Maximum Sustainable Yield: A Fiscal Road Map for Alaska

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With Generous Financial Support From

Northrim Bank
Customer First Service
Alaska Petroleum Revenues: $183 Billion since 1977
 GF Appropriations Have Grown to Match Higher Revenues

Source: Legislative Finance Annual Fiscal Summary.
DOR Projected Petroleum Revenues

Fall 2012 (before SB21) – 5% Real Decline Rate
Non Petroleum GF Revenues (per capita)

Excludes General Fund earnings
Non-Petroleum Strategies for the Future?

- Natural Resource Development
- Value Added Processing
- Economic Diversification
- Infrastructure Investments in Power and Transportation
- Footloose Industry
- Renewable Energy
Replace $7.5 Billion in Petroleum Revenue with Taxes on Other Resources?

$10,000 / OZ. GOLD

$50 / SALMON

$5,000 / TOURIST

*Estimate for FY 2011
Alaska: An Island Economy
### Petroleum Wealth in the Bank (Billion $)

<table>
<thead>
<tr>
<th>Fund Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>$62</td>
</tr>
<tr>
<td>Permanent Fund</td>
<td>$44</td>
</tr>
<tr>
<td>CBR (Constitutional Budget Reserve)</td>
<td>$18</td>
</tr>
<tr>
<td>SBR (Statutory Budget Reserve)</td>
<td></td>
</tr>
<tr>
<td>GF (General Fund)</td>
<td></td>
</tr>
</tbody>
</table>
10 Year Fiscal Plan: Judicious Use of Reserves?

$300 million in 2013, $700 million in 2014
A Bridge to Nowhere?
(Billion Nominal $)

Looking Beyond the 10-Year Horizon

- Cash Reserve
- Natural Gas
- New Oil
- DOR Oil Revenues
- Non Oil
- GF Spending: 4.5%
Annual Market & Wellhead Value: Comparing Oil and Gas Pipelines

Market Value = $18 Billion

Market Value = $19 Billion

Billion $ Per Year

$20

$16

$12

$8

$4

$0

500K Barrels / $100 Oil

3.5 BCF / $15 MCF

Daily Through & Market Price

DELIVERY COST

WELLHEAD VALUE
# Future Petroleum Revenue Potential is Limited

<table>
<thead>
<tr>
<th></th>
<th>Production Tax</th>
<th>Royalty</th>
<th>Corporate Income Tax</th>
<th>Property Tax</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STATE LAND</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conventional</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Conventional Marginal</td>
<td>?</td>
<td>?</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Unconventional</td>
<td>?</td>
<td>?</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td><strong>NPRA</strong></td>
<td>Y</td>
<td>½*</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td><strong>ANWR</strong></td>
<td>Y</td>
<td>½**</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td><strong>OCS</strong></td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
</tbody>
</table>

* Shared with local governments.
** Subject to Congressional approval.
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?
## HOW BIG IS THE NEST EGG?

<table>
<thead>
<tr>
<th>TOTAL</th>
<th>$149 Billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the Bank</td>
<td>$62 Billion</td>
</tr>
<tr>
<td>In the Ground</td>
<td>$87 Billion</td>
</tr>
<tr>
<td>Known Conventional Oil</td>
<td>$65 Billion</td>
</tr>
<tr>
<td>Other Oil and Gas</td>
<td>$22 Billion</td>
</tr>
</tbody>
</table>

$200,000 for each current resident
Projected Oil Production

- ANWR
- NPRA
- OCS
- SHALE OIL
- VISCOS & HEAVY OIL
- NEW CENTRAL NS CONVENTIONAL
- KNOWN CONVENTIONAL

Graph showing projected oil production from 2014 to 2064 in thousand barrels per day.
Projected Petroleum Revenue
Projected Real Petroleum Revenue
Net Present Value of Projected Petroleum Revenue

![Bar chart showing the net present value of projected petroleum revenue from 2014 to 2064. The bars decrease in height over time, indicating a declining trend. The y-axis represents the net present value in million 2014 dollars, ranging from $0 to $7,000, and the x-axis represents the years from 2014 to 2064.]
HOW SHOULD WE MANAGE THE NEST EGG (Asset, Endowment)?

For Maximum Long Run Return
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></th>
<th>Nest Egg</th>
<th>$149 Billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment Return (After Inflation)</td>
<td></td>
<td>5%</td>
</tr>
<tr>
<td>Population Growth</td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>MSY Draw Rate</td>
<td></td>
<td>4% = (5% - 1%)</td>
</tr>
<tr>
<td><strong>MSY Draw</strong></td>
<td></td>
<td>$6 Billion = ($149 * 4%)</td>
</tr>
</tbody>
</table>
Maximum Sustainable Yield: Mechanics (2013)

NEST EGG

Oil & Gas Revenue
$7.3

$4.5

Nest Egg Cash Flow

$6

4% Draw

$6

Financial Earnings

Saving & Reinvestment

$5.8

$6 Total Maximum Sustainable Yield
Maximum Sustainable Yield: Disposition (2013)

Total Maximum Sustainable Yield $6

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

$5.5 GENERAL FUND MAXIMUM SUSTAINABLE YIELD
Maximum Sustainable Yield: Nest Egg Growth
Maximum Sustainable Yield: General Fund Growth
## FY 13 & 14 General Fund Spending (Billion $)

<table>
<thead>
<tr>
<th>GF Actual Spend</th>
<th>$7.6</th>
<th>$6.8*</th>
</tr>
</thead>
<tbody>
<tr>
<td>GF Maximum Sustainable Yield Draw</td>
<td>$5.5</td>
<td>$5.5</td>
</tr>
<tr>
<td><strong>GF Over Spend</strong></td>
<td><strong>$2.1</strong></td>
<td><strong>$1.3</strong></td>
</tr>
<tr>
<td>Fiscal Burden &amp; Asset Erosion</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Sustainable with income and sales taxes.
Nest Egg & MSY Sensitivity: Other Future Oil and Gas Revenue