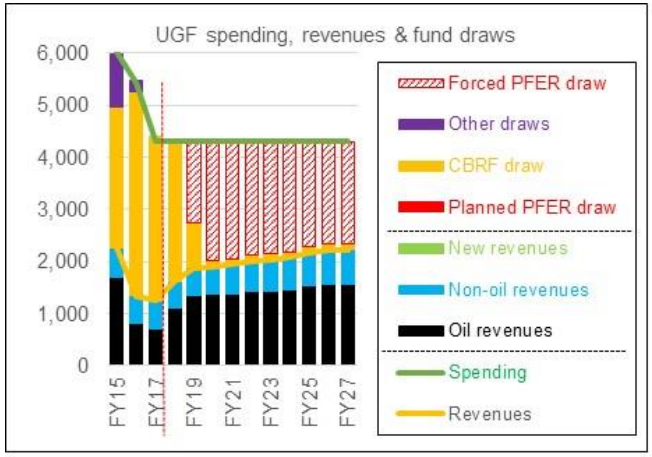


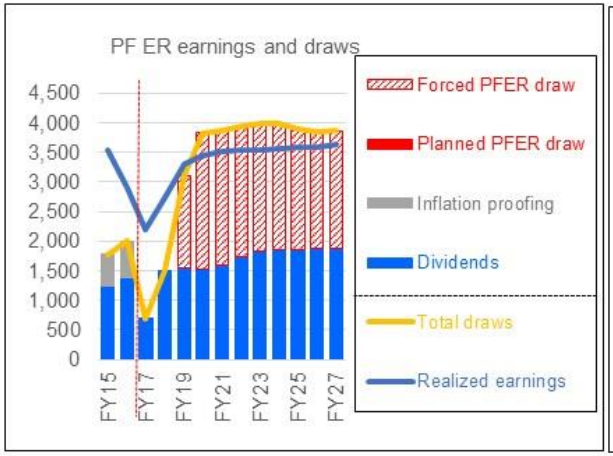


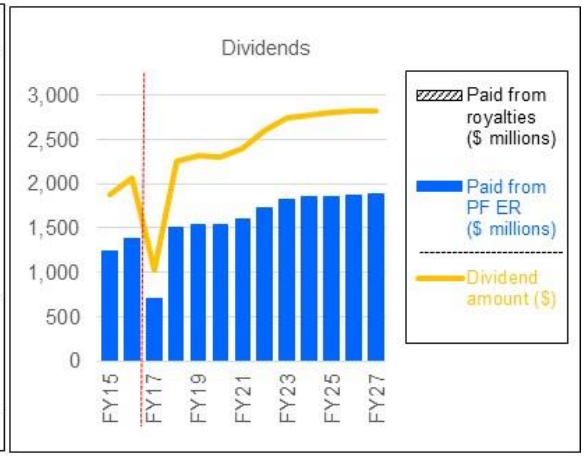


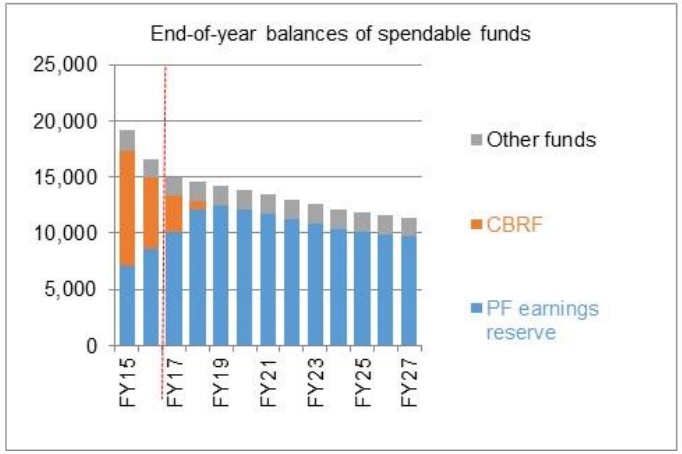
“Do Nothing” Projections

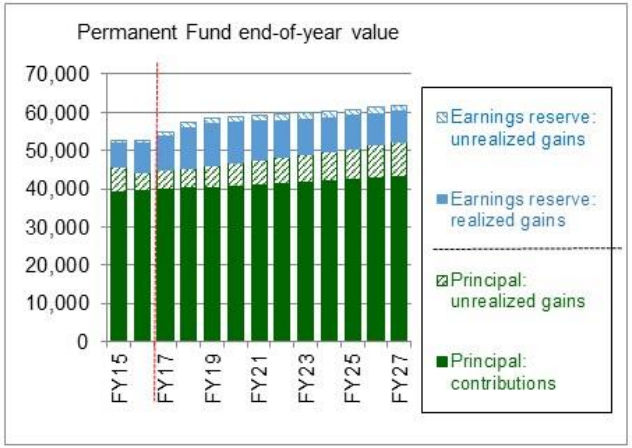
Proposal	UGF Spending	New Revenues	PF general fund draw	Dividends	Other	Oil revenue asmpts.	PF rate-of-return asmpts.
Do nothing	FY17 level	None	Forced draw to cover deficits	Current formula	Do nothing	DOR Fall 2016	APFC





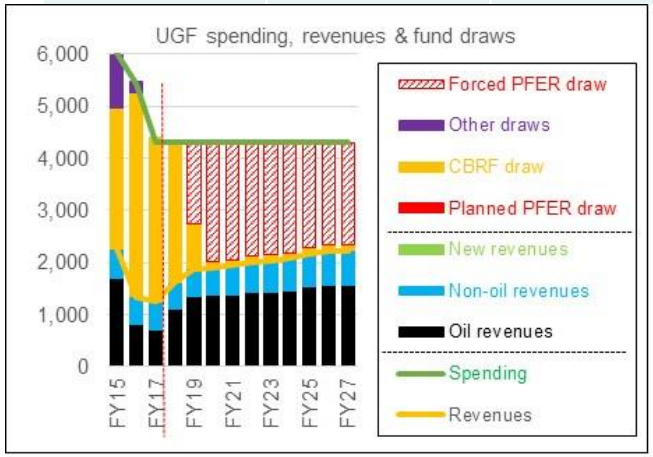


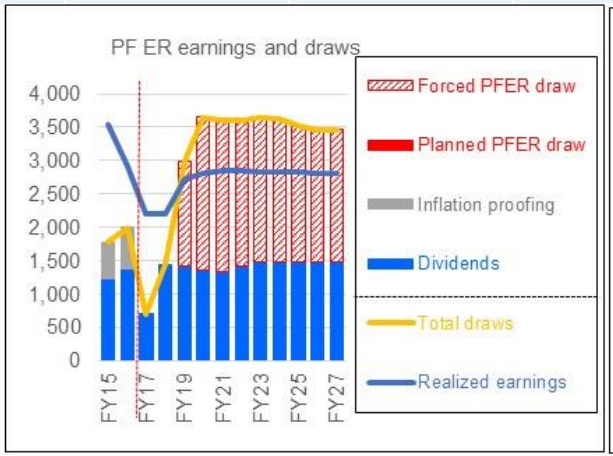


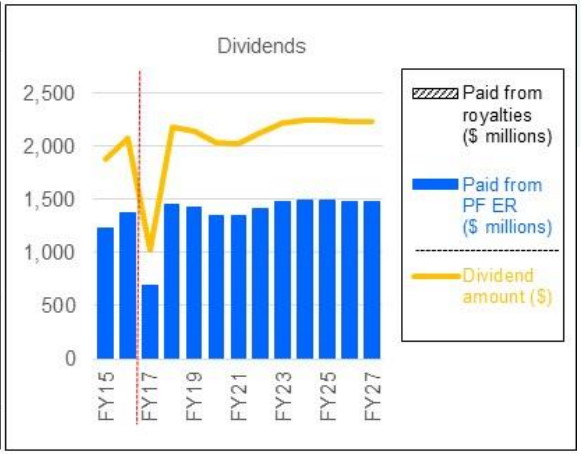


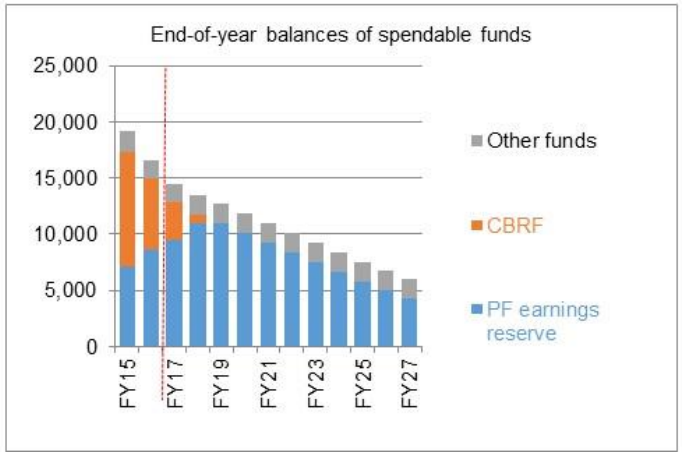
"Do Nothing" Projections

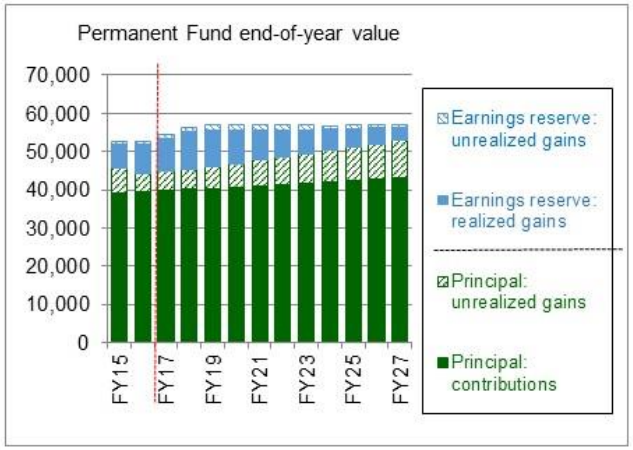
Proposal	UGF Spending	New Revenues	PF general fund draw	Dividends	Other	Oil revenue asmpts.	PF rate-of-return asmpts.
Do nothing	FY17 level	None	Forced draw to cover deficits	Current formula	Do nothing	DOR Fall 2016	APFC - 1%





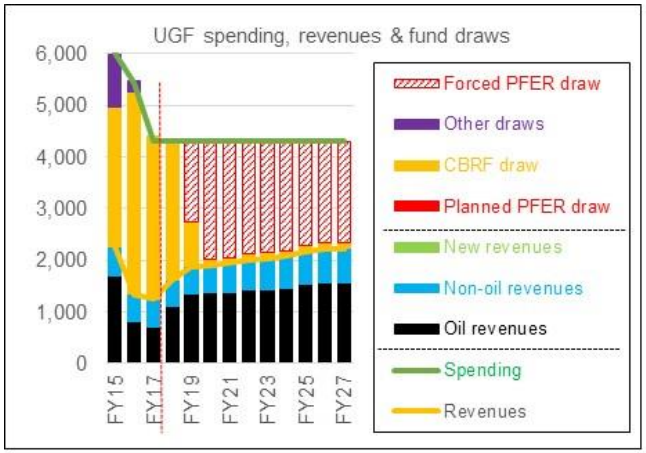


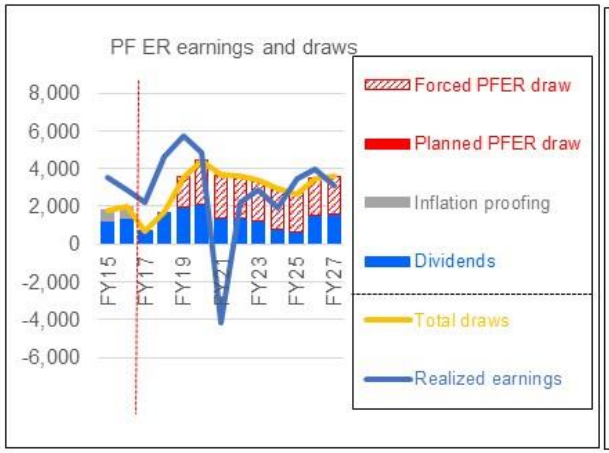


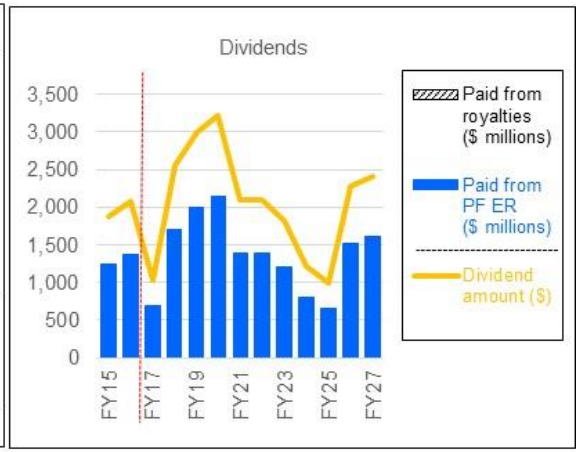


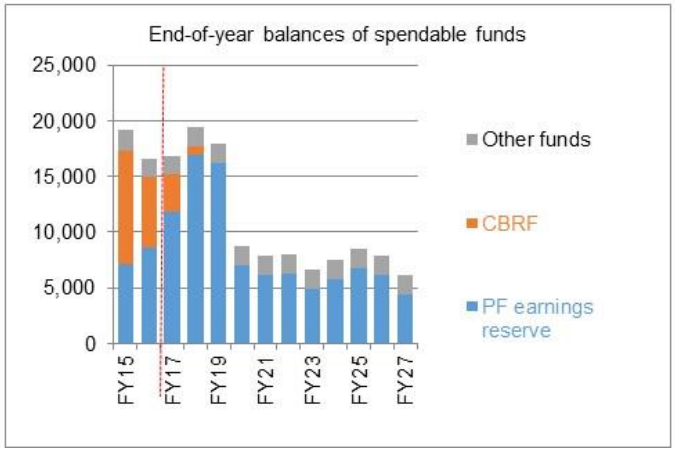
"Do Nothing" Projections

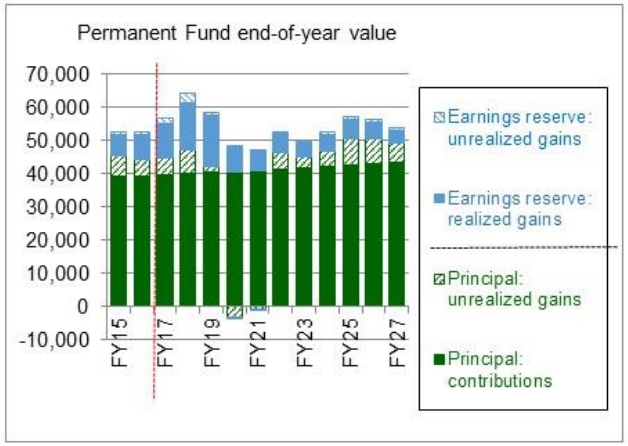
Proposal	UGF Spending	New Revenues	PF general fund draw	Dividends	Other	Oil revenue asmpts.	PF rate-of-return asmpts.
Do nothing	FY17 level	None	Forced draw to cover deficits	Current formula	Do nothing	DOR Fall 2016	FY06-FY17





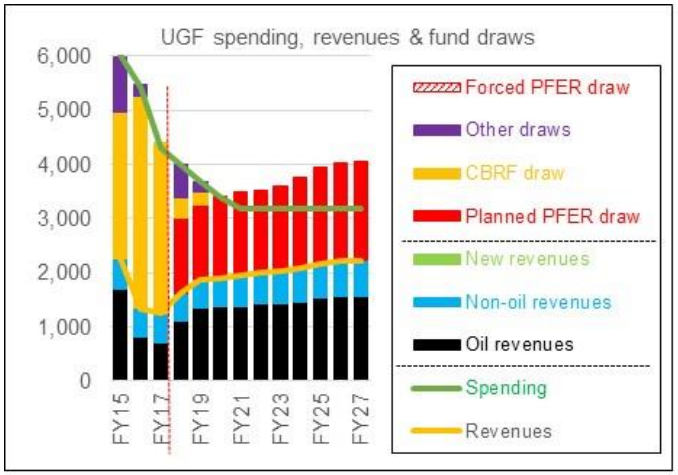


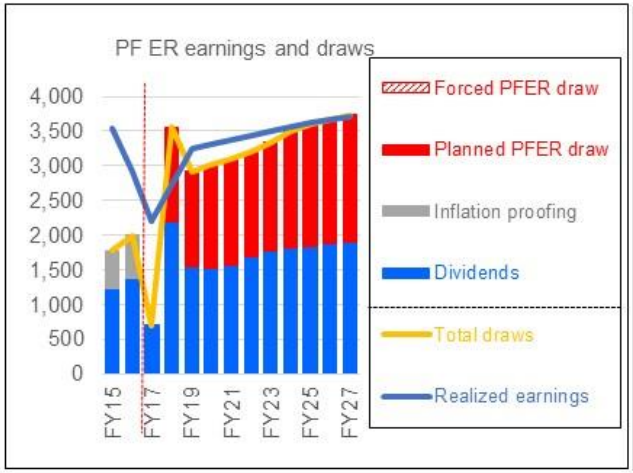


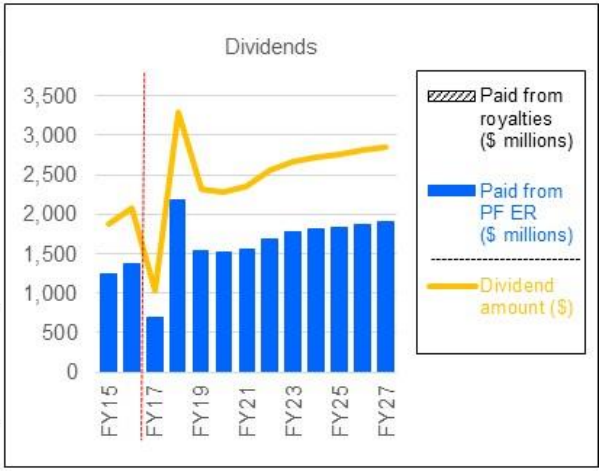


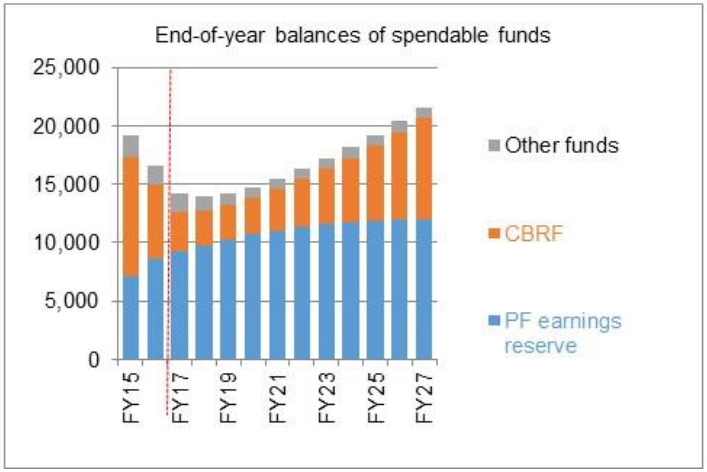
“Dunleavy Proposal” Projections

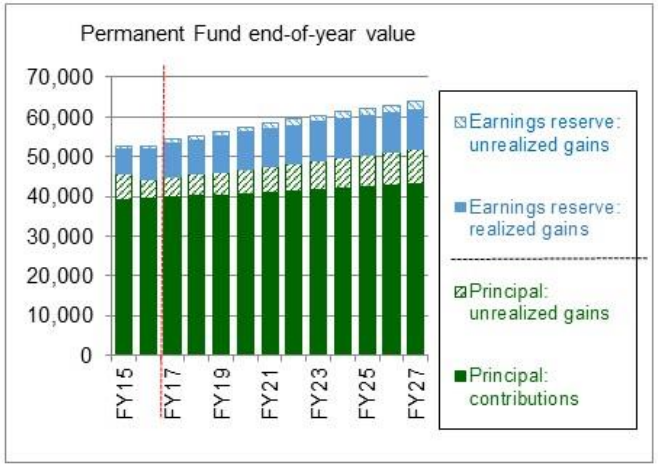
Proposal	UGF Spending	New Revenues	PF general fund draw	Dividends	Other	Oil revenue asmpts.	PF rate-of-return asmpts.
Dunleavy	Modeled as $800 million cut over 3 years	None	Same as dividend formula	Current formula	Draw $809 million from other funds over 2 years	DOR Fall 2016	APFC











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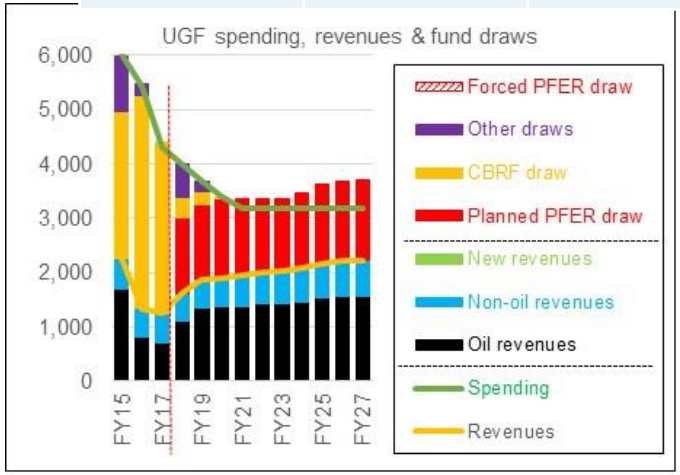

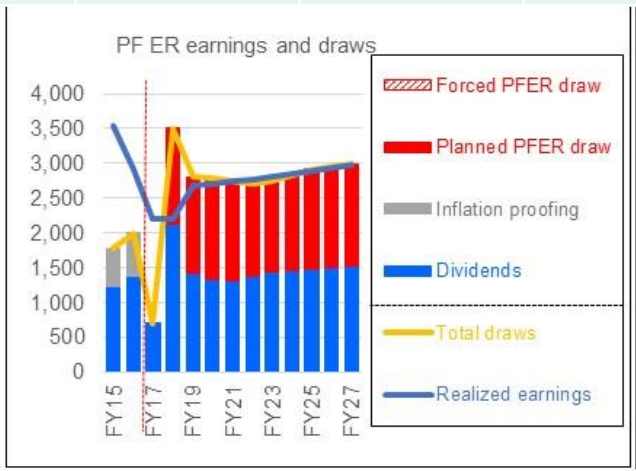

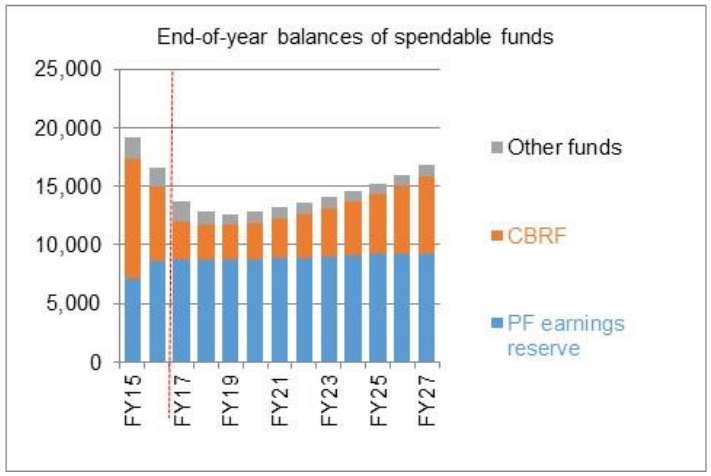

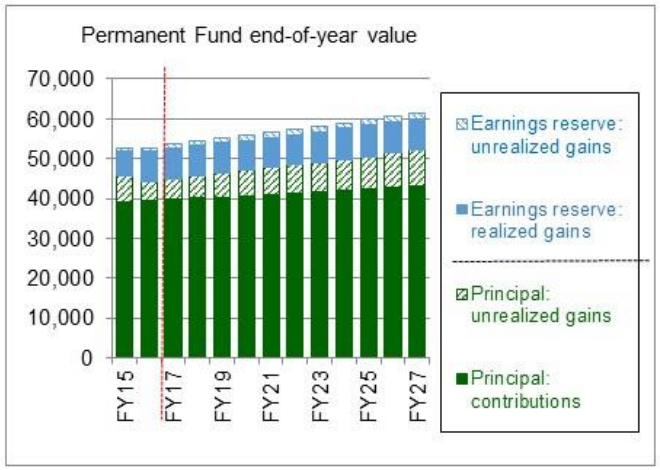

“Dunleavy Proposal” Projections

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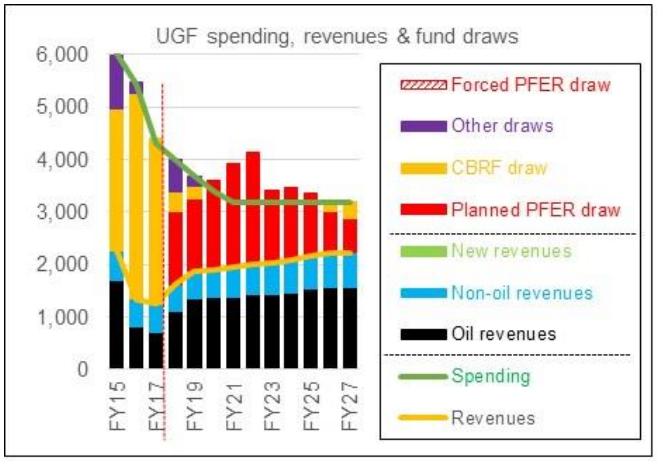
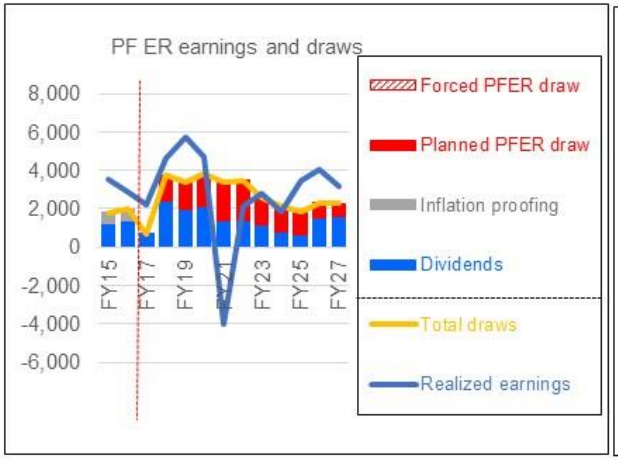
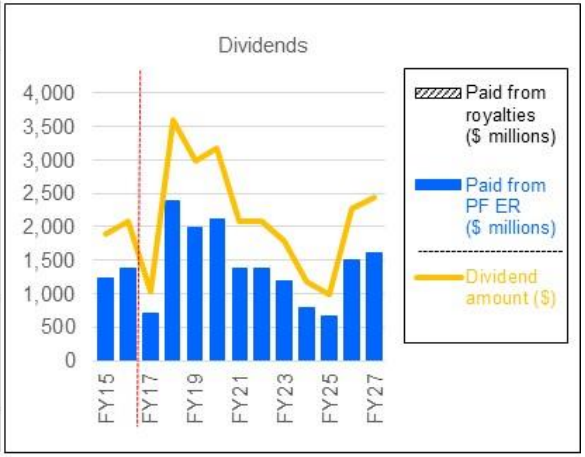
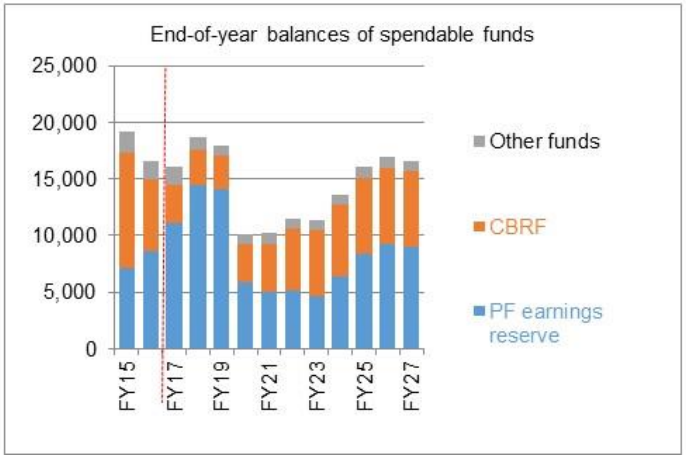
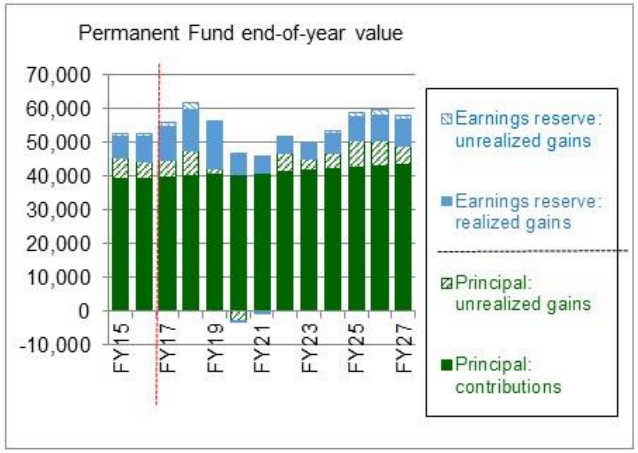




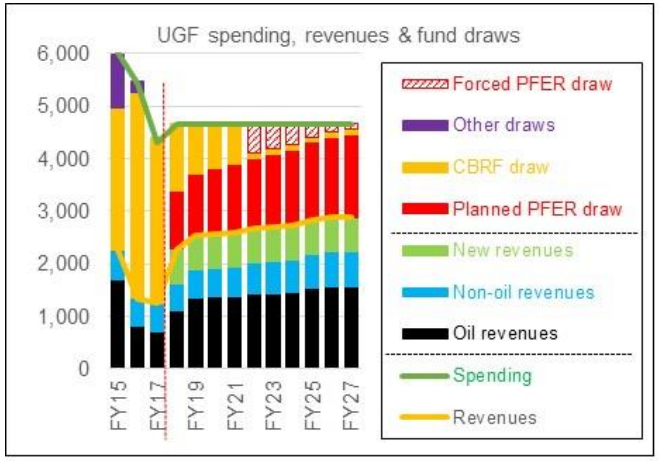


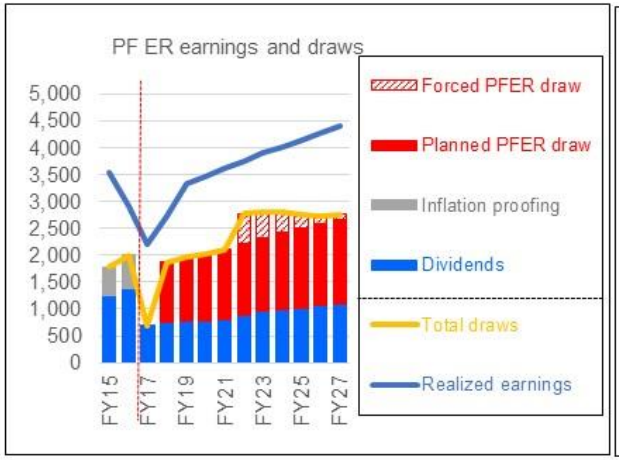


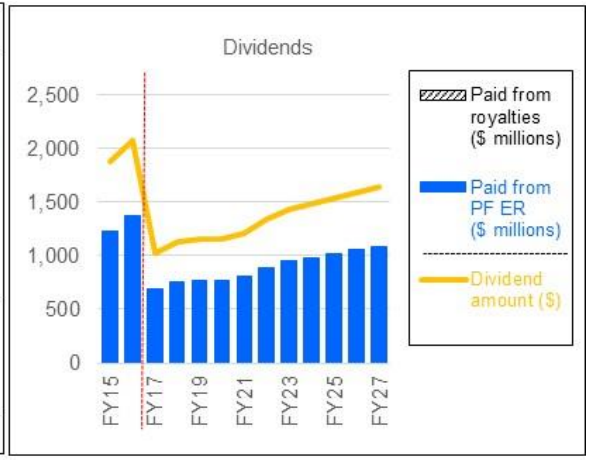


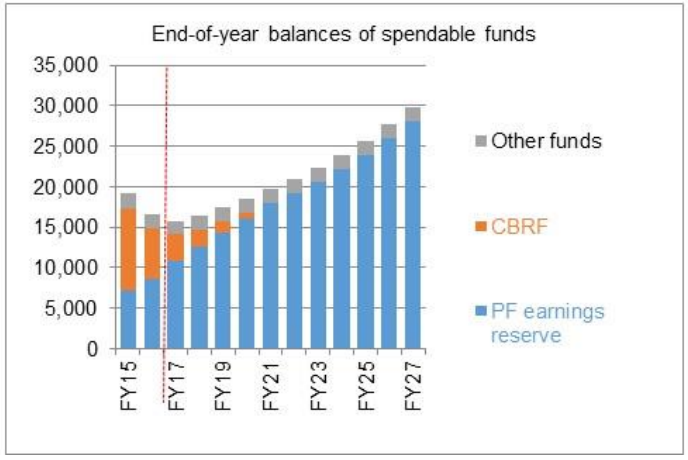
“HB 365” Projections

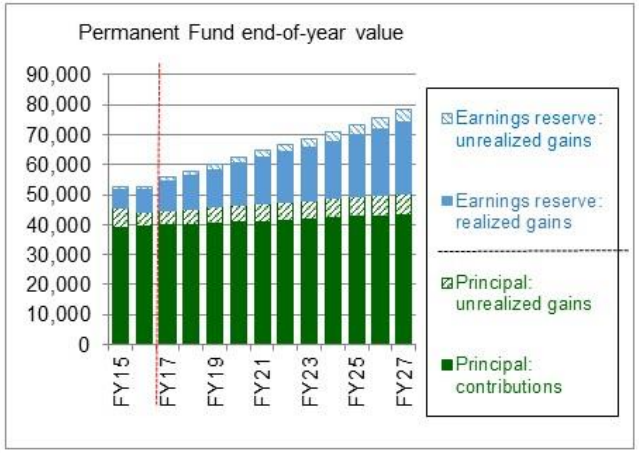
Proposal	UGF Spending	New Revenues	PF general fund draw	Dividends	Other	Oil revenue asmpts.	PF rate-of-return asmpts.
HB 365	Modeled at $4.65 billion	$655 annual income from an income tax	2.3% POMV	Half of current formula	HB 365	DOR Fall 2016	APFC











“HB 365” Projections

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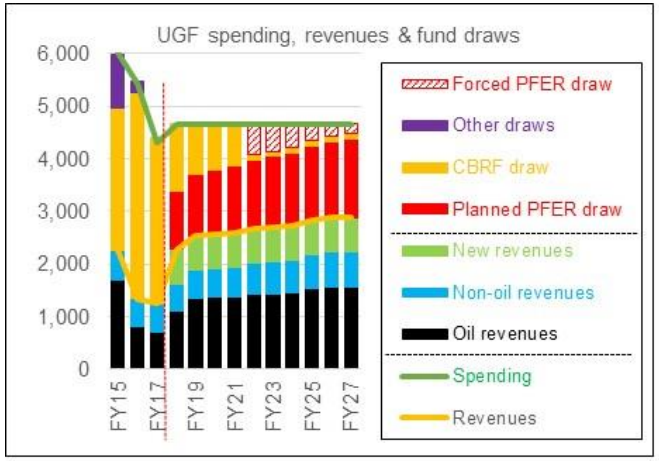

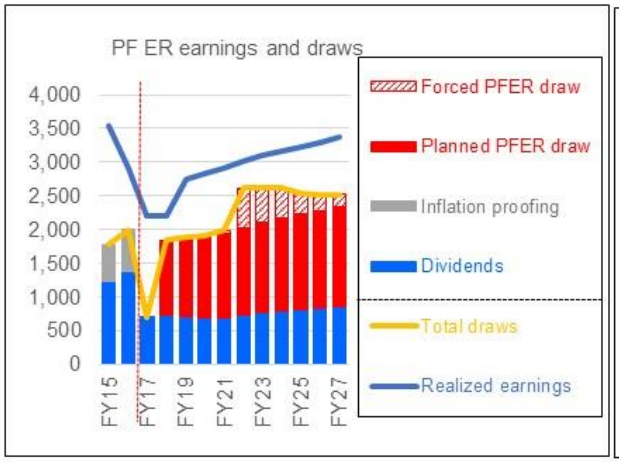

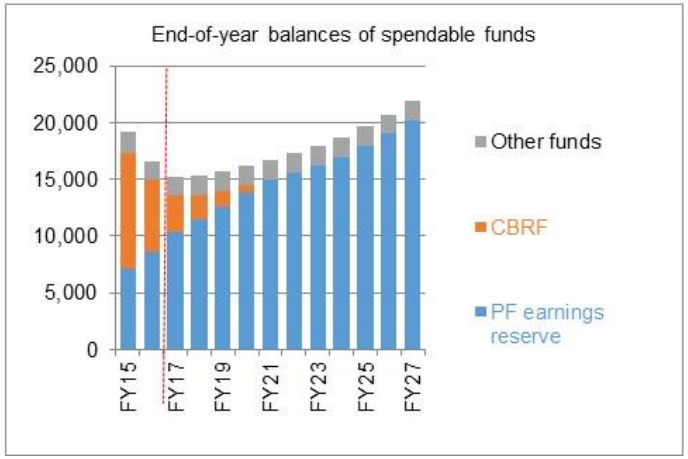

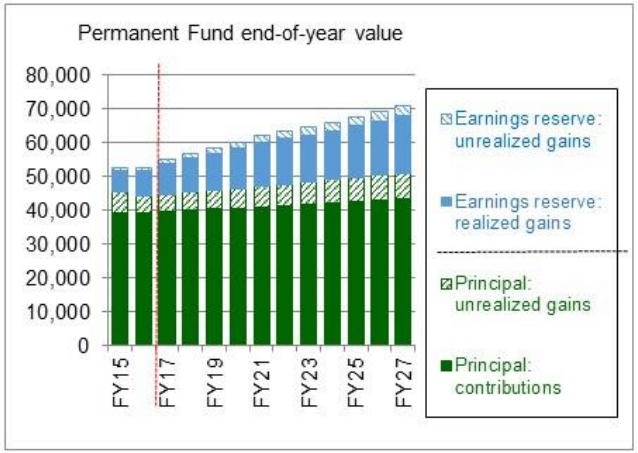

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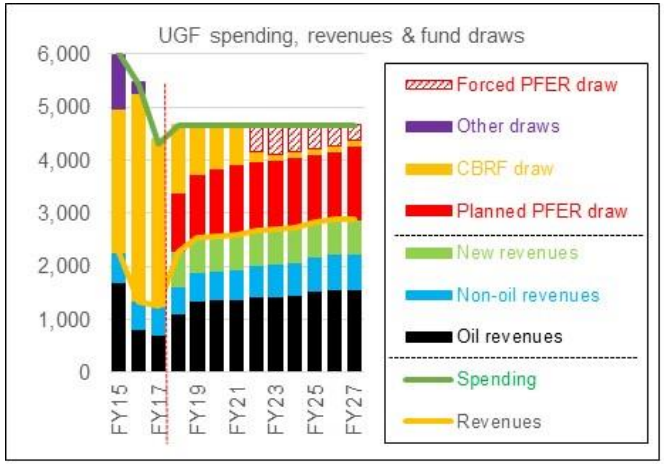
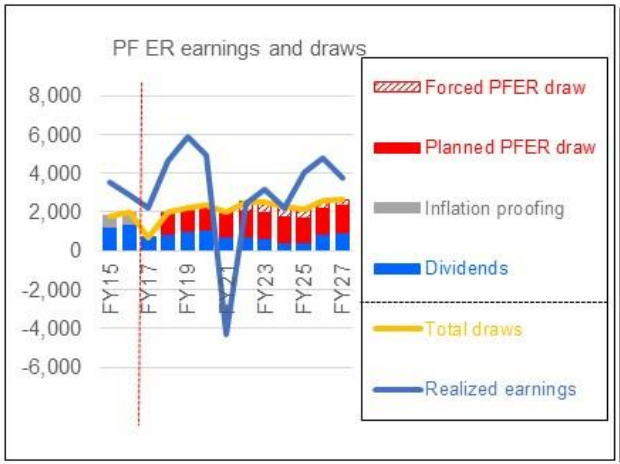
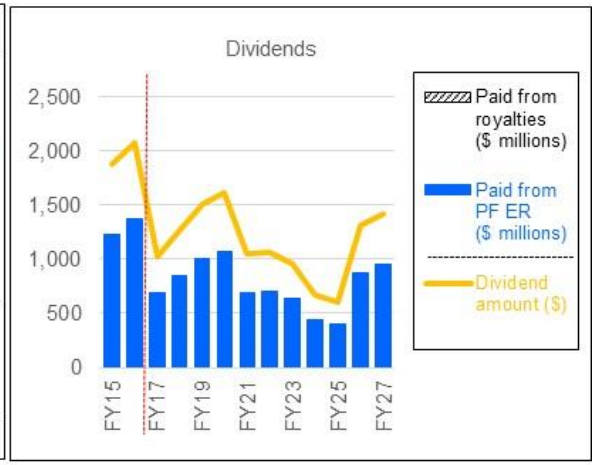
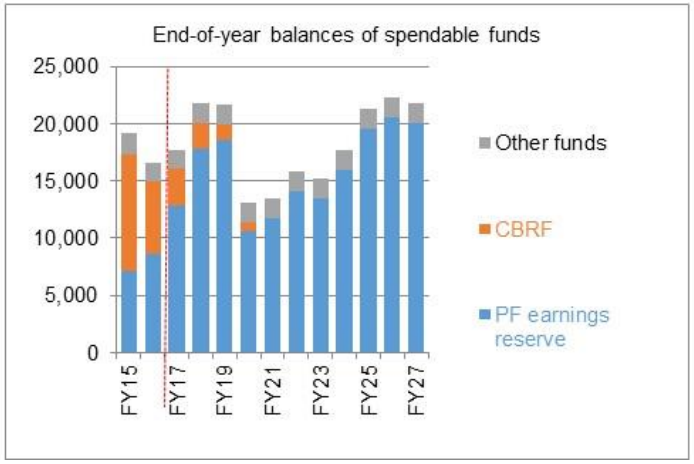
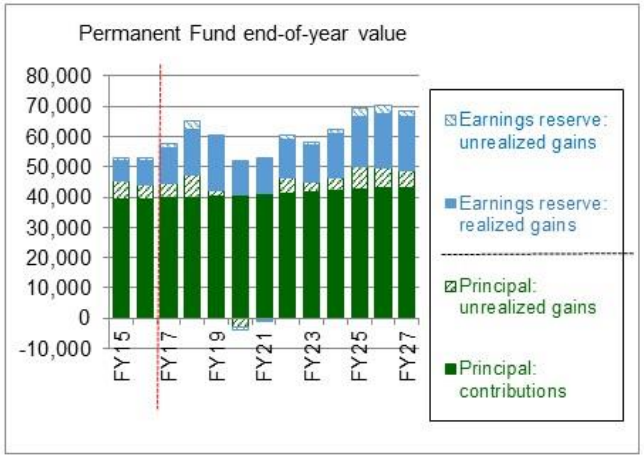




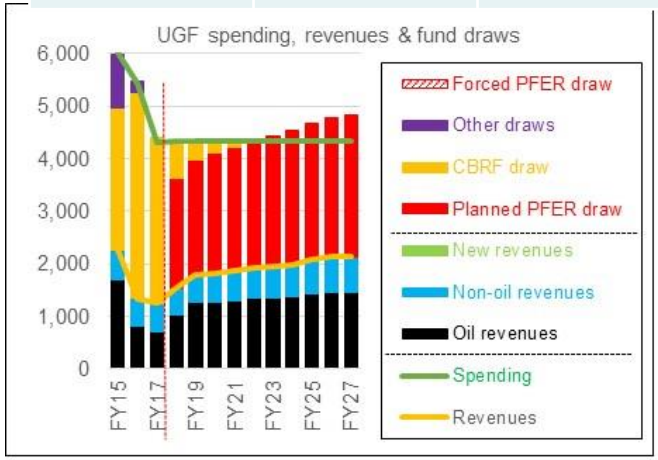


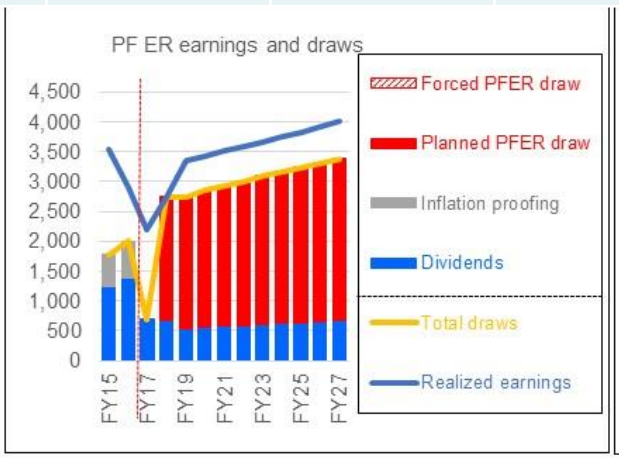


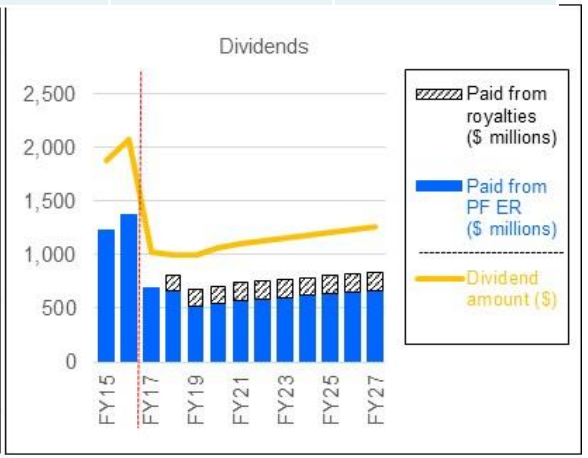


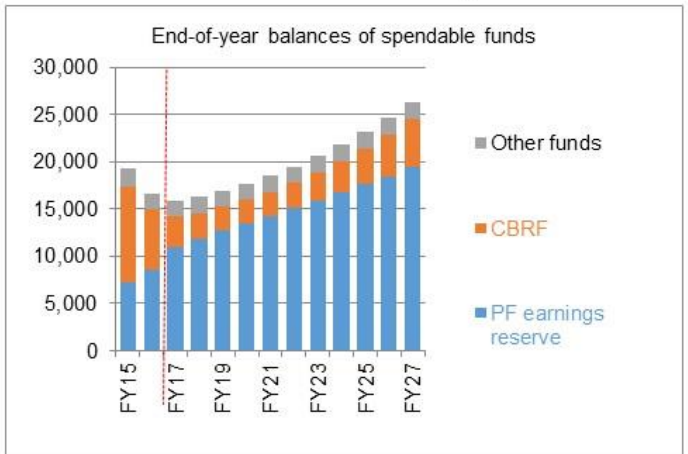
“Governor’s Proposal” Projections

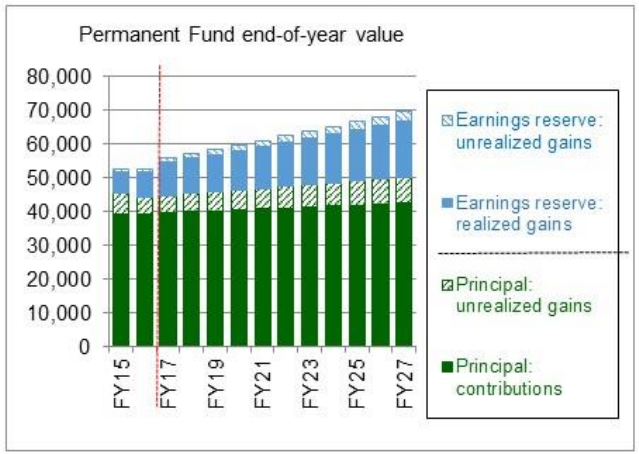
Proposal	UGF Spending	New Revenues	PF general fund draw	Dividends	Other	Oil revenue asmpts.	PF rate-of-return asmpts.
Governor	Modeled at $4.3 billion	(none included in these projections)	5.25% POMV draw (of which 20% goes to dividends)	20% of POMV general fund draw + 20% of unrest. royalties	Reduce PF royalty allocation to 25%	DOR Fall 2016	APFC











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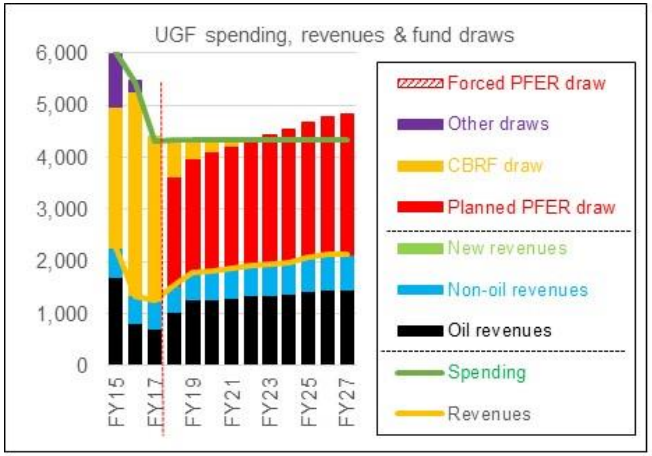

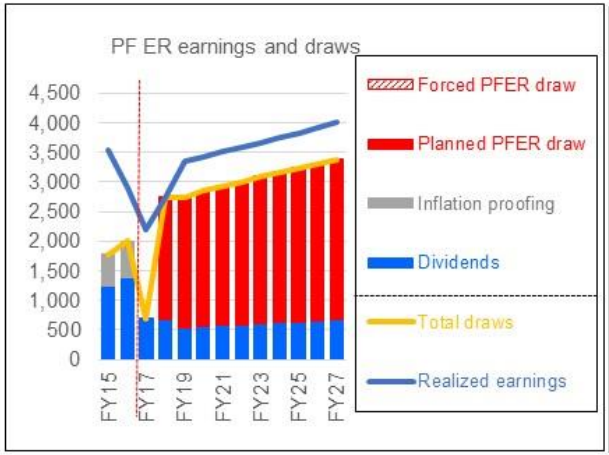

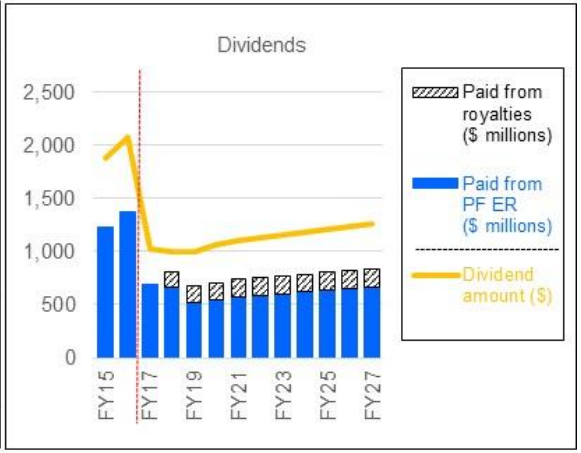

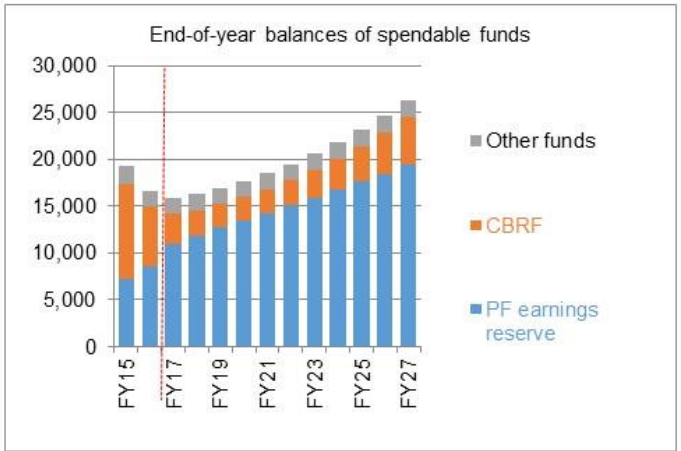

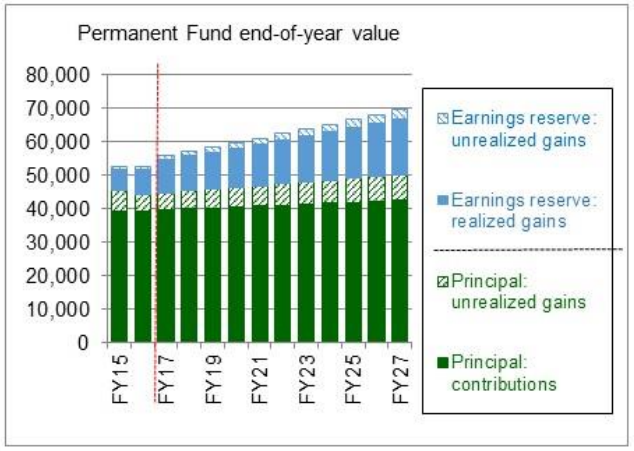

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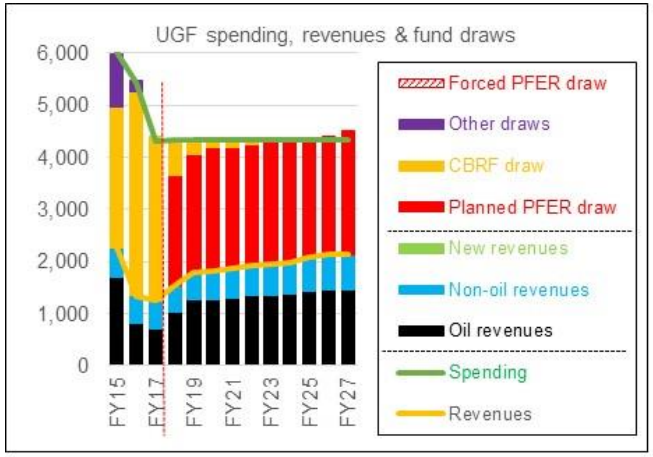

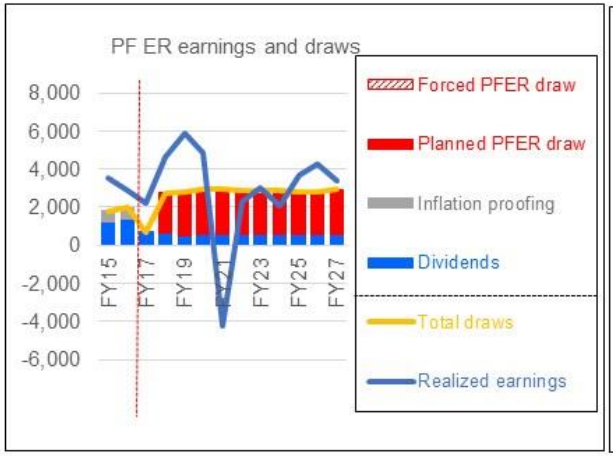

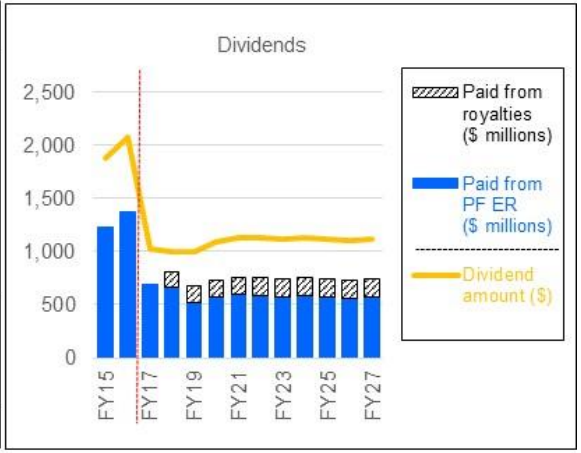

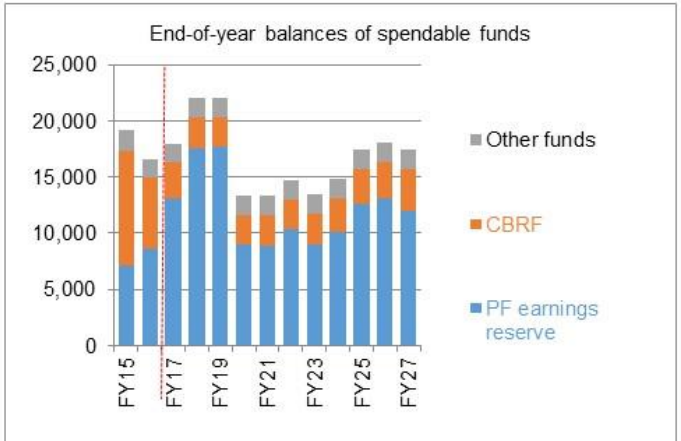

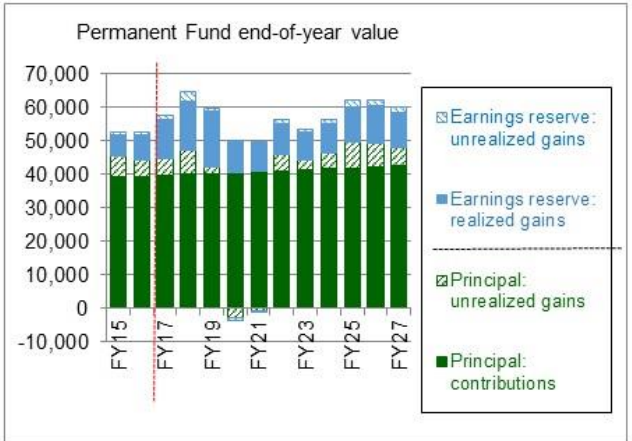

What is a “sustainable” level of state spending?

- This is a complex question
- There is no simple or “correct” answer

What level of government spending is “sustainable” depends on:

- The time period we are planning for
- What we assume about future oil revenues and investment returns
- How much we want to preserve or grow our assets
- How much we want to pay in dividends
- How much we’re willing to raise in new revenues
- Whether we want to keep the same buying power of our spending and savings by adjusting for inflation
- Whether we want to keep the same per-capita buying power of our spending and savings by adjusting for population growth

A potential definition of sustainable total spending
(for government and dividends combined)
from our current revenues sources
over a given time period

A level of annual total spending which preserves the value of our assets.

To finish the definition, you need to decide

Which assets?
Adjust annual spending and value for inflation?
Adjust annual spending and value for population growth?

What assets should we sustain the value of?

Types of assets included	Spendable financial assets	Total financial assets	Total financial assets + planned asset growth	All financial and non-financial assets
CBRF Other funds PF earnings reserve	X	X	X	X
PF principal		X	X	X
Royalty deposits to PF principal			X	X
Present value of future resource revenues				X

What the nominal value of our assets would need to be at the end of FY27 to sustain their nominal value of as of the beginning of FY18

Types of assets included	Spendable financial assets	Total financial assets	Total financial assets + planned asset growth	All financial and non-financial assets
CBRF Other funds PF earnings reserve*	3,265 1,727 8,570	3,265 1,727 8,570	3,265 1,727 8,570	3,265 1,727 8,570
PF principal*		44,199	44,199	44,199
Royalty deposits to PF principal+			3,804	3,804
Present value of future resource revenues				???
TOTAL	13,562	57,761	61,565	

* Permanent Fund asset values are for beginning of FY17, due to differences in the fiscal years to which PF funding draws are assigned by the state and the APFC. + Total projected PF royalty deposits, FY17-FY27

Sustainable on paper isn't necessarily the same as sustainable in practice

- Suppose your fiscal plan is "add to savings when revenues are high and draw from savings when revenues are low."
- It's sustainable on paper
- It isn't really sustainable unless you have the discipline to:
  - Not over-project future average revenues
  - Not spend more when revenues are high
- Figuring out how to do that is part of our fiscal challenge

It’s useful to compare fiscal proposals . . .

- Based on the same assumptions
- Using the same terminology
- Using the same graphs

You can’t debate the merits of a fiscal proposal by only talking about that proposal.

- You have to compare it to the alternatives
- You shouldn’t criticize a proposal unless you can suggest an alternative, better way of achieving the same fiscal objectives

There are many potential ways to address Alaska's fiscal challenge and end unsustainable draws on our savings.

- They all involve some combination of:
  - Cutting spending
  - Increasing revenues
  - Cutting dividends
  - Saving less of our PF earnings

- The less we use any one option the more we have to use the others

- We need to talk less about why we don't like particular options

- We need to talk more about what combination of options is feasible, sustainable and best for Alaskans

Fiscal projections can't tell us which proposals are "best"

- They can tell us whether proposals are feasible and/or sustainable

- They can't tell us about other things that matter:
  - Short-run economic effects
  - Long-run economic effects
  - Effects on government services
  - Relative effects on different income groups
  - Relative effects on different regions