Maximum Sustainable Yield: A Fiscal Road Map for Alaska

Alaska Oil and Gas Association
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With Generous Financial Support From

Northrim Bank
Customer First Service
The Owner State Challenge

• 50% of the economy depends on the production of non-sustainable state-owned oil
• 95% of GF revenues come from that oil
• Production and revenue are falling, but employment and the demand for public services are growing
• No other resource can replace the economic contribution or revenue from oil

How can we sustain the prosperous economy and healthy level of public services we enjoy today for future generations?
Business as Usual Fiscal Plan: GF Spending Not Sustainable

GF Annual Growth Rate = 4.5
A Solution: Maximum Sustainable Yield

Recognize Petroleum is a Depleting Asset Belonging Equally to Current and Future Generations of Alaskans

1) How Big is Our Nest Egg?
2) How Should We Manage It?
3) How Should We Spend it?
Petroleum Wealth
Embedded in our Infrastructure

Physical Capital

Human Capital
Petroleum Wealth in the Bank (Billion $)

$60
Petroleum Wealth in the Ground

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

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>28-38.5</td>
</tr>
<tr>
<td>Known Conventional</td>
<td>7-9.5</td>
</tr>
<tr>
<td>Known Unconventional</td>
<td>3.5-4.5</td>
</tr>
<tr>
<td>Yet to be Discovered</td>
<td>17.5-24.5</td>
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</table>
Petroleum Production Scenario

PRODUCTION $ \times \text{REVENUE PER BARREL} = \text{NOMINAL REVENUES}

Cumulative Nominal* = $536 Billion

* Thru 2100
Future Petroleum Revenue: Present Value (Billion $)

Discounted Net Present Value = $89

- Known Conventional
- Natural Gas
- New Conventional Oil
- Shale Oil
- NPRA
- ANWR
- Viscous/Heavy Oil
- OCS

2014: $67
2039: $22
The Nest Egg: Petroleum Wealth of the “Owner State”

<table>
<thead>
<tr>
<th>TOTAL</th>
<th>$149 Billion</th>
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<tbody>
<tr>
<td>In the Bank</td>
<td>$60 Billion</td>
</tr>
<tr>
<td>In the Ground</td>
<td>$89 Billion</td>
</tr>
<tr>
<td>Known Conventional Oil (DOR)</td>
<td>$67 Billion</td>
</tr>
<tr>
<td>Other Oil and Gas</td>
<td>$22 Billion</td>
</tr>
</tbody>
</table>

$200,000 for each current resident
How Should We Manage the Nest Egg? (Asset, Endowment)

Financial Assets—Invest for maximum financial return. Deviate only when flow of benefits is demonstrably greater and asset value is maintained.

Petroleum in the Ground—Adopt a knowledge based, consistent, and proactive approach to maximize long run return to the state.
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

<table>
<thead>
<tr>
<th>Nest Egg</th>
<th>$149 Billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment Return (Net Inflation)</td>
<td>5%</td>
</tr>
<tr>
<td>Population Growth</td>
<td>1%</td>
</tr>
<tr>
<td>MSY Draw Rate</td>
<td>4% = (5%-1%)</td>
</tr>
<tr>
<td><strong>MSY Draw</strong></td>
<td><strong>$6 Billion</strong> = ($149*4%)</td>
</tr>
</tbody>
</table>

For FY 2014
Maximum Sustainable Yield: Nest Egg Growth
Maximum Sustainable Yield: General Fund Growth

- Non Petroleum Revenues
- Financial Earnings
- Current Petroleum Revenues

Graph showing growth from 2014 to 2039 in billion dollars.
Maximum Sustainable Yield: Mechanics

NEST EGG

$7.3

$4.5

Financial Earnings

Oil & Gas Revenue

4% Draw

$6

Nest Egg Cash Flow

Saving & Reinvestment

$5.8

$6 Total Maximum Sustainable Yield
Maximum Sustainable Yield: Disposition

Total Maximum Sustainable Yield $6

- $1 Permanent Fund Dividend
- $5 General Fund
- $5 General Fund
- $0.5 GF Non Petroleum Revenues

$5.5 GENERAL FUND MAXIMUM SUSTAINABLE YIELD
<table>
<thead>
<tr>
<th>GF Actual Spend (Billion $)</th>
<th>$7.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>GF Maximum Sustainable Yield Draw*</td>
<td>$5.5</td>
</tr>
<tr>
<td>GF Over Spend Fiscal Burden &amp; Asset Erosion</td>
<td>$2.1</td>
</tr>
</tbody>
</table>

• 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.
Better than the Current Fiscal Strategy?

"Please God, give us another oil boom, we promise not to @#&% it away this time"
Impact of Higher Nest Egg Estimates

- Base Case: $5.5 billion
- ANWR: $7.0 billion
- ANWR + OCS: $7.25 billion

- ISER Other Projected Revenues After 2022
- DOR 10 Year Projection Extended
- Financial Assets
Is it Possible?
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