Maximum Sustainable Yield: A Fiscal Road Map for Alaska

Alaska State Senate

Senate Finance Committee

Juneau, Alaska

March 19, 2013

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Institute of Social and Economic Research
University of Alaska Anchorage

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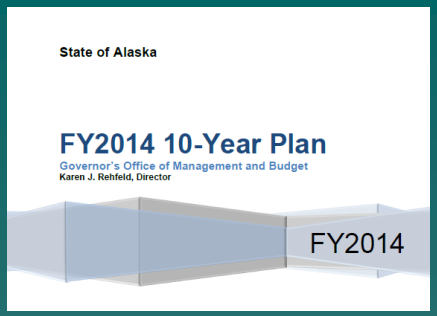
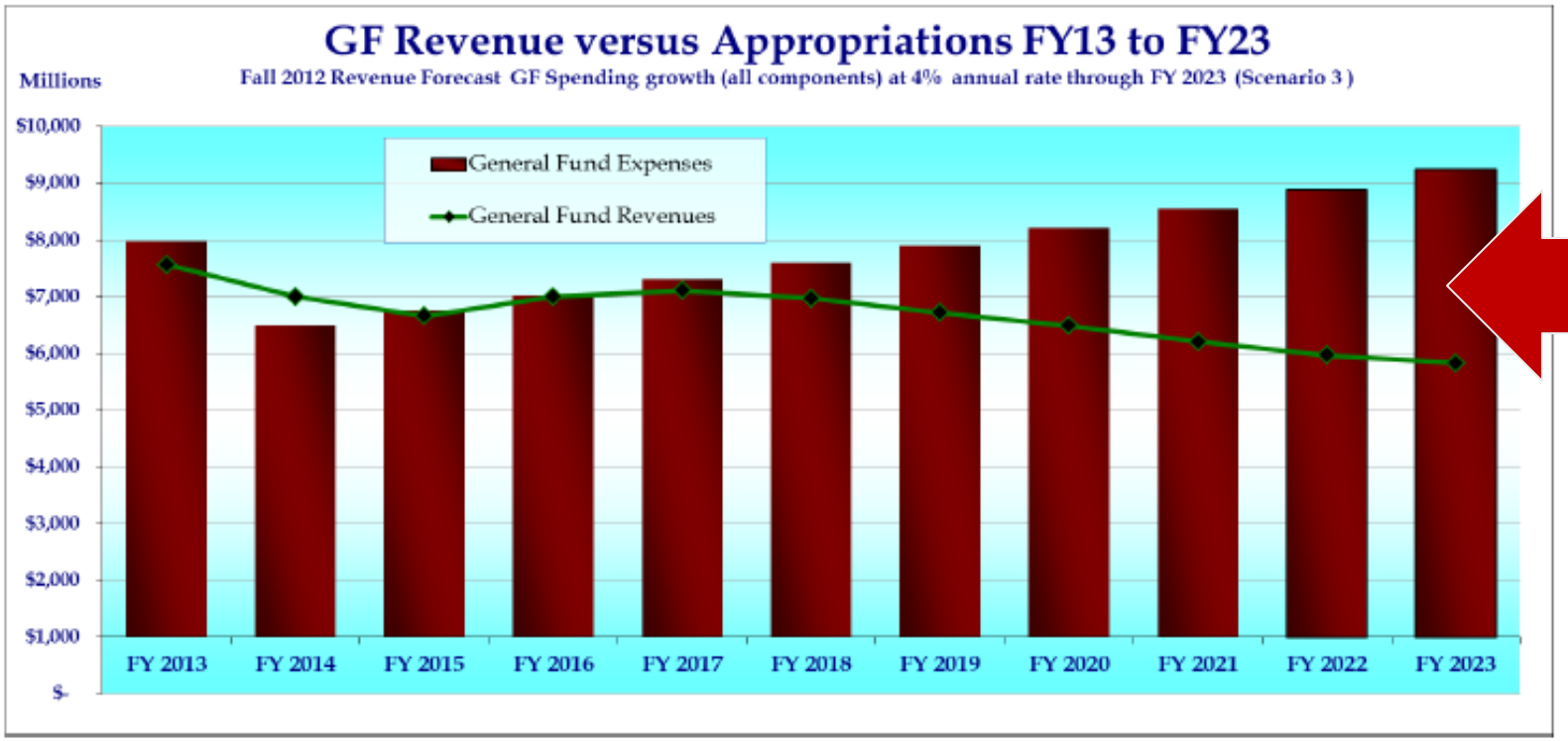
Northrim Bank
Customer First Service



10 Year Fiscal Plan: Hints at the Problem

Scenario 3: Governor's FY2014 Budget with 4% Annual GF Expenditure Growth beginning in FY2015



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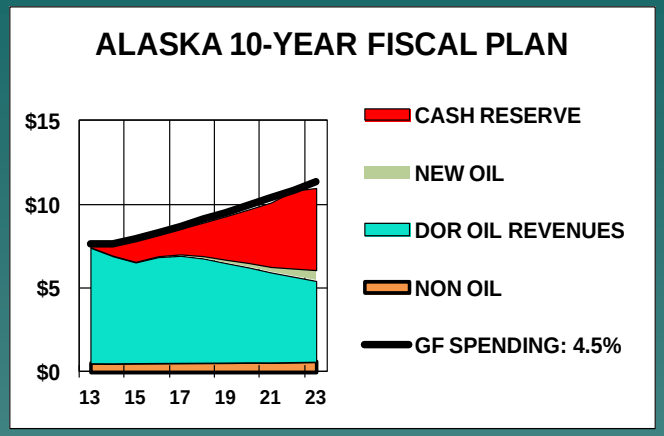
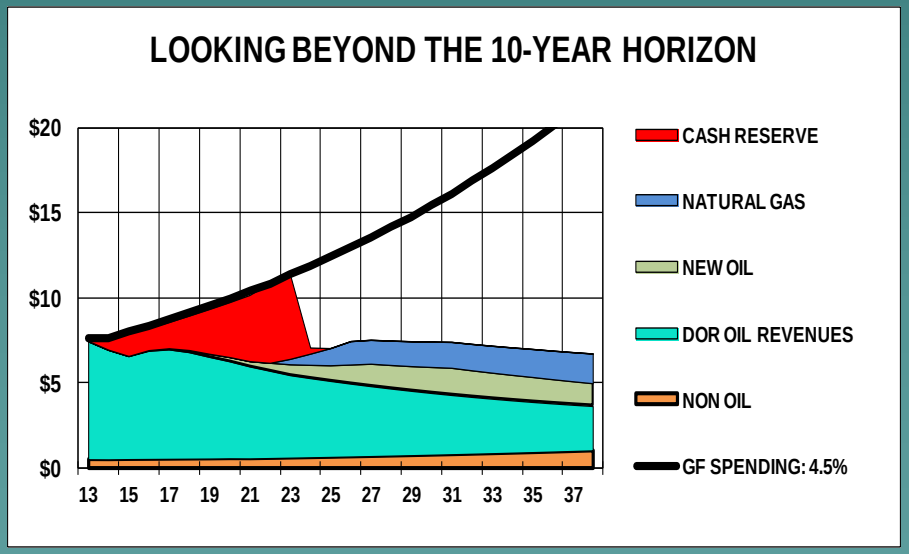
Looking Beyond 10 Years

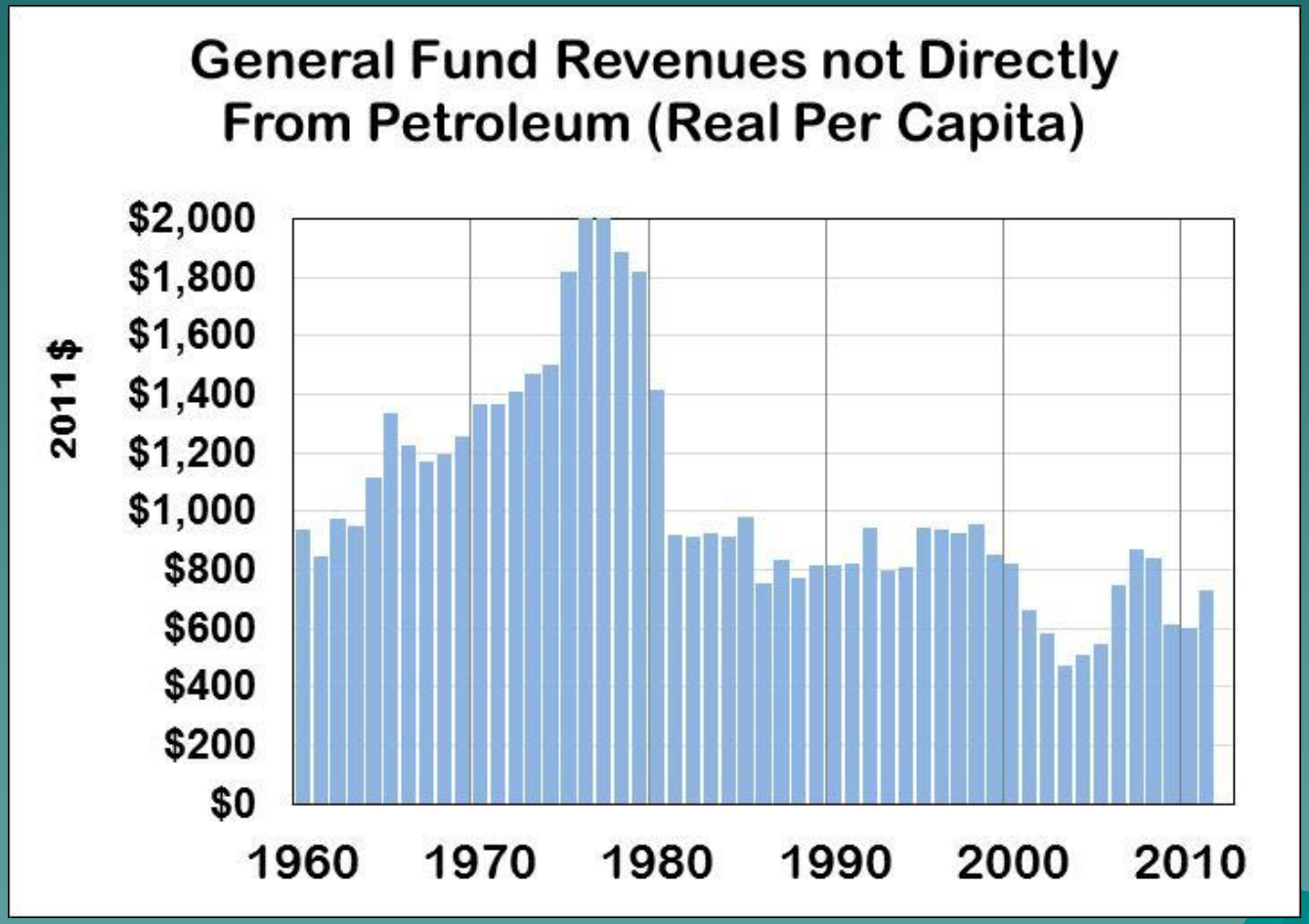




Non-Petroleum Strategies for the Future?

- Natural Resource Development
- Value Added Processing
- Economic Diversification
- Infrastructure Investments in Power and Transportation
- Footloose Industry
- Renewable Energy

Non Petroleum GF Revenues



How Can We Sustain a Healthy Level of Public Services in the Future?

MAXIMUM SUSTAINABLE YIELD

Management of our biggest asset—Petroleum.

1) How Big is Our Nest Egg?
2) How Should We Manage It?
3) How Should We Spend it?

Petroleum Wealth in our Infrastructure

Physical Capital

Human Capital

Petroleum Wealth in the Bank (Billion $)

TOTAL	$60
Permanent Fund	$42
CBR (Constitutional Budget Reserve) SBR (Statutory Budget Reserve) GF (General Fund)	$18

Petroleum Wealth in the Ground

Table 2 Arctic Alaska Petroleum Provinces
Estimated Economically Recoverable Oil Resources (2012)

	Central North Slope	Beaufort OCS	Chukchi OCS	NPRA	ANWR 1002	TOTAL
KNOWN CONVENTIONAL						**7-9.5**
Economically Remaining	4.3-6.3	.1		.1		4.5-6.5
Reserves Growth in Existing Fields (Conventional Oil)	2.0					2.0
Known But Undeveloped	.5					.5
KNOWN UNCONVENTIONAL						**3.5-4.5**
Reserves Growth in Existing Fields (Viscous/Heavy Oil)	3.0-4.0					3.0-4.0
Shale Oil	.5					.5
YET TO BE DISCOVERED						**17.7-24.5**
Near-Term (to 2020)	.6	.7		.2		1.5
Long Term (after 2020)	2.1	4.3	9.5	.3	0-6.8	16.2-23.0
TOTAL	**13.0-16.0**	**5.1**	**9.5**	**.6**	**0-6.8**	**28.2-38.0**

Source: ISER Estimate.

Alaska North Slope: Estimated Economically Recoverable Oil Resources (Billion Barrels)

TOTAL	**28-38.5**
Known Conventional	7-9.5
Known Unconventional	3.5-4.5
Yet to be Discovered	17.5-24.5

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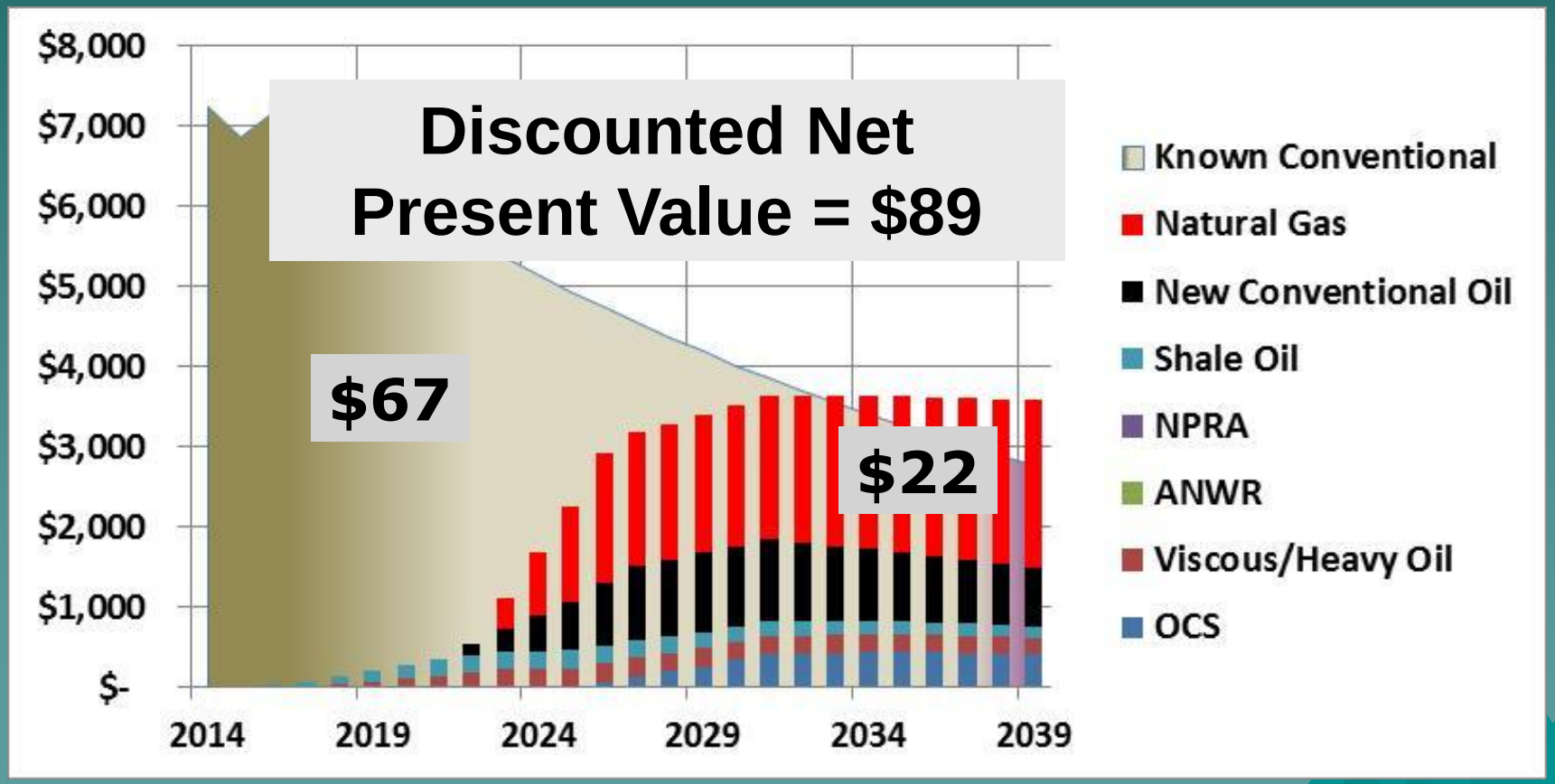
Revenue Potential Constrained

	Production Tax	Royalty	Corporate Income Tax	Property Tax
STATE LAND				
Conventional	Y	Y	Y	Y
Conventional Marginal	?	?	Y	Y
Unconventional	?	?	Y	Y
NPRA	Y	½	Y	Y
ANWR	Y	N	Y	Y
OCS	N	N	N	N

Future Petroleum Revenue: Value Today (Billion $)



Cumulative Nominal = $536

Petroleum Wealth of the "Owner State"

TOTAL	$149 Billion
In the Bank	$60 Billion
In the Ground	$89 Billion
Known Conventional Oil	$67 Billion
Other Oil and Gas	$22 Billion

$200,000 for each current resident

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HOW SHOULD WE MANAGE THE NEST EGG (Asset, Endowment)?

For Maximum Long Run Return

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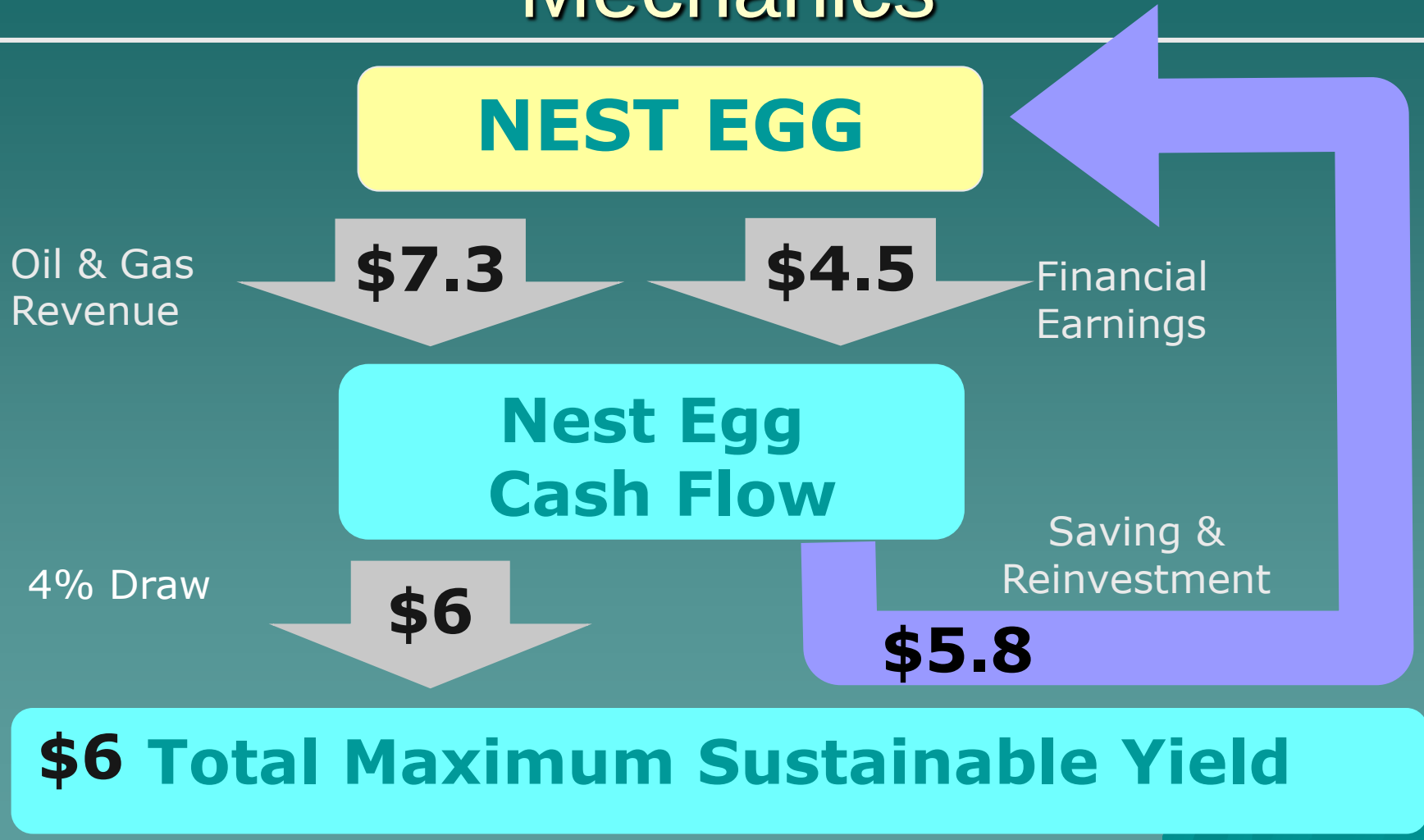
HOW MUCH OF THE NEST EGG SHOULD WE SPEND?

DRAW each year at a rate that will conserve the value of the Nest Egg for future generations of Alaskans—the Maximum Sustainable Yield.

Maximum Sustainable Yield: Calculation

Nest Egg	$149 Billion
Investment Return (After Inflation)	5%
Population Growth	1%
MSY Draw Rate	4% = (5%-1%)
MSY Draw	**$6 Billion** = ($149*4%)

Maximum Sustainable Yield: Mechanics



Maximum Sustainable Yield: Disposition

Total Maximum Sustainable Yield $6

$1 → **Permanent Fund Dividend**

$5 → **General Fund**

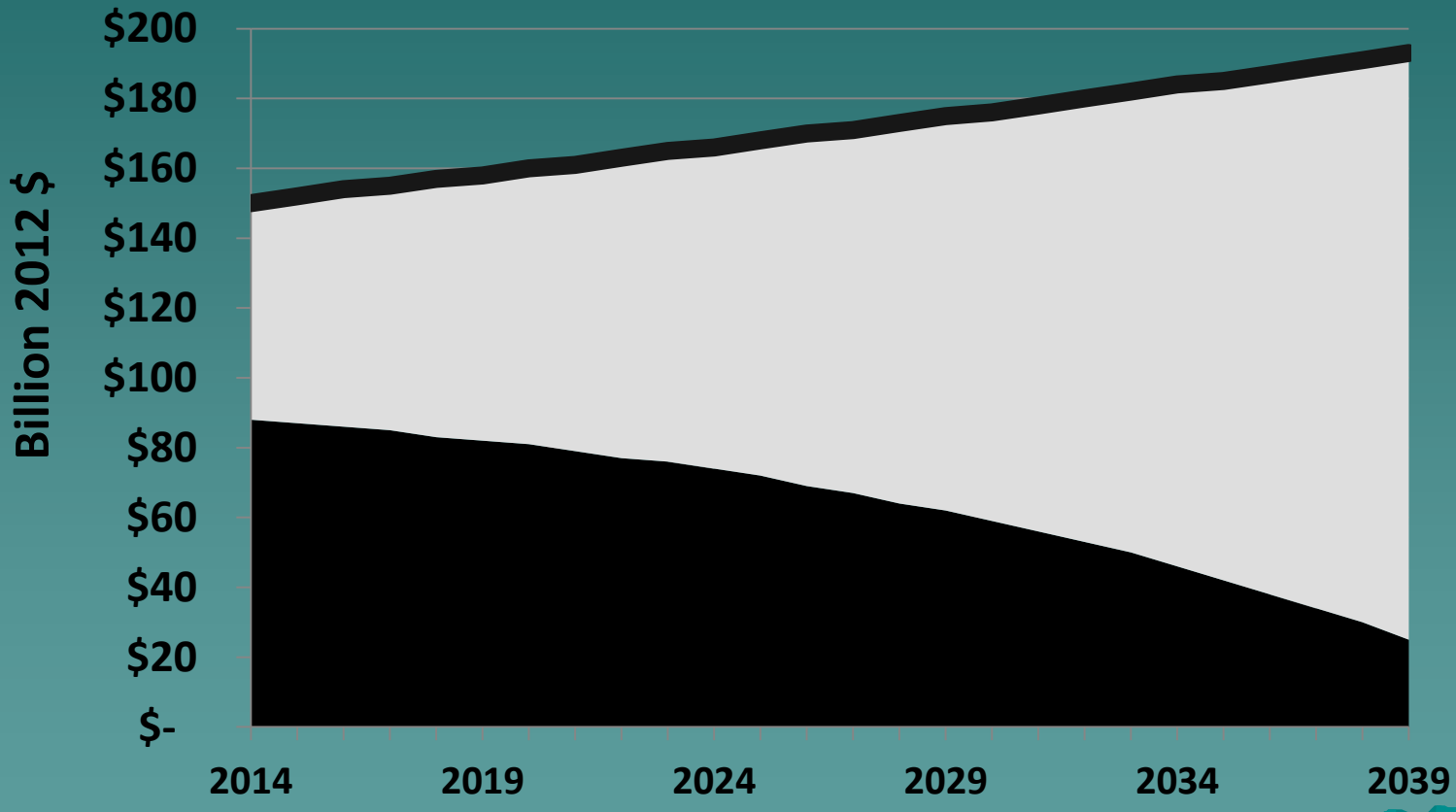
GF Non Petroleum Revenues

$.5

$5

$5.5 GENERAL FUND MAXIMUM SUSTAINABLE YIELD

Maximum Sustainable Yield: Nest Egg Growth



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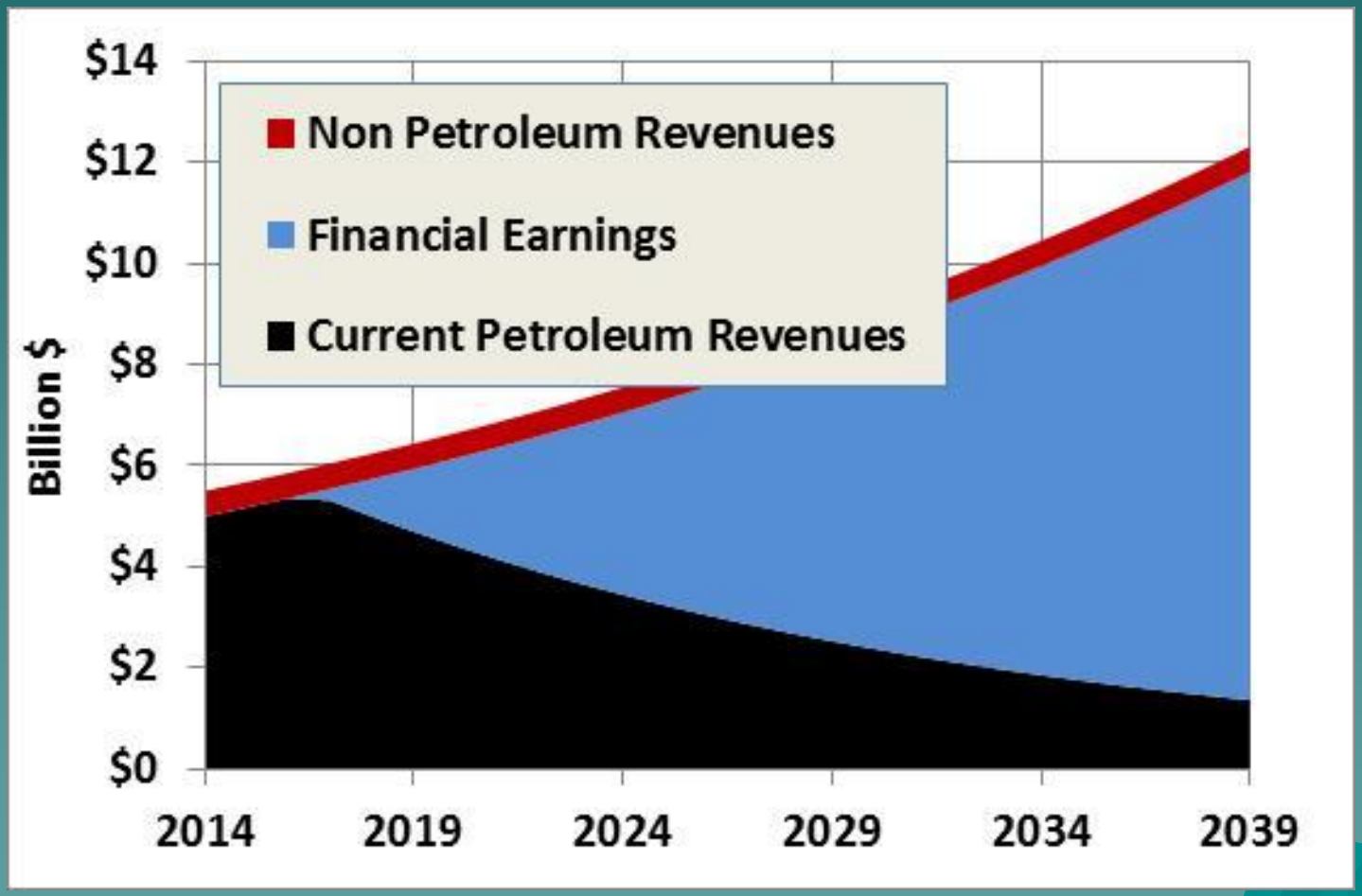
Maximum Sustainable Yield: General Fund Growth



FY 2013 General Fund Spending (Billion $)

GF Actual Spend (Billion $)	**$7.6**
GF Maximum Sustainable Yield Draw*	$5.5
GF Over Spend **Fiscal Burden & Asset Erosion**	**$2.1**

- After subtracting endowment spending on the PFD and adding in non-petroleum revenues.
- To get on a MSY path, save all revenues above this amount.

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Maximum Sustainable Yield: Implementation

- Gradual transition to GF Maximum Sustainable Yield level
- Protection of financial assets
- Active participation in management of petroleum in the ground thru alignment
- Establish monitoring system to track Nest Egg value, set MSY target for each budget, and track progress towards sustainability

Maximum Sustainable Yield: Challenges to Implementation

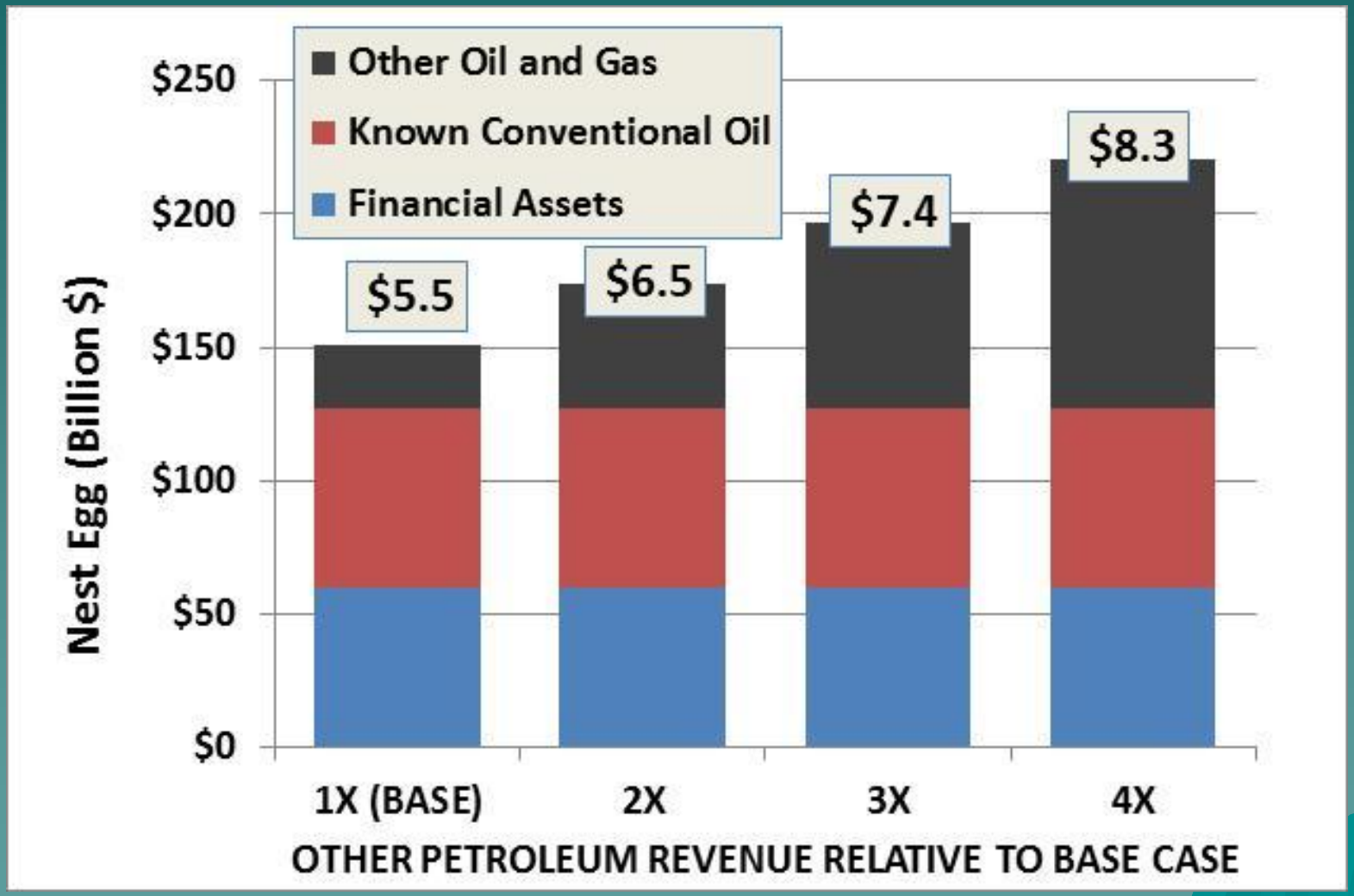
IT CAN'T WORK

- ✓ Confusion about the concept
- ✓ Uncertainty about portfolio size, rate of return, population growth, risk aversion
- ✓ Institutional constraints
- ✓ Political challenge of constraining current spending level
- ✓ Fragility of social contract (trust)
- ✓ Suppression of individual positive discount rate
- ✓ Speculative/Opportunistic migrants

IT SHOULDN'T BE TRIED

- ✓ Aversion to Public Savings Accounts
- ✓ Negative effects of "Rentier Society" or "Trust Fund Babies"
- ✓ Indifference to future generations of Alaskans
- ✓ Past good luck will continue
- ✓ Life was better before petroleum
- ✓ Future generations preferences unknowable
- ✓ Money in the bank is not working for Alaska economy

MSY Sensitivity to Assumptions



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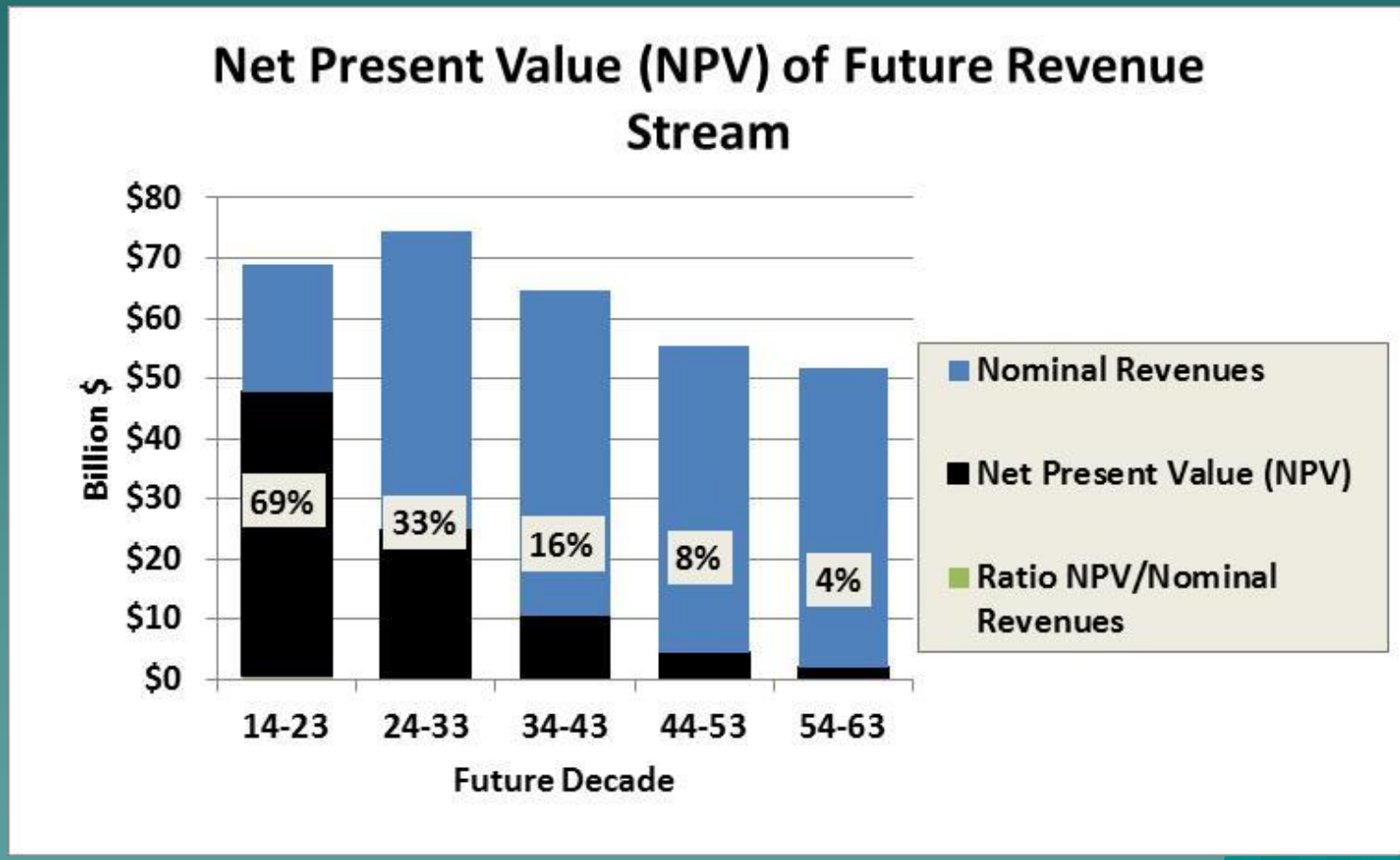
Future Petroleum Revenues Have Lower Current Value



Better than the Current Fiscal Strategy?

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