

ALASKA LEGISLATURE SPECIAL COMMITTEE/SUBJECT FILES 8672

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Historically, North American oil production operations have recovered about 35 percent of the original oil in place from developed fields. Where modern technology, including water flooding and other means of pressure maintenance are employed, the typical recovery rate in the Lower 48 is 40 percent. But we're doing better than that in many fields in Alaska.

If the projections set forth in Table 1 are realized, about 35 percent of the original oil in place in the discovered North Slope fields will be produced. But if we eliminate the amounts attributable to the three heavy-oil accumulations presented in the table (West Sak, Ugnu and Milne Point-Schrader Bluff), the projections in the table reflect an ultimate recovery of 51% of the original oil in place. Our projected recovery from the main Prudhoe Bay reservoir is almost 60%, and technological innovation may improve this recovery rate, depending in great part on how much the producers invest to develop those reserves. A 1% increase in recovery from the Prudhoe Bay field is the equivalent of finding a new field with 237 million barrels of economically recoverable oil.

Getting back to the heavy-oil accumulation at West Sak, Ugnu and Milne-Schrader, these reserves are enormous, amounting to 20.6 billion barrels of oil in place, or almost a third of the original oil in place in all the discovered fields on the North Slope. Unlike the highly productive sandstone formation at Prudhoe Bay, we project that a little over 3%, or 712 million barrels, of this oil will be recovered. This relatively cold, heavy or viscous oil flows poorly and is difficult to extract from the reservoir. The reservoir rock containing these accumulations crumbles easily, causing sand to impede the flow of oil. Viscous oil is also less valuable because it contains a smaller proportion of the lighter, more valuable hydrocarbons found in conventional oil. Technological developments (horizontal wells and jet pumps, for example) have improved the economic feasibility of recovering some of this oil, but most of it will probably remain uneconomic and in the ground.

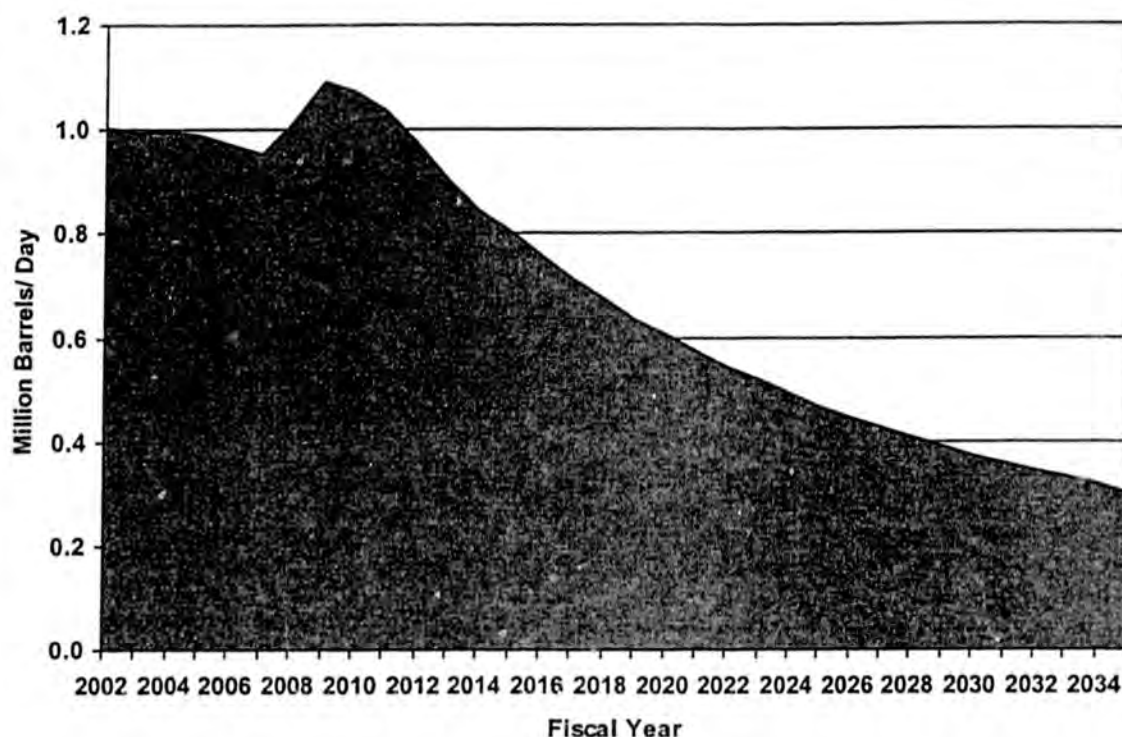
State tax policy could have some effect on whether this oil is produced, but the geology of the reservoir and the cost of extraction have as much to do with production rates as state tax policies.

The estimated production volumes set forth in the column "Currently Projected Additional Production" in Table 1 match (with one small exception) the production volumes the Department of Revenue would normally include in its periodic revenue forecasts. This column includes the department's production estimates from already-discovered fields. Our periodic revenue forecasts, for the most part, also reflect only production from discovered fields. However, where particular circumstances lead us to believe current exploration activity is very likely to result in new production within the next five years, we include estimated production from those undiscovered fields in our forecast.

In this forecast we have included production from as-yet-unverified Kuparuk satellite prospects. The producers have explored and continue to explore in the Kuparuk area. They have enjoyed a high rate of success in finding Kuparuk satellites, and they can bring these satellites on line in three years or less, given the available facilities at Kuparuk. Therefore, we reasoned that to leave these barrels out of the short-term forecast would understate likely production. This forecast includes 99 million barrels from these Kuparuk satellites, with production beginning in Fiscal 2005 at 5,000 barrels per day and peaking in 2007 at 20,000 barrels per day.

That's really what most people look for in our spring and fall production forecasts — how much oil will be produced each year. To arrive at those projections, we take the total production volumes in the "Currently Projected Additional Production" column from Table 1 and allocate those volumes year-by-year to reflect our estimate of the time when the oil will actually be produced. Figure 1 on the next page reflects this production profile. See also Table 8, Page 37; Table 20, Page 60; and Appendix D.

Figure 1. Department of Revenue ANS Production Forecast



The Department of Revenue estimates there could be 8.5 billion barrels of additional production from currently discovered North Slope fields (Table 1). Approximately 3.8 billion of those 8.5 billion barrels could be recovered with only those investments needed to preserve the integrity and safety of the facilities (the LTO investments referred to previously).⁽⁴⁾ Production of the other 4.7 billion barrels would require significant additional investment. Table 2 on the next page reflects these amounts field by field.

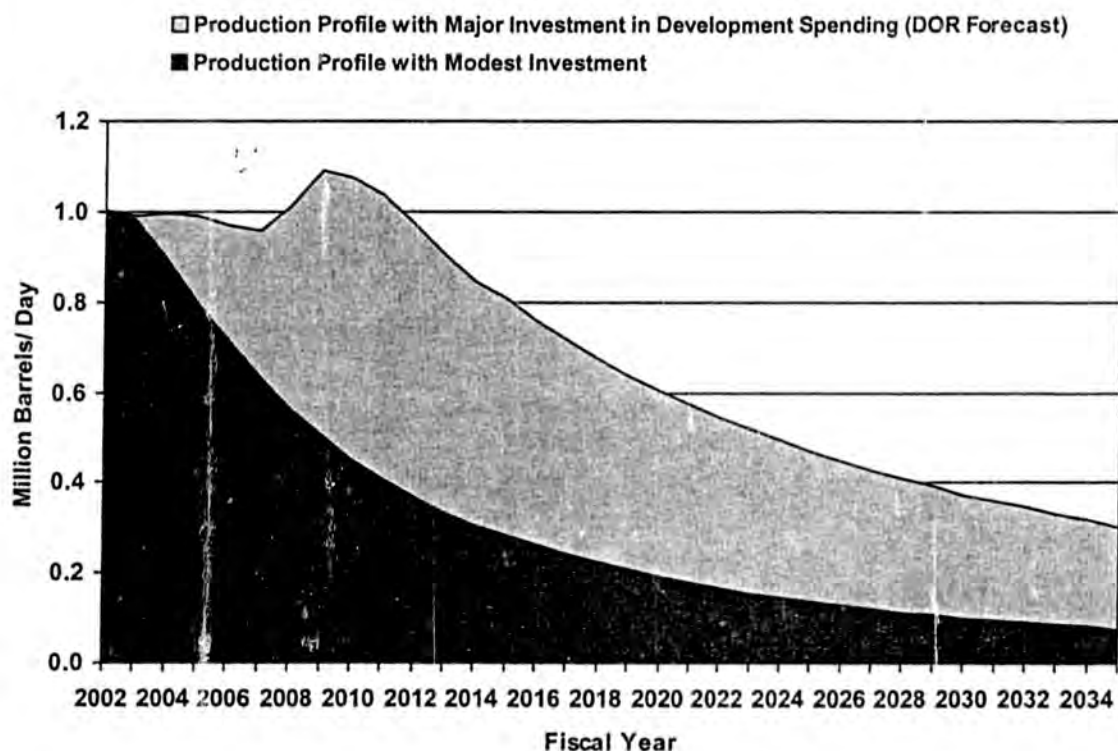
Figure 2 on Page 16 reflects these amounts by year. Clearly then, about one-half of the oil in this forecast will require major additional investment. If that investment is not made, is delayed, or is less than anticipated, then production will fall short of what we forecast.

(4) We derived this 3.8 billion barrels as follows: 1) For fields on decline, we derived a reserve amount and a corresponding production profile for this moderate investment case by first eliminating the reserves and production from anticipated development drilling and EOR/facility expansion projects. Then, we calculated an initial field decline rate by looking at production from each field as a whole (or in some cases at an isolated group of wells in that field) during a period of relatively low investment in that field or field area. We assumed the decline would be exponential (a constant year by year percentage decline) rather than hyperbolic (percentage decline slowing over time); 2) for newer fields not yet on decline, we used a lower-end reserve number in estimating a production profile; and, 3) finally, we assumed no new fields would be discovered and brought online in a moderate investment world.

**Table 2. North Slope Remaining Oil Reserves Categorized by Investment Required
Modest Additional Investment or Major Additional Investment
Million Barrels**

	Remaining Reserves Recoverable with Modest Additional Investment	Additional Reserves Recoverable with Major Additional Investment	Total Possible Remaining Reserves from Both Modest and Major Investment
Producing Fields			
Prudhoe Bay (Oil and NGLs)	1,400	2,000	3,400
Prudhoe Bay satellites (Midnight Sun, Aurora, etc.)	160	340	500
Lisburne	40	0	40
Point McIntyre	130	40	170
Greater Point McIntyre Area (Niakuk, etc.)	50	0	50
Kuparuk	850	290	1,140
Kuparuk Satellites excl. heavy oil (Tabasco, Tarn, etc.)	140	0	140
West Sak	50	320	370
Milne Point- Kuparuk and Sag River	170	50	220
Milne Point- Schrader Bluff	120	190	310
Duck Island Unit (Endicott, Eider, Sag Delta)	130	40	170
Badami	2	0	2
Alpine	380	80	460
Northstar	<u>130</u>	<u>70</u>	<u>200</u>
Subtotal	3,752	3,420	7,172
Discovered Non-Producing Fields			
Alpine Satellites (Nanuq, Fiord, etc.)	0	180	180
Liberty	0	150	150
Point Thomson and Related Fields (Sourdough, Yukon Gold)	0	560	560
Sandpiper	0	60	60
NPR-A (Rendezvous/Spark)	0	400	400
Ugnu	0	0	0
OCS Offshore (Kuvlum, Hammerhead)	<u>0</u>	<u>0</u>	<u>0</u>
Subtotal	0	1,350	1,350
Total	3,752	4,770	8,522

**Figure 2. ANS Production Forecast
Modest Investment vs. Significant Investment**



New Discoveries

According to the most recent assessments by the U.S. Geological Survey, new discoveries in five areas could significantly add to North Slope reserves within the next few decades: (1) the National Petroleum Reserve-Alaska (NPR-A), (2) Arctic National Wildlife Refuge (ANWR), (3) Central North Slope, (4) Eastern Thrust Belt, and (5) Beaufort Shelf. ⁽⁵⁾ Discovery and development of these potential reserves will depend on oil prices, Alaska's competition for oil exploration investment dollars worldwide and, in the case of ANWR, congressional action.

NPR-A.

NPR-A probably contains 9.3 billion barrels of technically recoverable oil, according to the Geological Survey's 2002 assessment of the area. However, the federal agency believes this oil is mostly in relatively small accumulations of 32 million to 256 million barrels. They do not believe NPR-A contains a field as large as Kuparuk (6 billion barrels of original oil in place), let alone one the size of Prudhoe Bay (over 23 billion barrels of original oil in place). Another disadvantage is that USGS believes NPR-A's oil is spread out in multiple accumulations the size of Alpine (429 million barrels), Tarn (70 million barrels) and Nanuq (40 million barrels). These fields, they say, are scattered over an area of 36,000 square miles.

(5) The Minerals Management Service (MMS) made this assessment in 2000.

Due to the small size of the oil reservoirs and the high cost of transporting oil from those reservoirs to market, USGS estimates that NPR-A's reserves are uneconomic at West Coast ANS prices of \$20 a barrel or less. However, at a West Coast price of \$22 per barrel, 1.3 billion barrels would be economically recoverable. If West Coast ANS prices were \$25 per barrel, 3.7 billion of the 9.3 billion barrels would be economic.

In addition to anticipated but undiscovered oil, NPR-A contains some already discovered oil. ConocoPhillips last year announced a discovery on the east side of NPR-A. The Department of Revenue believes that discovery will yield 400 million barrels of recoverable reserves from multiple accumulations, and we have included these barrels in our forecast. These 400 million barrels are included in the estimate of 1.3 billion barrels of economically recoverable oil from NPR-A at \$22 a barrel. We forecast production from this discovery to begin in Fiscal 2008 at a rate of 30,000 barrels per day and peaking at 95,000 barrels per day in 2011. Meanwhile, ConocoPhillips plans to continue drilling exploratory wells in NPR-A.

ANWR.

Though the USGS estimates that ANWR contains only slightly more technically recoverable oil than NPR-A (10.3 billion barrels vs. 9.3 billion barrels), ANWR's oil is probably contained in larger reservoirs, according to the USGS. For that reason, USGS believes the ANS West Coast price would have to fall below \$16 for all of the projected ANWR reserves to become uneconomic. At \$22 per barrel, USGS believes 4 billion barrels of ANWR reserves would be economic (vs. 1.3 billion for NPR-A at the same price). However, ANWR has major hurdles to overcome, including congressional approval, environmental impact studies and lease sales before any exploratory wells could be drilled. Thus the U.S. Energy Information Agency estimates that nine years will pass between congressional approval for oil drilling in ANWR and first production.

Adding New Discoveries to Our Production Forecast.

Using the Geological Survey's assessment of North Slope oil potential and assuming a long-term West Coast price of \$22 per barrel, the following table reflects the USGS projection of economically recoverable reserves from future North Slope discoveries.

**Table 3. USGS- Estimated Economically Recoverable Reserves
From New North Slope Discoveries at \$22 per barrel ANS Price
Millions of Barrels**

<u>Undiscovered Fields</u>	<u>Reserves</u>
NPR-A Net of Rendezvous	900
Central North Slope Satellites	1,500
Eastern Thrust Belt and Foothills	900
ANWR	4,400
Beaufort Shelf Federal Offshore	<u>2,600</u>
Total Undiscovered	10,300

BP recently announced it was using a Brent price of \$16 per barrel to evaluate the economic feasibility of its oil production investments worldwide. This price closely approximates a U.S. West Coast ANS price of \$16 per barrel, and is slightly below the long-term average price for North Slope crude over the 15-year period 1986 through 2000. Other North Slope producers have not officially announced the oil prices they are using to evaluate the feasibility of new projects. However, we believe some are using a price that is closer to the price the Department of Revenue is projecting in this forecast.

For several years the Department of Revenue has consistently forecast that ANS prices would continue to maintain the long-run average of \$16 to \$17 per barrel that persisted from 1986 to 2000. As we explain later in this forecast, we are changing our long-run outlook and we are forecasting a substantial increase in the long-run delivered West Coast price of ANS to \$22 per barrel. If we are correct in making this change, and if exploration and production companies interested in the North Slope were to base their investment decisions on this higher price, then we believe the production profile reflected in Figure 3 on the next page would be an optimistic — but perhaps achievable — target. We have not included any production from ANWR in this profile because congressional action is required before new exploration could commence there.

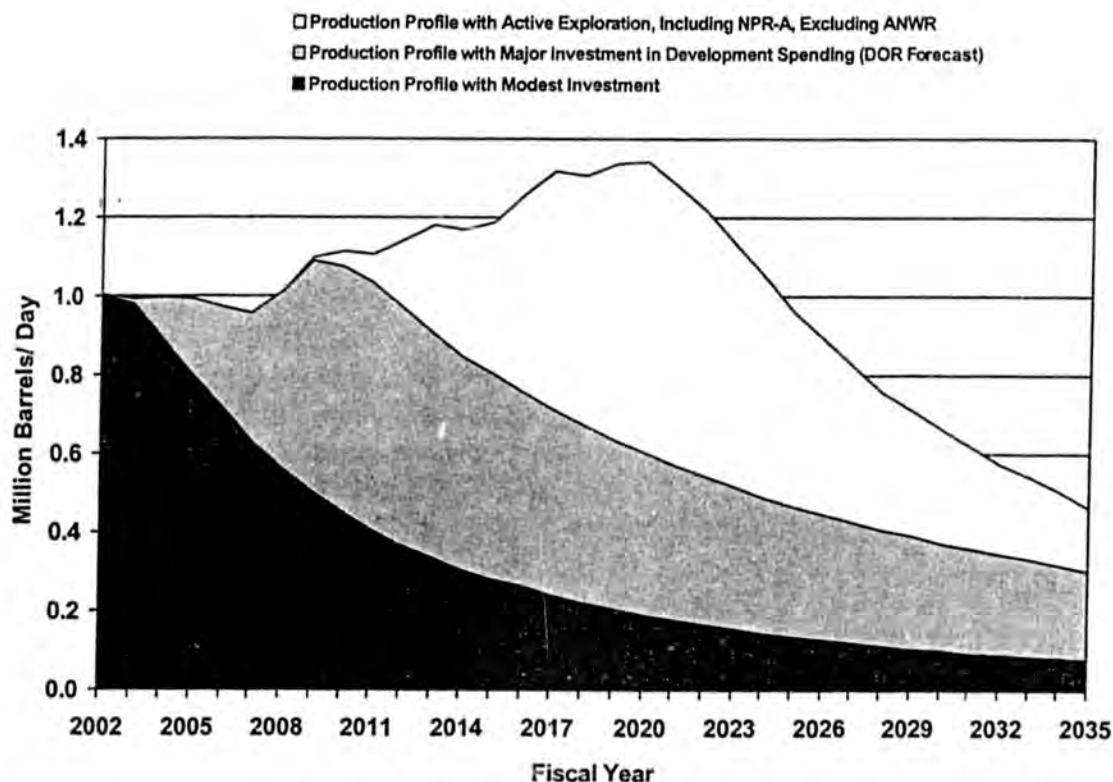
Attracting and Monitoring Investment Dollars.

Additions to North Slope production can come in two ways: 1) recovering a greater proportion of the oil in already discovered fields, or 2) discovering new fields or satellites to discovered fields. Over the next decade we project that adequate spending on discovered fields would maintain North Slope production near the million-barrels-a-day level. To keep production at or above a million barrels a day in the following decade, however, companies will have to discover new fields and new satellites to existing fields this decade. Then as discovered field production spending declines, companies will have to spend more money to bring production online from new satellites and new fields.

The figure on the next page illustrates the relationship between investment dollars spent to find and develop oil on the North Slope and the vitality of the oil industry in Alaska over the next two decades and beyond.

- If North Slope producers invest only at the level required to maintain the safety and integrity of the current production infrastructure, the dark-colored dotted area reflects the likely production profile.
- If the companies involved invest significantly to produce oil that has already been discovered, then the production forecast reflected by the light and dark dotted areas is, we believe, the likely profile. Our current revenue forecast is based upon this production profile.
- If immediate, substantial, successful and continuing exploration occurs, the top line volume profile — or more — may be attainable.
- Finally, even if exploration investments and successes are less than these optimistic hopes, unexpected additional discoveries would add to our forecast projections.

Figure 3. ANS Production Forecast
Modest Investment vs. Significant Investment vs. New Discoveries



For discovered fields, we believe it will cost \$3 per barrel to drill the necessary wells and provide the infrastructure to produce the additional 4.7 billion barrels of discovered North Slope oil requiring substantial investment. (These are the 4.7 billion barrels of the 8.5 billion barrels already discovered on the slope that require significant investment, as opposed to the 3.8 billion barrels that could be produced with more moderate investments in the operations, safety and integrity of the facilities.) Therefore, to fully replace the 365 million barrels of reserves (1 million barrels per day) produced each year, the companies must spend around \$1.1 billion per year (\$3 per barrel x 365 million barrels).⁽⁶⁾ In addition, the companies must spend \$300 million per year in LTO capital just to preserve the safety and integrity of their facilities and to maintain a base flow of oil.

For undiscovered fields, and to maintain at least a million barrels a day of production in the following decade, new fields will need to be discovered this decade at a projected finding cost of \$1 per barrel.

(6) As development spending on discovered fields declines, development spending on newly discovered fields must increase to maintain production levels.

Therefore, to find most of the 6 billion of possible new-field barrels estimated by the Minerals Management Service and USGS, the companies must spend \$300 million to \$365 million per year ⁽⁷⁾ in exploration spending at NPR-A, the Central North Slope satellites, Eastern Thrust Belt and foothills, and Beaufort Shelf. That's in addition to the \$1.4 billion per year in ongoing development spending on past, present and future discovered fields.

In sum, to reach our most optimistic forecast, the companies will need to spend \$1.7 billion to \$1.8 billion a year in capital spending. (These investment amounts are only for exploration and development on the North Slope; they do not include downstream investments in the Trans-Alaska Oil Pipeline or marine vessels).

What Do We Know About Current Investment Levels on the North Slope?

ConocoPhillips reports its investments in Alaska in its annual 10K statements filed with the Securities and Exchange Commission and in its annual reports to shareholders. While BP does not separately report its Alaska investments in its annual reports to securities regulators or its shareholders, it has publicly announced its investment plans for its North Slope operations. ExxonMobil neither separately reports nor publicly announces the amounts it plans to invest in its share of North Slope operations. Since all of ExxonMobil's current North Slope operations are conducted in partnership with other companies and since those partners make public the amount of their Alaska North Slope exploration and development investments, we believe it is possible to derive a reasonably close approximation of ExxonMobil's North Slope investments. Other companies currently active on the North Slope - ChevronTexaco, Anadarko and EnCana — publicly disclose the amounts of their North Slope capital spending programs.

From the information we have been able to compile, the Department of Revenue estimates that over the three-year period 2000-2002 the pertinent companies averaged \$1.4 billion in annual exploration and production investment on Alaska's North Slope. This is \$300 million to \$400 million below the annual investment level we believe is required to achieve the top production profile reflected in Figure 3 on Page 19. Although \$300 million to \$400 million may represent only a 20% shortfall in our back-of-the-envelope estimations, much of the deficiency is in exploration spending. Lack of exploration spending makes our production forecast for as-of-yet-undiscovered barrels highly speculative.

It looks as though North Slope exploration and production investment for the current year will be about \$1.2 billion. This is a 20% drop from spending in the years immediately preceding 2002. Certainly, the completion of new facilities at Northstar and Alpine account for most of that reduction in 2002. Still, we believe companies are spending less in both development and exploration than they need to replace current production on the schedule we have forecast.

The three major North Slope producers currently take different approaches to adding to their reserve and production base on the North Slope. ConocoPhillips has an active wildcat exploration program and is actively exploring NPR-A. It also has an active satellite exploration program. BP has almost completely abandoned North Slope wildcat exploration, but it has made a significant commitment to the application of new technology to its heavy-oil interests in the Milne Point-Schrader Bluff reservoir and to search for satellite accumulations near the major producing reservoirs. ExxonMobil, it would appear, is seriously moving ahead with the potential development of the Point Thomson field. If that field is developed, BP, ConocoPhillips and ChevronTexaco — as partners in that field — will have to share in that investment. Other than Point

(7) Our most optimistic forecast has production declining below a million barrels a day in 2023. The \$300 million of exploration spending postpones the decline another decade. To discover enough barrels to totally replace the 365 million barrels of reserves produced each year will take at least \$365 million a year.

Thomson, ExxonMobil, like BP, is missing from frontier exploration and development on the North Slope, although it continues to pay its partner share in Prudhoe Bay production investments and satellite exploration there.

Great Expectations.

To maintain — and with luck increase — Alaska's North Slope oil production at a million barrels per day, this analysis leads to the conclusion that for each barrel leaving the North Slope, \$5 must come back to pay for new exploration and development. Is this a realistic expectation? Figures 4 and 5 on Page 23 provide one perspective for thinking about this question.

These two figures depict the per-barrel free cash flow available from North Slope production under two different price scenarios using our current forecast of North Slope costs in Fiscal 2008, the first year we expect production from NPR-A. The costs reflected for the Explorer-Producer would all be actual out-of-pocket costs assuming the company has no ownership interest in feeder pipelines, TAPS or marine tankers. The Integrated-Producer could receive as additional free cash flow roughly \$2 per barrel as a consequence of its ownership interests in pipelines and tankers.

At a \$22-per-barrel West Coast ANS price, the free cash flows attributable to North Slope production for both the Integrated-Producer at Prudhoe Bay and the Explorer-Producer in NPR-A would be about \$7.30 per barrel. We need to hope they will invest more than two-thirds of that amount in new exploration and production if we are to enjoy the benefits of million-barrels-per-day production after 2010. At a \$17.70-per-barrel West Coast ANS price (the average price from 1986 to the present), the per barrel free cash flow attributable to North Slope production operations for both hypothetical producers would be about \$5.25 per barrel. A \$5-per-barrel exploration and production reinvestment would consume almost all of this projected free cash flow, leaving very little to pay interest or dividends for the capital invested in North Slope production operations.

Looking at it coldly from the perspective of the investor, after setting aside money for reserve replacement through exploration and development, there is roughly \$2.25 left over from \$22 oil to pay interest and dividends. But at a price of \$17 per barrel, after subtracting for reserve replacement, the investor essentially gets nothing. It is clear that Alaska needs world oil markets to forget the \$17 average price of the past 15 years.

What about new entrants and investors in Alaska? They must bring hundreds of millions of dollars raised from production or investment elsewhere to Alaska. Presumably, they believe Alaska will be a better investment than their alternatives, including the original source of the cash. We must also recognize that the current major investors in Alaska are worldwide, integrated producers evaluating broad portfolios of opportunities. Although we can encourage them to reinvest in Alaska, movement of capital between projects and regions is one of the economic advantages of a large integrated company.

As Alaska matures, companies already producing here will probably require that Alaska operations are positive or at least cash neutral. That is, Alaska oil producers should not expect infusions of money from parent companies but must pay for future opportunities from their own Alaska operations. On the other hand, new entrants must be willing to accept periods of negative cash flow while they explore and develop before any oil — and money — starts to flow.

What Can the State Do to Make This Investment More Likely?

▪ Require the Investment.

The state could write investment or work commitments into future oil and gas leases, obligating leaseholders to those commitments. If the company doesn't do the work, the state could either take back the lease or require the leaseholder to allow another company to step in and do the work. But such lease terms would probably reduce both the price and marketability of future leases. The state cannot unilaterally change the terms of existing leases.

▪ Provide Incentives Through Tax Deductions or Tax Credits.

Although there are some nuances, fundamentally the more the government takes, the less there is to reward industry for making investments. Consequently, the lower the government take, the more likely the producer or explorer will invest. The incentive, if it is optimally structured, may lower the government's short-term take with the hope of increasing the long-term public benefit, or it may maintain the current level of total tax revenues while shifting the burden among producers.

The proceeds from producing oil in Alaska are taxed the same whether they are reinvested in Alaska or elsewhere in the world. The state could modify its production tax or income tax laws to provide a credit or a deduction for reinvestment in Alaska exploration or production. Alaska is particularly alone among major oil producers in not treating oil dollars that are reinvested here more favorably than oil dollars invested elsewhere.

▪ Make Alaska's Fiscal System Less Regressive.

When oil prices are very low, the state and federal government together take more than 100 percent of the profit from Alaska oil operations. When oil prices are high, the total government take from Alaska oil operations is low compared to comparable oil-producing provinces. This occurs because three major features of Alaska's fiscal system — the 20-mill property tax, the production tax and the royalty provisions in state leases — are not based on profits. Even when prices are so low that oil production operations are unprofitable, the state continues to receive a share from some or all of these sources.

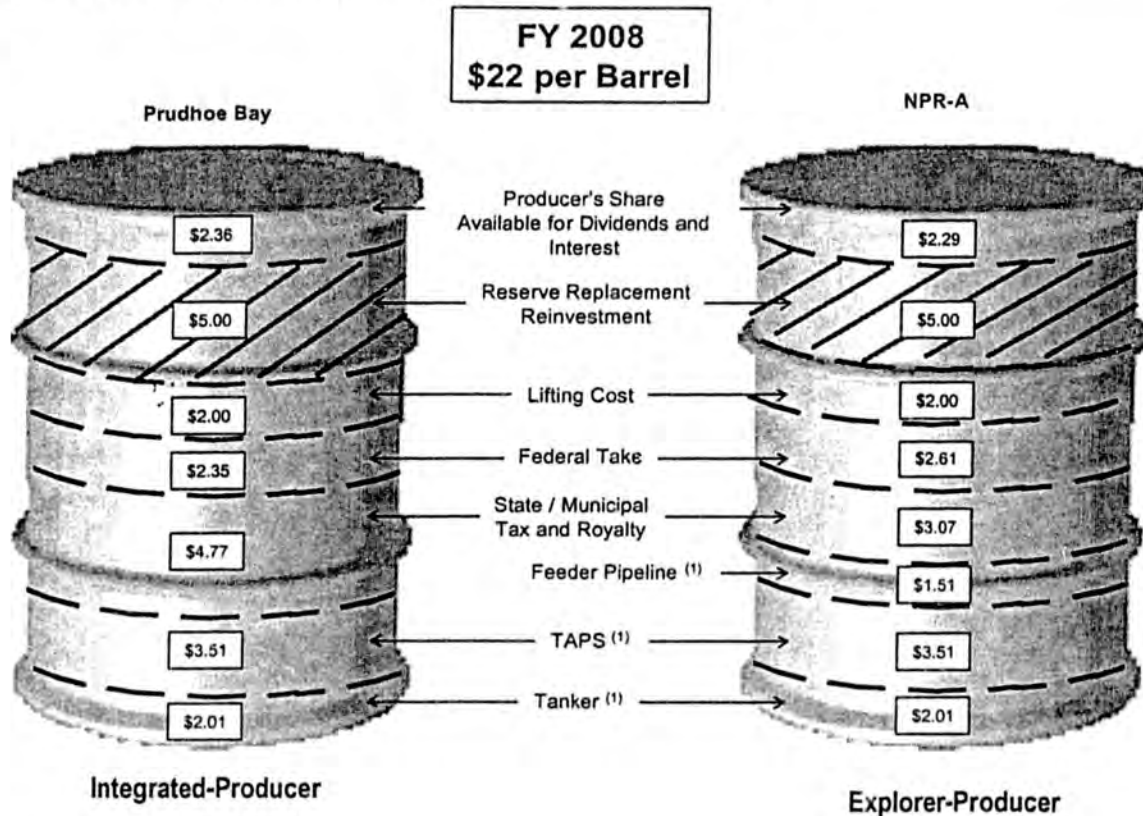
The state could modify its fiscal system to make it less regressive and thus share the risk of low oil prices and earn more when oil prices were high. Properly structured, such a modification could yield more total revenue for the state while at the same time making Alaska a less risky place to explore and produce oil.

A less regressive, more progressive fiscal system would require fiscal discipline by the state government, however. When oil prices were high, the state would have to save for the time when oil prices were low. One need only look to the Province of Alberta to appreciate the difficulties governments can encounter in managing huge swings in oil and gas revenue caused by a very progressive fiscal system.

▪ Eliminate the Structural Deficit in Alaska's Public Finances.

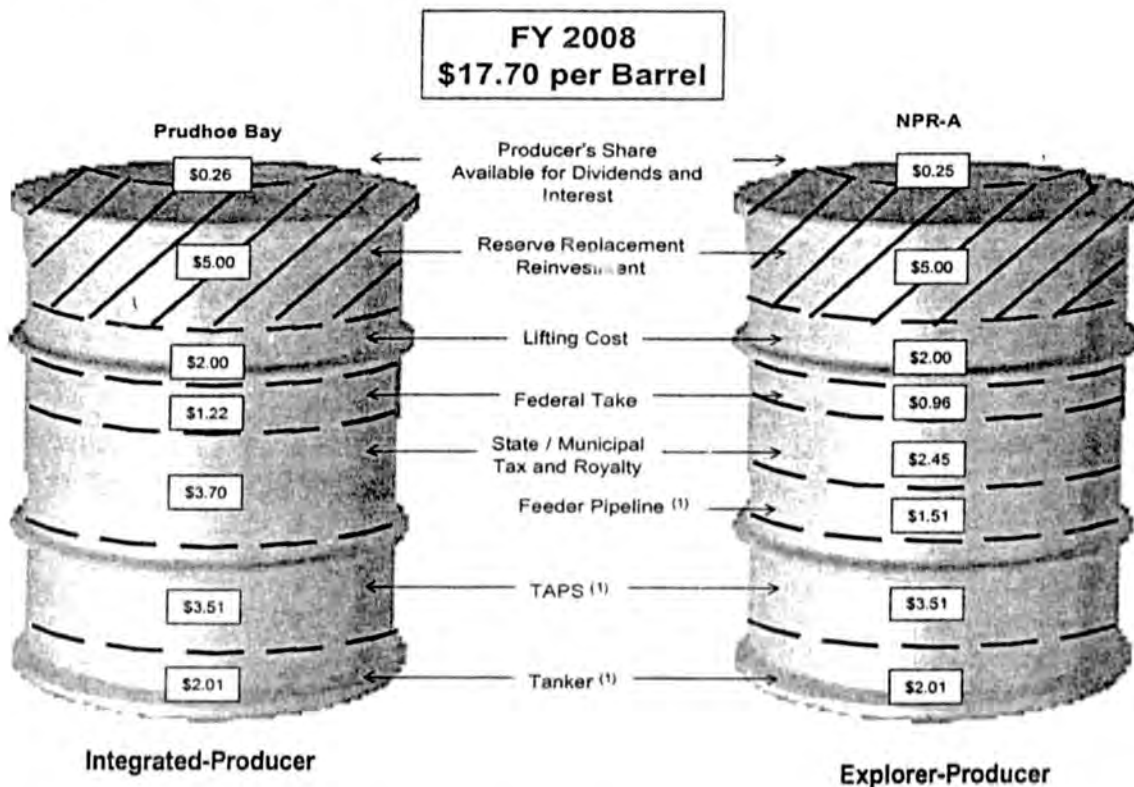
Current or would-be investors in the oil exploration and production opportunities in Alaska are necessarily going to be less willing to invest here if they believe they will be the ones called upon to plug our structural deficit with a "gap tax."

Figure 4. ANS Cash Flow With \$5 Reserve Replacement Reinvestment



(1) These are notional tariff values and include capital recovery so an owner of the asset may recapture some of these costs.

Figure 5. ANS Cash Flow With \$5 Reserve Replacement Reinvestment



(1) These are notional tariff values and include capital recovery so an owner of the asset may recapture some of these costs.

Gas Production as an Economic Opportunity

North Slope

Alaska's North Slope contains large amounts of natural gas. Prudhoe Bay holds approximately 24 trillion cubic feet (tcf), with 8 tcf at Point Thomson. Other discovered sources make for 35 tcf total discovered gas, and geologists estimate there may be as much as 100 tcf. Commercializing North Slope gas is one of the state's largest potential economic development prizes. A 100-tcf gasline project at 4.5 billion cubic feet (bcf) per day would support a vibrant gas exploration and production industry in Alaska, providing \$400 million to more than \$1 billion a year in public revenue for almost 60 years, depending on the cost of the project and gas prices.

Unfortunately, the gas has not been commercialized due to its distance from markets and the cost risks of arctic construction. Sponsors estimate a gas pipeline to the Midwest would cost \$20 billion. This distance creates high transportation expenses, adding to the cost of the gas in a competitive marketplace. If gas prices in the markets cannot cover the expenses and a reasonable profit, the project will not be feasible. Potential project sponsors have looked at lowering the unit costs by increasing the size of the project to ship more gas, but a large project creates its own set of risks, mainly the potential for a large loss if unfavorable events unfold.

The project faces two main risks: (1) the construction cost overrun risk, and (2) the commodity price risk, the latter probably being more problematic. The pipeline will only be financed under conditions where the sponsors agree to pay the tariff regardless whether the gas is shipped. That is the only way investors would agree to loan money for the pipeline. Those "ship-or-pay" contracts mean that even if gas prices are less than the full tariff, the producers would still have to pay the tariff — and lose money on each gas molecule they sell.

Part of the problem for a gasline is that the transportation costs (the pipeline tariff) eat up about 75% of the value of the gas when it's sold coming out of the line. That doesn't leave much margin to cover production costs, taxes, exploration and development costs and profit if gas prices take a tumble. The story is much different for North Slope oil, where the transportation costs consume only 25% of the value when oil prices are in the \$20 range.

Because of the slimmer margin for natural gas, the commodity price risk is a problem for the Alaska project. Project sponsors and investors need to focus on what gas prices will be for the next 30 years, the expected term of bonds sold to finance the project.

In any market for any commodity, consumers will purchase the lowest-cost item. Ordinarily, markets evolve by having lower-cost supplies enter the market first, followed by higher-cost supplies as needed to meet demand. There can be only one price in a commodity market, thus the market price for the entire supply will be set by the marginal supply of the last quantity to enter the market. The price of the marginal supply, and thus the market price itself, will be the cost of producing that last unit to enter the market.

In the situation where a specific quantity (such as natural gas) is already in the market, and a lower-priced one subsequently presents itself, consumers will naturally gravitate toward the latter — and the former must match the lower price to stay competitive. This is the challenge for North Slope gas.

Accordingly, a North Slope gas project will not be economically feasible if the gas cannot be transported to market for less than what new competing gas supplies will cost. The market will not pay above the lowest-cost new supply available. Therefore, the feasibility of the project depends largely on how potential sponsors view competing supplies from competing sources. The commodity price risk revolves around whether there are material quantities of lower-price gas to meet the market demand.

Most financial resources recently have focused on a pipeline through Canada, splitting off to the Midwest and West Coast markets, as the most promising option. The potential numerous sources of competing supplies make this a risky project. These could come, for example, from the deepwater Gulf of Mexico, liquefied natural gas (LNG) imports from the Atlantic or Pacific Basin, coal-bed methane, or from new technologies brought on by higher prices, just to name a few. Accordingly, an Alaska project needs to shed — or share — some risks before ever becoming a reality. Certainly, anything that creates more risks is going in the wrong direction.

Although lots of people are working hard to reduce the project risks, one (or both) of two things appear critical if the project is to be economically attractive to sponsors and investors:

- The sponsors and investors must hold the view that Lower 48 gas prices will be high enough in the years ahead so that North Slope gas will be profitable.
- Efforts by the state and/or federal governments to reduce the project risk must be successful. These efforts could include a price support or other means of sharing the commodity price risk, similar to the tax credit provision of the federal energy bill that passed the U.S. Senate this past session but died with adjournment.

Some people believe the best option is to pipe the gas to tidewater, liquefy it, and ship it to Pacific Rim markets as liquefied natural gas (LNG). This may be more risky than a pipeline to the Lower 48. The Pacific Rim is extremely bountiful in gas supplies at tidewater that do not have to bear the cost of an expensive 800-mile arctic Alaska pipeline to reach tidewater. This puts Alaska at a significant competitive disadvantage to other producers with gas at tidewater.

Even if the LNG were to go to Mexico's Baja Peninsula and then by pipe into California, as some have suggested, Alaska still would be at a price disadvantage. LNG tanker costs are relatively insignificant compared to the 800-mile pipeline, and the pipeline disadvantage would more than offset any shipping advantage Alaska might otherwise have over LNG supplies from Indonesia, Australia or East Timor. Moreover, at this time there are no LNG receiving terminals or even plans to start construction on the Baja, where environmental concerns are apparent. If an LNG project were smaller than 4.5 bcf/day, state revenues would be reduced accordingly.

Despite the odds, many Alaskans have not given up on an LNG project. More than 60% of Alaska voters on November 5 approved a ballot measure to create the Alaska Natural Gas Development Authority to acquire and sell gas and build, own and operate a natural gas pipeline for LNG export. It is not clear that the authority reduces any of the risks that are a barrier to development and may, in fact, transfer many of those financial risks to the state. Supporters of the ballot measure say the project would cost \$12 billion for 2 bcf/day.

Finally, another option for North Slope gas commercialization is a process where gas can be converted to high-value liquids and marketed with the oil. The technology for this "gas-to-liquids" process (GTLs) is still in the pre-feasibility stage, and at this time it would be prohibitively expensive to use on the North Slope.

Cook Inlet

Annual gas consumption and production in Cook Inlet over the past 20 years has been fairly steady at about 200 billion cubic feet (bcf). Cook Inlet currently has about 2.5 tcf of reserves, or a little over 10 years of consumption. Consumption is allocated approximately 15% to power generation, 15% to gas utilities, 40% to liquefied natural gas (LNG) exports to Japan from the Phillips' terminal at Kenai, and 30% to ammonia/urea production at Agrium's Nikiski plant.

Most Cook Inlet gas was discovered in a few very large fields in the late 1950s and 1960s. Since consumption has not changed materially over this period, the years of remaining reserves have decreased notably over the past several years. Also, there have not been large discoveries in recent years. This has caused many people to be concerned that Cook Inlet is running out of gas.

This, however, may be a premature conclusion. The large discoveries of gas years ago created a supply situation such that new supplies were not needed and any new discoveries would go unsold for years. Thus there was little incentive to look for gas. In the Lower 48, for example, annual discoveries have nearly offset annual consumption, and proven reserves have stood relatively constant at eight years. Companies do not need to invest in developing more new supplies than are needed to keep pace with consumption.

Accordingly, increased exploration is beginning to occur in Cook Inlet to find reserves to meet future demand. There is a large inventory of prospects, and it remains to be seen which ones produce how much gas.

When Would the Constitutional Budget Reserve Fund (CBRF) Fund Balance Fall to \$1.0 billion
for Different Combinations of State Spending and Oil prices

Annual State Budget	\$18/bbl	\$22/bbl	\$25/bbl	\$28/bbl	\$30/bbl
\$2.2 billion	Aug-05	May-06	Oct-07	Apr-08	May-10
\$2.3 billion	Jul-05	Feb-06	Jun-06	Apr-07	Aug-08
\$2.4 billion	Jun-05	Dec-05	Feb-06	Oct-06	Jul-07
\$2.5 billion	May-05	Oct-05	Nov-05	May-06	Dec-06

Notes: 1. Based on Fall 2003 Revenue Forecast assumptions (except price)
2. Estimates use the Alaska Fiscal Policy Driver Model

050



FALL 2000 REVENUE SOURCES BOOK

**Alaska Department of Revenue
Tax Division**

Tony Knowles, Governor
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Charles Logsdon, Chief Petroleum Economist

II. ALASKA'S **FISCAL OPTIONS**

Sources of Government **Revenue and the Alaska** **Economy**

The Constitutional Budget Reserve Fund — like the Permanent Fund dividend program — has become a major component of the state's economy. The budget reserve fund contributed almost \$4 billion to Alaska's economic base during the 1990s, and was especially important during the low oil prices of FY 1999 when it added more to the state's total personal income than even the dividend program.

And just as you would weaken the economy if you removed or reduced the annual dividend program, you will cause the same problems if no suitable replacement is found before the CBRF runs out of money.

Alaska's economic base depends on "new" money circulating throughout the economy — money from outside that comes in, increases purchasing power, and moves around. New money that comes into the state generates additional income when it is spent, either by businesses or by workers. It can start out as wages or it can begin as payments for goods that then works its way into personal income as it's paid out as wages.

The important thing about the economic base is that the money comes from outside the state, brought into Alaska to pay for goods and services. It could be money from oil, tourism, seafood or timber sales; military or federal civilian payroll; or oil taxes and royalties paid to the state. A dollar paid to the state in oil taxes or a dollar earned by the state from oil royalties could move around the same as a dollar paid in wages by an oil company. The state treasury is simply a stopover before the tax dollar goes out as public employee wages, as a construction contract, an office supply order or other purchase.

Eventually, most every dollar brought into Alaska will find its way back out of state to purchase goods, raw materials or services. The number of times the money circulates through the state's economy before it leaves is called the multiplier effect.

In looking at the state's economic base and the new money that builds that base, we see that here, too, the CBRF is similar to the Permanent Fund dividend program. The dividend program is new money because the cash for the annual checks comes mostly from earnings on investments outside Alaska. It's not simply recirculating money already here. The same is true for the CBRF.

The money in that account came from taxes and royalties paid by oil companies — new money to Alaska, not money already in the pockets of Alaskans or the cash registers of local businesses. As the state uses the CBRF to pay for wages, goods and services, the money is added to Alaska's personal income total.

The point is that when oil prices were at their lowest in Fiscal 1999, the CBRF supplied about one-eighth of the state's total economic base. The \$1.1 billion drawn out of the CBRF that year went to wages, goods and services purchased in Alaska. That money then moved through the economy, measured by the multiplier effect. Based on 1995 research by the University of Alaska's Institute for Social and Economic Research, the multiplier effect magnified the CBRF's Fiscal 1999 contribution to Alaska's economic base to \$2 billion — about 12 percent of the state's overall personal income that year.

Although oil prices have recovered, the outlook is for the heavy drain on the CBRF to resume in another year. This report forecasts that the CBRF payment to support the activities of state government — and to help fund Alaska's economic base — will average more than \$910 million a year from FY 2003-2006. That figure represents the CBRF's contribution before the multiplier effect.

The need for the money will not end in Fiscal 2006, but the money will. Even assuming oil prices remain above historic levels for several more years, the Department of Revenue forecasts the CBRF will hit empty in December 2005. The loss of the budget reserve fund will mean a major reduction in the cash flowing through Alaska's economy, which means the economic base, and the economy itself, will shrink.

If Alaska wants to protect its economic base it will need to find another source or sources of new money. That will not be easy. The three options most often mentioned all have the same drawback: They would simply alter the flow of money already in Alaska, doing nothing to fill the hole.

Broad-based taxes, such as a sales tax or a personal income tax, would mostly take money already moving through the economy and redirect it toward government services. Yes, we could add a little new money to Alaska's economic base by collecting sales taxes from visitors or income taxes from out-of-state workers, but both taxes from outside sources combined would likely fall short of even 10 percent of the \$910 million a year average draw from the CBRF.

Reducing the Permanent Fund dividend presents the same problem. Much of that money already is being added to Alaska's economic base. Shifting it from the dividend program to the state treasury to pay for teachers wages or road maintenance contracts or child care assistance would not add to the economic base and would not replace the gaping hole left by the empty CBRF.

It's the same problem with cutting the budget. If you reduce government support for public services to make up for the loss of \$910 million a year in CBRF money, the lower spending on goods and services would weaken the state's economic base.

None of these proposals would replace the contribution of the CBRF to Alaska's economic base. Selecting among these proposals — or a combination — would only determine which Alaskans bear the major burden of the economic retrenchment.

One less-painful option for bringing new money into Alaska's economic base is the annual earnings reserve of the Permanent Fund. That's the money left over from each year's investment earnings after dividends are paid and after money is added back to the fund to protect it from inflation. That amount is likely to average around \$250 million a year and could be directed toward filling part of the gap left behind by the CBRF. Because that money is not currently part of the state's economic base — it isn't being used for goods or services — it would be new money to Alaska.

Another hope is that a North Slope natural gas project could get under way in the next couple of years, generating public revenue of \$200 million to \$400 million a year or more in new money for the economic base by 2007. A gas project also would bring additional new money into the state to pay for wages, goods and services in the gas fields and transportation system. New oil discoveries also could produce additional pockets of new money to help cushion the loss of the CBRF.

One more option for bringing new money into the state is to increase taxes on the oil and gas industry. But that carries the risk of driving new investment to other areas worldwide if the industry believes Alaska is extracting too high a price. To fill the entire budget gap of \$910 million a year from increased oil and gas taxes alone would require almost tripling the state's three primary oil and gas taxes.

There just isn't any easy or painless answer to replacing the CBRF. Still, we need to talk about an eventual answer. And while we look at the options, Alaskans need to think of the budget reserve fund not just as a funding source for government but as a key part of the state's economic base. We need to think about how to replace that source of money without just moving funds between Alaska's limited pockets. If that's all we're thinking about, the economic reality that hits us when the CBRF is gone will be painful.

For more information on Alaska's economic base and the multiplier effect:

"What Makes the Alaska Economy Tick," by the Institute of Social and Economic Research at the University of Alaska, Anchorage; December 1991.

"Structural Analysis of the Alaska Economy," by the Institute of Social and Economic Research at the University of Alaska, Anchorage; January 1994.

"Structural Analysis of the Alaska Economy: A Perspective from 1997," by the Institute of Social and Economic Research at the University of Alaska, Anchorage; August 1997.

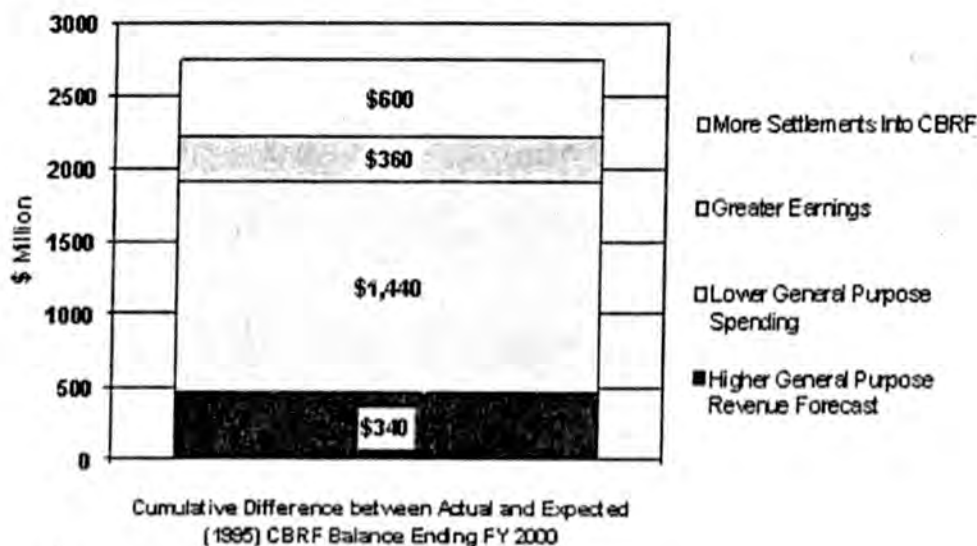
"A Long-Term Economic Development Strategy for Alaska," by the Alaska Science & Technology Foundation; April 2000.

Crying Wolf? A Brief History of Revenue Projections

In 1995, with oil prices hovering in the mid-teens and the state's income falling short of expenditures, the Department of Revenue predicted that we would exhaust the Constitutional Budget Reserve Fund by Halloween 2000. Instead, on October 31, 2000, the CBRF stood at \$2.75 billion. How did we get it wrong?

To understand why our reserves grow or shrink, it helps to understand how the state finances its needs. When oil revenues fall short of our projected spending, the state dips into the Constitutional Budget Reserve Fund. That reserve gets its money from the settlement of oil tax and royalty disputes. In FY 1999, we used \$1.1 billion from the CBRF to balance the books. Most recently, however, we have seen oil prices climb upwards of \$30 per barrel, and for FY 2001, we are projecting a surplus of \$117 million.

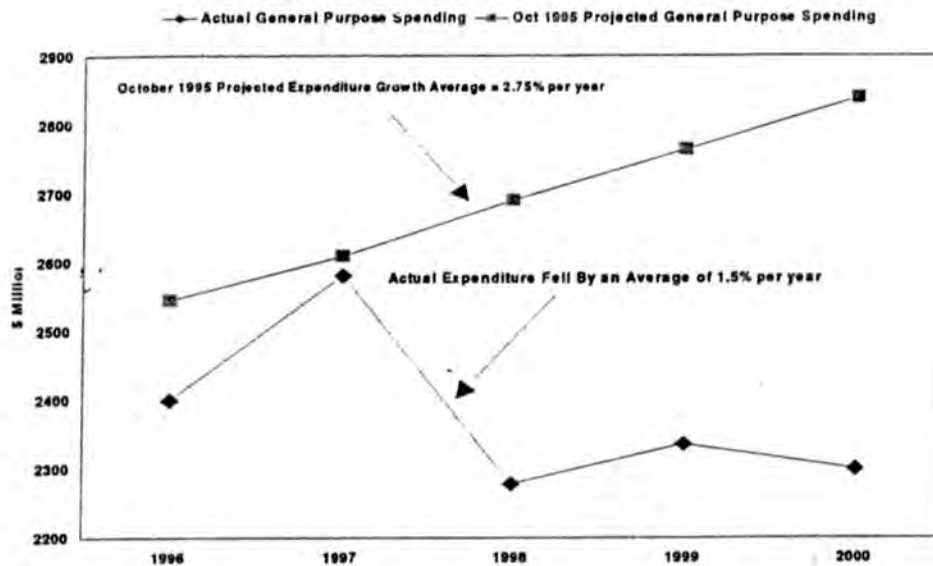
Why We Have More in the CBRF in FY 2000 Than We Expected



This \$2.75 billion discrepancy between our 1995 forecast and the CBRF balance in October 2000 can be broken into four pieces.

- First, as can be seen in the chart above, the lion's share is due to lower-than-expected General Fund spending. We had made the assumption in 1995 that spending would increase by 2¾ percent each year through the rest of the 1990s. In fact, spending actually declined by an average of 1½ percent per year in nominal dollars and we used much less of the reserve than we thought we would, leaving an additional \$1.4 billion in the fund.

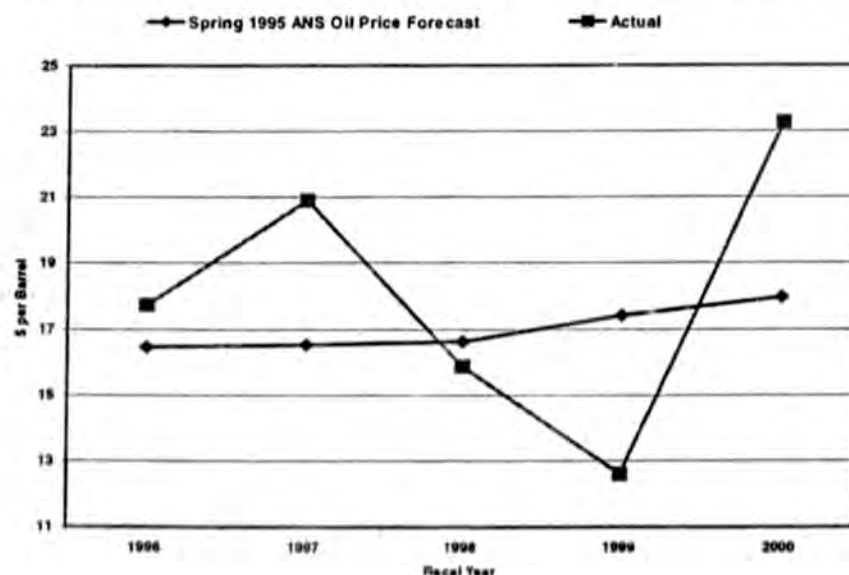
General Purpose Spending, FY 1985-2000



Each of the remaining three parts plays a much smaller role

- Our underestimate of oil revenue available to the General Fund accounted for \$340 million of the discrepancy. In 1995 we forecast the price of ANS would drift steadily upward, averaging about \$17.15 per barrel from 1995 through 2000. In fact, as the graph below shows, the price increased from 1995 through 1997, generating additional revenue. In 1998 and 1999 it crashed to \$5 per barrel below our prediction. Then in FY 2000, the price shot up by \$10 per barrel. The average actual price of \$18 per barrel over the period 1995 through 2000 exceeded our forecast average by about \$0.85 per barrel, but that was still enough to produce substantial income over the five years — money that we didn't have to take from the CBRF.

ANS Price Forecast Spring 1995 and Actual ANS Prices



- In 1995, we underestimated by \$600 million how much the CBRF would receive from oil and gas tax and royalty settlements over the next five years.
- Finally, because of the higher than anticipated balances in the CBRF, we earned \$360 million more on the money between 1995 and 2000.

The Department of Revenue is not alone in stumbling into the pitfalls of revenue and budget forecasting. Starting in 1989, the Institute of Social and Economic Research (ISER) at the University of Alaska Anchorage issued a series of papers on Alaska's fiscal policy, based on Department of Revenue oil production forecasts and ISER's own oil price and budget projections. At that time, ISER said a continuing decline in revenue would leave Alaska short of its spending needs and the CBRF would run out in 1992. The "Fiscal Gap" has been the center of budget discussions ever since.

For the present, the CBRF is healthy. However, if we assume that over the long run ANS will not maintain its price above the historical average of \$17 to \$18 per barrel, and if spending remains constant and we do not find additional revenue sources, we still face a fiscal gap. Today that gap is masked by high oil prices, and the day of fiscal-gap reckoning postponed. Our message is: It's better to plan ahead for the wolf's arrival than to cry when it's too late.

What Are the Options for Replacing the CBRF?

Although the state could balance its budget if oil prices remain around \$30 a barrel forever, and if new oil fields and other developments make up for declining production at the older fields, few expect that to happen. If oil prices were to average around \$20 per barrel through FY 2010 — higher than the average over the past 14 years of \$17.70 per barrel — we would need roughly \$1 billion per year to balance the budget at current expenditure levels.

Alaska therefore faces the prospect of a continued need to draw on its reserves. For this reason, we are including in this report a discussion of some of the most often mentioned changes to our fiscal system that could be used to help pay for the public services needed by a growing economy. Specifically, we examine broad-based taxes on sales and income, possible changes to oil and gas taxes, and use of some of the earnings from the Permanent Fund.

Broad-based Taxes

Alaska has an extraordinarily narrow tax base centered on the oil and gas industry. In FY 2000 three tax and royalty payers were responsible for more than 75 percent of the money spent from the General Fund.

Given the effect on state revenue from the eventual decline in North Slope oil production and the volatility of oil prices, instituting a personal income tax or a statewide sales tax often surfaces as a potential solution for stabilizing state revenues. Some key concepts to consider in choosing a broad-based tax are summarized below.

- **Revenue** – How much revenue does the tax generate?
- **Exportability** – How much tax do nonresidents pay?
- **Fairness** – How fair is the tax?
- **Economic Effects** – How would the tax change economic behavior?
- **Administrative Cost** – How much does tax administration cost?
- **Changes in Technology** – How would this tax change in the future?

Revenue

Income Tax

How much revenue would a tax generate? The answer to this question really depends on the tax base and the rate structure. Most individuals who work in Alaska already file an U.S. income tax return, thus the most cost-effective income tax base would probably come from that return, using one of three options: (1) adjusted gross income, (2) federal taxable income, or (3) federal tax liability before federal credits.

The table below represents the income tax rates (expressed as a percentage) necessary to generate the indicated revenue amount.

**Income Tax Rates Needed to Reach
Revenue Projections**

<u>\$ Million</u> <u>Revenue</u>	<u>Percent</u> <u>Adjusted</u> <u>Gross Income</u>	<u>Percent</u> <u>Federal</u> <u>Taxable Income</u>	<u>Percent</u> <u>Federal</u> <u>Tax Liability</u>
250	2.1	2.9	13.7
300	2.5	3.4	16.3
350	2.9	4.0	18.9
400	3.3	4.5	21.4
450	3.7	5.0	24.0
500	4.1	5.6	26.6

Sales Tax

Although most everyone is familiar with the sales part of a "sales and use" tax, most Alaskans are probably not familiar with the "use" part. What it means is that if a state has a sales and use tax and, for example, a resident buys a car in another state, the resident is liable for the use tax (generally the same rate as the sales tax) when the car comes across the state line. The idea is to protect the state (and its businesses) from losing revenue to sales in other states.

The amount of public revenue that a sales and use tax would generate is the product of the size of the sales tax base and rate. The size of the sales tax base depends on (1) the size and structure of the economy; (2) the specific goods and services included in the base; and (3) the type and size of credits or deductions.

The best four sources of information for estimating the revenue that could be derived from an Alaska sales tax are:

- (1) Data from the 98 Alaska cities and boroughs that currently impose sales taxes. This comprises about one-third of Alaska's population.
- (2) Data on sales tax revenues from other states similar in size to Alaska.
- (3) Data from the U.S. Economic Census for Alaska.
- (4) Data from the Consumer Expenditure Survey for Anchorage.

From the four data sources, we conclude that at a rate of 1 percent Alaska statewide sales tax with almost no exemptions would generate roughly \$100 million in public revenue a year. However, as is commonly done in other states and in Alaska communities with sales taxes, exempting food and medicine from the Alaska sales tax base would reduce the annual income to the state to roughly \$70 million per 1 percent tax rate.

Exportability

Exportability is the extent to which a state can shift its tax burden to out-of-state residents, either through directly charging nonresidents or through deductibility against the federal income tax. The amount of tax nonresidents pay depends on the amount of income nonresidents earn in the state, or in the case of sales taxes the goods and services that nonresidents purchase here.

Income Tax

The easiest way to export a tax is through deduction against federal tax liability. There is no deduction for state or municipal sales taxes; only income taxes are deductible. A deduction, or offset, means part of the tax revenue remains in state instead of going to Washington D.C. We estimate that Alaskans, on average, would recover about 15 percent of the cost of a state income tax by deducting it from their federal tax bills. For example, if a state income tax generated \$300 million, \$45 million would come from the deductibility of the state income tax against federal income taxes and \$255 million would come from the pockets of Alaskans.

Taxing nonresidents also would help relieve the tax burden on Alaskans. The Bureau of Economic Analysis at the U.S. Department of Commerce estimates the nonresident income produced in each state. It's an estimate of the annual income that nonresidents earn in Alaska, minus income that Alaska residents earn in other states. The 1998 figure was \$813 million, or, approximately 6 percent of total 1998 earnings in Alaska.

The Alaska Department of Labor provides another source of data on nonresident income in its annual report on nonresident wages. According to the department, the total nonresident earnings for 1998 were \$930 million — about 10 percent of total wages paid in the state. There are two reasons why this number is larger than the U.S. Department of Commerce number. First, the state classifies more workers as nonresidents. The Alaska Department of Labor strictly defines a nonresident worker as someone who did not receive a Permanent Fund Dividend that year or apply for it the following year. Second, the Department of Labor number does not address income earned by Alaska residents in other states.

Regardless whether you use the state or federal estimate of nonresident income in Alaska, it's likely that a personal income tax of \$300 million a year would generate less than \$30 million a year from nonresidents working in Alaska.

Sales Tax

In a recent study, the McDowell Group, an Alaska economic consulting company, estimated that nonresident visitors spent \$949 million in Alaska in 1998. Rounding that off to \$1 billion a year in visitor spending, a 1 percent statewide sales tax would generate about \$10 million from sales to nonresidents. That assumes no exemptions for food or medical care, and makes no allowance for sales exempt under federal law such as airline tickets.

Fairness

Income Tax and Sales Tax

The concept of fairness in taxes is subjective, as the term evokes a host of philosophical and political considerations in addition to the economic ones. Essentially, a majority of the state's residents must perceive any tax system as fair if it is to work well. An unfair tax structure generally reduces support for public expenditure and reduces compliance with the tax system.

Tax equity can be looked at in two ways: ability-to-pay and benefits received. The benefit principle rests on the premise that taxpayers should pay tax in proportion to the value of the public-service benefits they receive. On the other hand, the ability-to-pay principle follows from the belief that taxes should be assessed in terms of some measure of an individual's capacity to pay. Taxes are usually described as progressive, regressive or proportional. If the tax, as a percentage of income, rises as a person's income rises, it is labeled as progressive. If the tax, as a percentage of income, rises as income falls, the tax is considered regressive. A tax that stays the same is deemed as proportional.

Supporters of an income tax say it is progressive, in that it generally assigns a higher tax rate to higher-income households.

Opponents of a sales tax say it is regressive because low-income households spend a greater proportion of their income on essential purchases than do higher-income households. Supporters of a sales tax say it is fair in that it taxes everyone at the same rate.

Economic Effects

Income Tax and Sales Tax

Economists classify a tax as "efficient" when it has little or no effect on economic behavior. For example, sales taxes are inefficient when they influence consumer buying decisions or manufacturers' production decisions.

The size of the tax rate may also influence economic behavior. A personal income tax certainly could influence a person's economic decisions by lowering take-home pay, thereby affecting spending and working decisions. The amount of a sales tax also can make a difference in spending decisions. For example, a person who normally buys goods locally may continue to do so at a low sales tax rate. However, a high tax rate may cause the person to purchase the same product on the Internet or by mail order. In addition to changing the behavior of the individual, the Alaska economy suffers because the expenditure is made out-of-state and the money does not circulate in the local economy.

One measure of the stability of a tax is how state revenue changes as personal income changes. Studies show that as income changes, sales tax revenues change less than income tax revenues.⁽¹⁾ That is, in general, sales tax revenues decrease less in a recession than income tax revenues. Conversely, sales tax revenues increase less in a period of growth than income tax revenue.

Low Administrative, Enforcement and Compliance Cost

Desirable features of any tax system are low administrative, enforcement and compliance costs. These features imply that the tax system should attempt to minimize both individual and business compliance costs (including record keeping costs and fees paid to professional tax preparers), as well as the government's cost of administering, monitoring and enforcing the tax system.

Based on other states' experiences, we believe Alaska's cost of collecting either a sales or an income tax could be as low as 1 percent of total state revenue from the tax, depending on how the tax is structured.

Income Tax

Typically, the compliance cost to an individual for a state personal income tax is relatively minimal when the state tax is based on federal definitions of taxable income. The state tax return generally is simple to complete after federal taxable income and taxes are calculated.

Businesses will incur some additional compliance costs. For the personal income tax, the added costs are mostly associated with bookkeeping for employee tax withholding.

Sales Tax

Individuals have no sales tax compliance cost; the burden falls on businesses to collect the tax, keep the books and send the money to the tax office. Businesses will incur costs for labor, point-of-sale equipment and software and record keeping.

⁽¹⁾ "State Fiscal Issues and Risks at the Start of a New Century," by Donald J. Boyd, Nelson A. Rockefeller Institute of Government, Albany, New York; June 2000.

Private costs for collecting and remitting sales tax are generally higher for small- and medium-sized businesses. In Washington, the cost to businesses to collect and remit sales tax was 6.47 percent of total sales tax collections for small, 3.35 percent for medium and 0.97 percent for large retailers.⁽²⁾ Many states allow businesses to retain a small percentage of the sales tax collections to at least partially cover the costs of the tax collection service.

Changes in Technology

Sales Tax

Use of the Internet directly affects a state's ability to collect sales tax revenues. Taxing sales over the Internet would lead to higher cost to businesses of complying with almost 7,500 state and local sales tax jurisdictions. In response, state governments have joined together to propose streamlining existing sales taxes. The key features of these proposals include uniform definitions, simplified exemptions, simplified rates, state administration of local sales taxes, uniform auditing and states assuming a greater responsibility for implementing the system.

Petroleum Fiscal System

The Current System

There are four major components of the fiscal system for oil and gas:

- **Ad Valorem Property Tax** — A 20 mill levy on all petroleum production and transportation equipment.
- **Severance (Production) Tax** — A tax on production of up to 15 percent of value.
- **Royalty** — An ownership interest of an average 12.5 percent of production value.
- **Corporate Income Tax** — An income tax on oil and gas corporation net income of 9.4 percent.

A discussion of each of these taxes can be found in Section IV, Oil Revenue, beginning on Page 39.

Adequacy of the Current System

There are at least two criteria for evaluating the adequacy of a fiscal system:

- The share of the (pre-tax) profits from oil and gas activity in the state that the state receives.
- Whether the system encourages or discourages investment in the state.

⁽²⁾ "Retailers' Cost of Collecting and Remitting Sales Tax," by Mary Welsh and Frederick C. Kiga, Washington State Department of Revenue, Olympia, Washington; December 1998.

A key parameter for examining the presence of these properties is the degree of *progressivity* of the fiscal system.

Proportional, Progressive and Regressive Fiscal Systems

A proportional fiscal system is one in which the state's take is proportional to the profitability of the project. A system where the state's share of profits increases as profits increase is progressive. A system where the state's share of the profits increases as profits decrease (and decrease as profits increase) is called regressive.

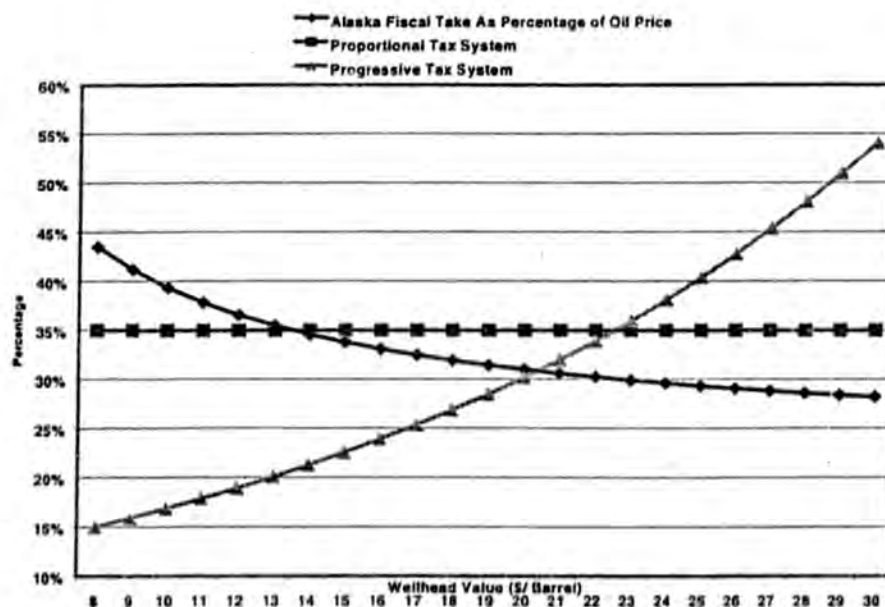
Regressive systems create investment risk. Because the state's take is high at low prices, the risk to the investor of either high costs or low prices is exacerbated. Regressive systems also result in low government takes at high prices.

Alaska's petroleum fiscal system is regressive. The state's share as a percentage of the profits drops at higher prices. For instance, in FY 1999 when the wellhead price for North Slope oil averaged just \$8.50 per barrel, we estimate the state's share to be about 45 percent of the pre-tax profit (assuming \$3 per barrel in upstream operating and depreciation costs). In 2000, the wellhead price averaged \$19 a barrel and we estimate the state's share of the pre-tax profit at a little more than 30 percent.

Alaska's share of the profits at low prices is higher than many other oil-producing nations earn at comparable prices, but when prices are high is lower than most other governments earn.

The chart below illustrates Alaska's regressive fiscal system compared to what progressive and proportional systems might look like.

Regressive, Progressive and Proportional Fiscal Systems



There are three basic elements that in varying degrees make Alaska's system regressive.

- The property tax is clearly regressive because it is largely based on construction costs of facilities, and has nothing to do with income. If costs go up, or if prices go down so that profits go down, the property tax stays relatively constant and takes a bigger share of the smaller profit.
- Since both the severance tax and royalty are based on wellhead values, i.e., and the value at the point of production where the oil or gas leaves the well, all upstream development costs are ignored. Thus the higher the upstream costs, the more regressive the system. In addition, the state's minimum severance tax amounts are regressive at very low prices.
- Since the apportionment method used in Alaska's oil and gas corporate income tax is not based solely on profits in Alaska but instead a portion of worldwide profits, it could be argued that the tax has little to do with local profitability. Although this tax is proportional in relation to the total profitability of integrated oil companies, some say it is regressive because it is not directly and exclusively linked to profits in Alaska.

Several international comparison studies of fiscal systems have found that Alaska is a relatively attractive investment target at high prices and unattractive at low prices.⁽³⁾ Any attempt to deal with the current system should also address how the state would manage its budget during periods of low oil prices.

However, an advantage to the state from this system is that it provides a public revenue cushion at low prices. The downside, of course, is that it also puts a ceiling on upside potential when prices are high.

There are at least two straightforward ways to make the system less regressive:

- There could be relatively more emphasis on the oil and gas corporate income tax and less on the severance tax by raising the rate on one and reducing it on the other. Moreover, changing the graduated rate schedule of the income tax could significantly increase progressivity. In theory, changing the state's oil and gas corporate income tax away from its worldwide apportionment basis to one based directly on economic performance within the state would probably yield a more consistently progressive effect.
- Alaska could impose an additional tax on oil for every dollar that the price exceeds a specified base price. Such a price-sensitive tax would move the state toward a progressive tax structure. For example, the state could collect 10 cents per barrel for every dollar that the oil price exceeds \$14 a barrel. At \$20, or \$6 over the minimum price, the additional tax would be 60 cents per barrel. At \$30 it would be \$1.60 per barrel. A similar negative tax for prices below \$14 a barrel would share some of the risk of low prices between producers and the state.

⁽³⁾ Kemp/Rose, "Fiscal Aspects of Investment Opportunity in the UKCS and Norway, Denmark, Netherlands, Australia, China, Alaska (North and South) and the US Outer Continental Shelf; 1993.

A.D. Little/Gault, "Review of International Competitiveness of Alaska's Fiscal System"; August 1995.

Petroconsultants, "Annual Review of Petroleum Fiscal Regimes"; 1996.

Van Meur/ Barrows, "World Fiscal Systems for Oil"; 1997.

Permanent Fund Earnings

A fiscal possibility, though not necessarily a politically popular option, would be to use the annual excess earnings of the Alaska Permanent Fund to help balance the state budget.

The state's three-decade-old savings account generates more investment earnings than are needed each year to pay dividends and inflation-proof the principal of the fund. The excess — between \$200 million and \$300 million a year — goes into the fund's earnings reserve account. It goes there by default; it doesn't take legislative action to make a deposit into the earnings reserve.

State statute defines how the Permanent Fund Corporation is to calculate its "statutory net income." Another formula in state law uses the five-year average of that income to arrive at the annual dividend transfer. Inflation-proofing also is set in state law and is tied to the consumer price index. What is left behind after dividends and inflation-proofing falls into the earnings reserve.

The annual earnings reserve would be similar under a new payout system endorsed by the Permanent Fund Corporation Board of Trustees. The trustees are proposing a constitutional amendment that would limit the fund's annual payout to 5 percent of market value. A percent-of-market value, or POMV, standard would provide long-term stability in the amount available for distribution each year and would inflation-proof the entire fund — not just the principal. At a POMV of 5 percent a year, all of the investment earnings over 5 percent would automatically remain in the Permanent Fund to protect against inflation. Assuming a long-term investment return of 8 percent and a POMV of 5 percent, the fund would retain 3 percent a year for inflation-proofing.

If, for example, the fund's average market value for the past five years were \$26.5 billion, a 5 percent POMV formula would make \$1.325 billion available for dividends and whatever else the legislature decides. That could be the earnings reserve or, if at some point the political and public will demands it, the money left after dividends could be put back into the Alaska economy as part of the state budget. If such a system were in place for the 2000 dividend, it would have produced an earnings reserve deposit of about \$200 million after paying out \$1.12 billion for dividends under the formula in state law.

REVENUE SOURCES

Forecast and Historical Data

FALL 2001



Alaska Department of Revenue Tax Division

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IV. ALASKA'S FISCAL OPTIONS

What Are the Options For Alaska's Fiscal Future?

Any of several events could produce new revenues to reduce the budget gap and help postpone or perhaps even prevent the demise of the Constitutional Budget Reserve Fund. Among the possibilities are unexpectedly high oil prices, large volumes of undiscovered oil, a natural gas project, broad-based taxes such as a statewide sales tax or personal income tax, or use of Permanent Fund earnings. This revenue forecast assumes none of the above. We based our forecast on oil prices within historic averages and on known quantities of oil and existing taxes. And although some Alaskans, and the legislature's Fiscal Policy Caucus, have discussed the options of instituting broad-based taxes and using some of the earnings from the Permanent Fund to help pay for public services, we did not include any money from either of those sources in this forecast.

However, the future is uncertain, and any of the above possibilities could become reality in time.

To help judge the possibilities and their economic value, we offer the following information:

Could Higher Oil Prices Fill the Fiscal Gap?

The short answer is no, not unless you believe in the improbable. Still, that doesn't stop Alaskans from hoping.

A quick study of the numbers, however, shows it certainly is extremely unlikely. Alaska North Slope crude oil would have to fetch higher prices for a longer period than at any time in the pipeline's 24-year history. And not just a little higher for a short time, but a lot higher for a long time.

▪ How much is the fiscal gap at high, or low, oil prices?

At \$30 oil, Alaska would still face a half-billion-dollar-a-year fiscal gap over the next 10 years.

At \$10 oil, the gap would range between \$1.7 billion and \$2 billion a year.

Figure 10.
Annual Fiscal Gap at \$30/ Barrel Oil

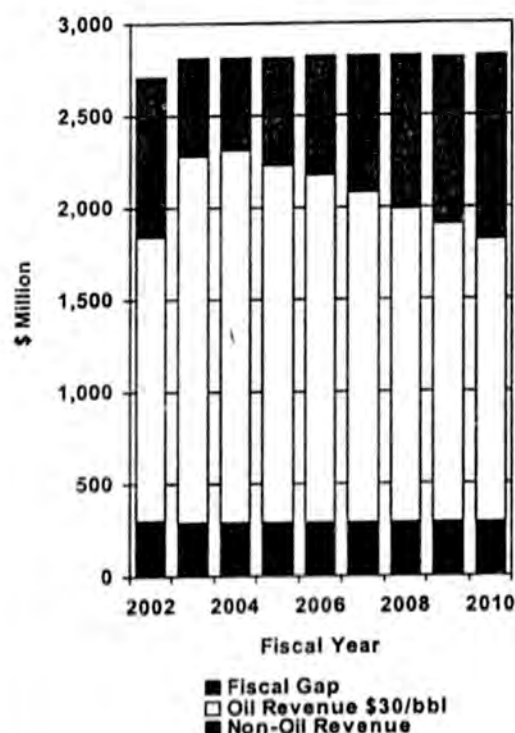
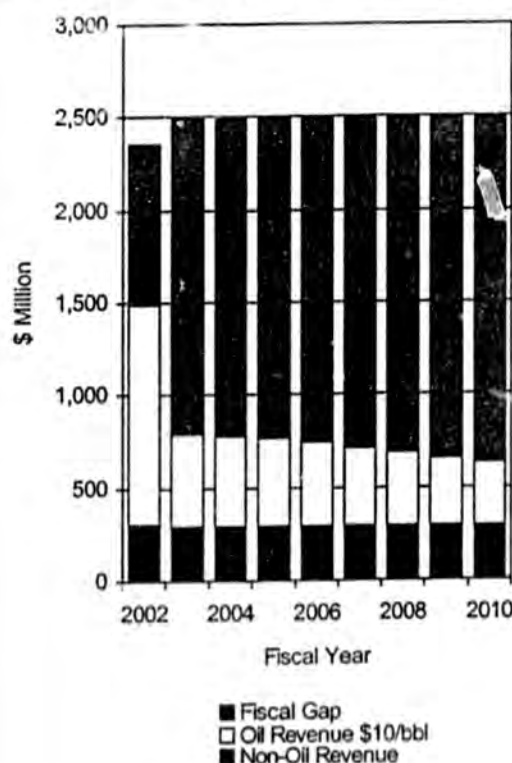


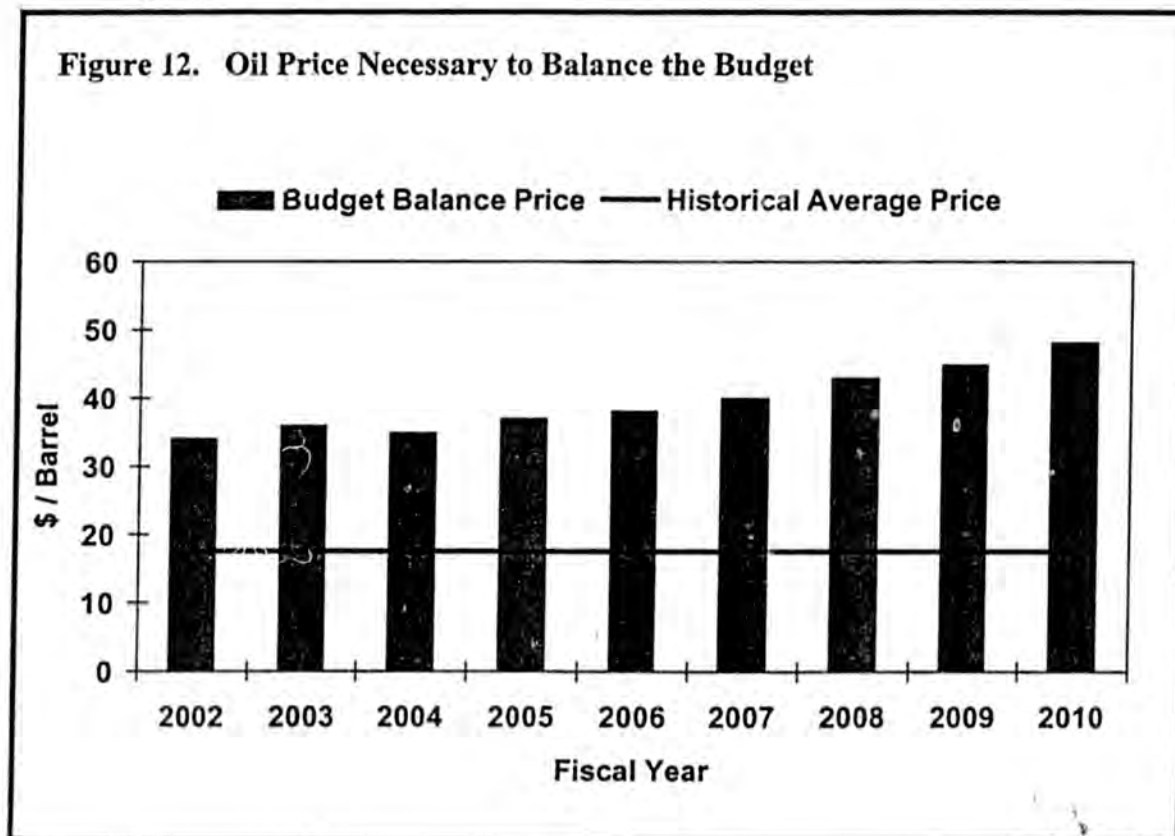
Figure 11.
Annual Fiscal Gap at \$10/ Barrel Oil



- How high would oil prices have to climb to balance the state budget through the end of the decade?

Although we believe North Slope oil production will average around 1 million barrels per day through 2010, the state's declining production tax rate requires a higher price every year just to maintain the same revenues. North Slope oil would have to average \$34 a barrel in Fiscal 2002 to balance the budget. The price would have to average \$39.50 a barrel over the next eight years to cover a \$2.5 billion state budget, but that's just the average. The number gets further out of reach each year. In Fiscal 2010, the price would need to be roughly \$48 a barrel.

Figure 12. Oil Price Necessary to Balance the Budget



- If we want to continue using the Budget Reserve Fund to fill the gap, how high would oil prices have to climb to keep the fund alive until the end of the decade?

To reach 2010 with something, anything, in the Budget Reserve Fund would require oil averaging over \$30 a barrel for the next eight years — more than 60% higher than the Department of Revenue forecast and 50% higher than U.S. Department of Energy estimates.

Keep in mind that prices would have to hold fairly steady around the \$30 average — the state could not afford a couple of bad years along the way if we wanted to maintain the Budget Reserve Fund and pay our bills. For example, if North Slope oil dipped below \$15 for a year or more, as has happened three times since 1989, the Budget Reserve Fund would take such a deep hit that it might hit empty even if prices rebounded the next year.

- How likely is it that oil prices will climb high enough to balance the budget in some years, or at least extend the life of the Budget Reserve Fund?

Prices could rise above projections in the short term — maybe even enough to balance the budget for a little while. But it would take a major, sustained global shortage of oil to create the consistent, high oil prices for the long term that could save the Budget Reserve Fund, and such a shortage is extremely unlikely.

Oil is a market-traded commodity, with the forces of supply and demand determining the price. When supply exceeds the demand, which is the world situation this year, prices fall. As oil gets cheaper, demand recovers, which, over time, leads to higher prices as demand builds to match supply. But when demand gets too high, squeezing the supply, prices rise and demand falls back down. Prices eventually come down, too. Oil prices don't just move up and down, they always move up and down. High oil prices also push users to rely more on substitute fuels and conservation, serving as a natural relief valve to cut demand when prices climb too far. Because of how the market works, it is highly unlikely that oil prices could ever stay high enough long enough to solve Alaska's budget problem.

Here are some numbers to consider:

- Since a transparent market price for ANS West Coast deliveries emerged in the mid-1980s, Alaska North Slope crude oil delivered to California and Washington refineries has never averaged more than \$28 a barrel in a year. As if that was not sobering enough, the price has averaged below \$20 a barrel for all but three years since 1988.
- The West Coast ANS price has averaged above \$30 a barrel in only six months of the past 175 months, and has never reached the \$33 a barrel that Alaska would need for the entire year to balance the Fiscal 2002 budget.
- Any discussion of the potential for high oil prices would not be complete without looking at the low side of oil prices. Alaska North Slope crude averaged \$9.39 a barrel in December 1998, its lowest monthly price ever.
- And while North Slope oil has exceeded \$30 a barrel on the West Coast six out of the past 175 months, it has fallen below \$15 a barrel in 39 of those months.
- If OPEC nations wage a price war with non-OPEC producers, and if oil drops to \$10 a barrel as it did in late 1998, and if the price stays on the bottom for two years, the Budget Reserve Fund would be empty by September 2003.

Higher — or Lower — Oil Production

Oil production could exceed our forecast, which includes only barrels from fields that are producing or have been discovered. For those that have been discovered, we included production only from those fields we expect to start pumping by 2010.

It is possible, however, that some of the discovered fields could start producing sooner than expected, meaning more production and more revenue to the state. We also expect new oil discoveries on the North Slope, but we do not believe these new fields will begin producing before 2010.

However, these undiscovered fields might also begin producing sooner. We have estimated in this section how much additional production we believe could possibly come from the accelerated development of known reserves and new discoveries.

On the other side of the fiscal coin, it is possible that some of the forecast production from as yet undeveloped fields could be postponed past the expected start-up dates in this forecast. For every upside there is a downside.

Possible Higher Oil Production

We forecast that "new oil," oil that has been discovered but is not yet flowing through TAPS, will constitute a substantial 13.8% of North Slope production by Fiscal 2005 and 27.1% by Fiscal 2010. Clearly, Alaska is depending on a fair amount of this new oil just to meet our revenue forecast.

But what about undiscovered oil? Oil companies continue to lease new lands and drill exploratory wells in search of reserves, and it is future production from these areas that is harder to predict.

To come up with a credible estimate of potential undiscovered oil that might be produced before 2010, we relied on geological work done by the U.S. Geological Survey and the federal Bureau of Land Management. We then derived an estimate of the North Slope's undiscovered, economically recoverable barrels that could possibly come into production before 2011. We provide in Table 10 our estimate of the potential additional production from these undiscovered reserves over the next decade. These barrels would come from three areas: the National Petroleum Reserve-Alaska (NPRA), the Foothills and the area east of Prudhoe Bay and the Central North Slope. We do not include any production from the Arctic National Wildlife Refuge in this table because even if Congress this winter gives the go-ahead for drilling in ANWR we would not expect to see any production until after 2010.

Table 10. Additional Potential Barrels from Undiscovered Fields
million barrels per day

<u>Fiscal Year</u>	<u>NPRA</u>	<u>Foothills and East of Prudhoe Bay</u>	<u>Central North Slope Satellites</u>	<u>Total</u>
2006			0.014	0.014
2007	0.040		0.028	0.068
2008	0.037	0.034	0.045	0.117
2009	0.035	0.060	0.065	0.159
2010	0.039	0.083	0.082	0.203

If all of the additional undiscovered production were to come online as estimated in Table 10 — 203,000 barrels per day by Fiscal 2010 — the state would receive an estimated \$173 million in additional oil and gas tax and royalty payments in Fiscal 2010. That's a little more than 10% of what would be needed to close the budget gap that year. The revenue to the state is held down by the Economic Limit Factor and the lower production tax rate charged on oil flow for the first five years of production from new fields.

This undiscovered new oil could come from:

National Petroleum Reserve-Alaska.

The Bureau of Land Management's 1998 projection of 600 million barrels of economically recoverable reserves in NPRA might well prove to be too conservative. Phillips and Anadrako have drilled six wells and a side-track in their first two NPRA exploration seasons, and announced in May 2001 that they had discovered three separate hydrocarbon accumulations. The area encompassed by the wells is comparable to the area overlying the Alpine reservoir, with potential reserves in Alpine's 429 million barrel neighborhood. Phillips and Anadarko will conduct additional drilling and well data analysis this winter to establish the commercial value of their find.

For the sake of this exercise, we estimate these NPRA discoveries could go into production in the second quarter of Fiscal 2007 at 40,000 barrels per day.

It is likely that the recent NPRA discoveries are just the beginning. Phillips and its partners have not stopped exploring their NPRA leases, and Phillips recently requested permits for 15 additional well sites for the 2001-2006 drilling seasons. Phillips isn't the only company exploring in the NPRA. In fact, only a quarter of the money spent in the first NPRA sale was for leases overlying Phillips's recent discoveries. Anadarko plans to drill two wells at its Altamura prospect in the NPRA this exploration season. The BLM plans additional lease sales in 2002 and 2004.

If NPRA yielded 600 million barrels rather than our projected 325 million barrels, the larger reserves could add an additional 37,000 barrels of daily production to our estimate by 2010.

Foothills and East of Prudhoe Bay.

Though the Foothills petroleum potential is mostly for gas reserves, the USGS estimates there are 500 million barrels of technically recoverable reserves in the Central Foothills.⁽¹⁾ Based on a 1993 estimate for costs and exploration success, the USGS forecasts that 50% of this technically recoverable oil would be economically recoverable at an \$18 per barrel ANS price, and 70% of this oil would be recoverable at a \$30 per barrel ANS price.⁽²⁾ To take into account technological advances that have lowered costs and increased exploration efficiency, we assume that the midpoint (60%, or 300 million barrels) of the technically recoverable oil could be economically recoverable for our estimate of undiscovered oil production.

For this discussion, we estimate Foothills production could be 83,000 barrels per day by Fiscal 2010.

(1) See USGS Open-File Report 95-751, "Economics and undiscovered conventional oil and gas accumulations in the 1995 National Assessment of U.S. Oil and Gas Resources: Alaska", by Emil Attanasi and Ken Bird ("USGS[95]") at Table 3, Page 37.

(2) USGS[95] at Table 3, Page 37.

Central North Slope Satellites and the Beaufort Sea.

The USGS in 1995 estimated perhaps 4.3 billion barrels of technically recoverable, undiscovered oil in the central and eastern coastal regions of the North Slope. The USGS believed this oil would mainly be in the turbidite and Barrow Arch Beaufortian geological plays.⁽³⁾ The USGS also stated that less than half of this technically recoverable oil would be economically recoverable.⁽⁴⁾ Of the estimated 3.6 billion barrels of technically recoverable oil remaining net of post-1995 discoveries, 1.5 billion barrels could be economically recoverable.

To find and produce these reserves will require substantial investments in exploration and development, and due to capital constraints these reserves would come on slowly. We derived a conservative production forecast by assuming a minimum of 75 million barrels of additional Central North Slope reserves could be put into production each year starting in 2003. This estimate would give Alaska an additional 82,000 barrels a day of production by Fiscal 2010.

Arctic National Wildlife Refuge (ANWR).

The U.S. Department of Energy estimates it could take a decade after approval of ANWR exploration for the first production.⁽⁵⁾ Even if Congress approves ANWR this winter, it is likely the first production would not come online until 2011, removing ANWR from our estimate of undiscovered oil production for this decade.⁽⁶⁾

Possible Lower Oil Production

The North Slope, like other mature provinces, depends upon production from new fields to offset declines in older fields. In our predictions of oil flow from discovered fields, which already are included in our revenue forecast, we include barrels from anticipated developments in the second half of this decade from Point Thomson (Fiscal 2008), Sourdough (2008), Yukon Gold (2009), Sandpiper (2008) and Nanuq (2005).

(3) USGS[95] Table 3, Page 37.

(4) Of the Eastern Coastal region's 1,632 million barrels of technically recoverable reserves, 39% (638 million barrels) should be economically recoverable. Of the Central Coastal region's 2,002 million barrels of remaining technically recoverable reserves, 45.75% (916 million barrels) should be economically recoverable. The economic recovery factors reflect mid-points between the \$18 and \$30 cases of USGS[95] Table 3.

(5) Energy Information Association (EIA) report entitled "Potential Oil Production from the Coastal Plain of the Arctic National Wildlife Refuge: Updated Assessment" reads, in part, "Seven to 12 years are estimated to be required from an approval to explore and develop to first production from the ANWR area. This study uses nine years to 2010." The EIA estimated that the full 10.3 billion barrels of technically recoverable oil would be economic to recover.

(6) A lease sale in 2004 could yield the state approximately \$160 million. Assuming a 10-cent rule of thumb as a bonus bid, the companies would pay \$320 million for access to 3.2 billion barrels. The state would receive half of this amount if revenue is shared in the same percentages as it is for the NPRA.

Table 11 shows our projections for oil production from these fields, totaling 103,000 barrels per day by Fiscal 2010. These fields represent almost 40% of the "new oil" included in our revenue forecast for Fiscal 2010, and also represent a substantial economic loss to the state if they do not start up as expected.

Table 11. Anticipated Production from New Fields This Decade
thousand barrels per day

<u>Fiscal Year</u>	<u>Point Thompson</u>	<u>Sourdough</u>	<u>Yukon Gold</u>	<u>Liberty</u>	<u>Sandpiper</u>	<u>Total</u>
2004						
2005				35		35
2006				55		55
2007				52		52
2008	20	10		42	12	84
2009	30	15	10	34	15	104
2010	30	15	15	29	14	103

Some of these developments could be deferred or cancelled. Specifically, Point Thomson, a field discovered in the mid-1970s and still undeveloped, might remain undeveloped for the next 10 years. A gas condensate reservoir such as Point Thomson is expensive to develop because of the facilities needed to cycle its high-pressure gas. After extensive negotiations, the state Department of Natural Resources and the Point Thomson Unit Owners recently agreed to a development plan that could result in liquid production by 2008. However, the Point Thomson Unit owners could forego development and pay compensation to the state for unfulfilled drilling obligations. The Department of Natural Resources estimates there are about 200 million barrels of liquid reserves at Point Thomson.

Sourdough and Yukon Gold are two small oil reservoirs located near Point Thomson. If Point Thomson is developed, it is more likely these fields would come online a few years later. However, if Point Thomson is not developed, these small reservoirs probably would not be developed either. To account for this uncertain production in our forecast, we have reduced the estimated reserves by 50%, resulting in around 60 million barrels recoverable from each of these two fields.

We forecast that an offshore field, Liberty, will be brought on line in Fiscal 2005. After experiencing significant cost overruns with Northstar, however, BP may be less likely to proceed with this 180-million-barrel field. We also estimate that 59 million barrels of oil will be recoverable from Sandpiper, an offshore field. This field also might not be developed.

Prudhoe Bay has been in decline since 1988. We forecast that Prudhoe Bay will decline at a slower rate than it did during most of the 1990s, with production falling by an average 5.3% per year 2001 and 2011. However, the steeper decline rate of 1992 to 1999 could return in 2002 if development drilling is less than we have projected. If the 1992-to-1999 decline rate continues throughout this decade, Prudhoe Bay production would run about 122,000 barrels per day under our forecast for Fiscal 2010. Such a steep production drop could reduce state revenues by an estimated \$191 million in 2010.

Alaska Natural Gas Project

If the gasline is built, how much could it help fill the state's budget gap? First, the project has its own economical hurdles to jump over.

The governor, Alaska's congressional delegation, the state legislature and many community leaders are actively supporting a pipeline project following the Alaska Highway. A 4 billion cubic feet per day Alaska Highway gasline would be expensive, costing an estimated \$14.3 billion to deliver the gas to Chicago. A gas treatment plant, estimated at \$2.6 billion, also would be needed to remove impurities in much of the North Slope gas. Recently, a joint study team comprised of the major North Slope producers said the project is not economic based on the preliminary cost estimate of \$17.9 billion and certain market assumptions. However, the study team has been trying to reduce the project's costs, and the governor, the legislature and others are pushing for federal tax incentives to further help reduce the project's costs. If all of the efforts are successful, and if there are no regulatory delays, the producers estimate the gasline could start making deliveries by 2008.

If the project is built, the state would collect revenue in four ways: royalties, production taxes, property taxes and corporate income taxes. An Alaska Highway gasline project under the state's existing fiscal system could yield as much as \$400 million a year to the state's General Fund by Fiscal 2010. That's using the producers' study team cost numbers.

On the high side, what if the producers — or other partners — find a way to reduce construction costs by 20%? And what if the gas brings \$4 per thousand cubic feet on the market, instead of \$3.50 as projected in most models? With such favorable economics, the state could receive as much as \$700 million in tax and royalty revenue in Fiscal 2010.

(1) Some interested parties are considering the possibility of reaching the U.S. market by shipping North Slope gas as LNG to the West Coast or Mexico, or to markets in the Far East. The oil companies also are reviewing a pipeline route to the Lower 48 that would go under the Beaufort Sea and tie in to gas reserves in Canada's Mackenzie Delta where the line would head upriver to connect with the supply grid in central Alberta.

The Economic Limit Factor

As you think about the state's fiscal situation, it's also worthwhile to look at existing revenue sources and ask if they are working as intended. A major part of the state's oil and gas tax structure is the Economic Limit Factor.

Alaska oil production tax revenues have declined rapidly over the past several years due, in part, to the ELF. The ELF is a multiplier between 0 and 1 that reduces the actual tax rate for a field, based on average well productivity and the field's total daily production. One of the principal purposes of the ELF is to ensure that the production tax does not discourage development of smaller oil and gas fields.

The ELF formula is complicated, but the result is the smaller the field or less productive the wells, the lower the tax rate.

$$\text{ELF} = \left[1 - \frac{(300 \times \text{wells})}{\text{volume}} \right]^{\left[\frac{(150,000)}{\text{volume}} \right]^{1.53333}}$$

"Wells" is the number of producing wells in the field and "volume" is the total daily production for the field. Under the formula, the smaller the field the smaller the ELF factor, or fractional multiplier, to apply against the full production tax rate. The larger or more productive the field, the larger the fractional multiplier to apply to the tax rate.

The full oil production tax rate is 15%, with a 12.25% rate for the first five years of a field's production. For example, if the ELF were 0.5, the effective tax rate would be 7.5% (15% times 0.5). If the ELF for a smaller field were 0.2, the actual tax rate would be 3% (15% times 0.2).

As field or well productivity declines, the ELF will decline as well. Because the two factors of well and field productivity are related exponentially in the ELF equation, the drop in the ELF will be much steeper than if either of the two factors were applied alone.

The current ELF formula took effect in 1989. One idea behind the ELF was that the actual tax rate should decline over time so that the production tax does not cause fields to prematurely shut down as they become less economic due to falling production. Since 1989, the following trends in North Slope oil development have resulted in a larger ELF discount and a marked decline in the average tax rate and, subsequently, state revenues:

- The rapid decline in production from older, larger fields.
- No discoveries of new, large fields sufficient to offset the decline in the largest fields.
- Exploration and development of new, smaller "standalone" fields with maximum production of 50,000 to 100,000 barrels per day.
- Development of satellite fields with maximum production in the range of 5,000 to 50,000 barrels per day. The ELF reduces the tax rate on these smaller fields such that most fields producing less than 20,000 barrels per day pay little or no production tax. These satellite fields use existing processing facilities at larger fields.

The ELF Effect on Revenue

In FY 1990, non-royalty North Slope production was about 570 million barrels and the ELF was 0.94. Applied against the full tax rate of 15%, the average ELF produced an actual, average tax rate of 14.1%. Assuming a \$15 per barrel tax base, the production tax revenues to the state would have been \$1.206 billion.

$$570 \text{ million barrels} \times \$15 \times 14.1\% = \$1.206 \text{ billion}$$

In FY 2000, production was down to 365 million barrels, a 34% decline, and the average North Slope ELF was 0.69, for an actual rate of 10.35%. The revenues at \$15 per barrel would have been \$567 million.

$$365 \text{ million barrels} \times \$15 \times 10.35\% = \$567 \text{ million}$$

Although production fell 34% from 1990 to 2000, total production tax revenues over that same period — because of ELF — at the same hypothetical \$15 wellhead price dropped 53%. And while we forecast North Slope production remaining relatively flat between 2002 and 2010, because of ELF the average tax rate will fall 52%. It is reasonable for the ELF factor to push tax rates lower as production declines; fixed operating costs will increase on a per barrel basis, and there may be additional operating expenses to cover factors such as gas and water handling. In addition, it is reasonable for the ELF to decline to zero by the end of a field's life.

However, does the existing ELF formula reduce tax rates too quickly? At Kuparuk, for example, 2000 production was 212,000 barrels per day and the ELF was 0.60. By 2010, production is expected to still hold above 100,000 barrels per day, but the ELF will be zero. The field is forecast to keep producing 10 years beyond that. Is the ELF going to zero sooner than it needs to ensure maximum production?

This can be seen in another way. Under the existing ELF, for example, a field of 50,000 barrels per day with an average per well productivity of 450 barrels per day would have an ELF of 0.003. A 200,000 barrels per day field with the same well productivity would have an ELF of 0.493. The smaller field's actual production tax rate would be 0.045%, and the larger field would pay a production tax of 7.395%. It is doubtful that the per barrel operating costs of the two fields would be so different as to justify the larger field paying a tax rate 164 times higher than the other field. It is worth asking: Is the ELF formula doing its job the way it should, or is does it need changing?

As mentioned above, one of the changes over the past 10 years has been the development of satellite fields, which share existing facilities with larger fields. These fields have lower production, with maximum levels in the 5,000 to 50,000 barrels per day range. The ELF's associated with these satellite fields are very low, and zero in many cases. However, given the degree to which these fields share costs with large, profitable fields, and the degree to which many of these costs have already been recovered, the economics of such fields are not the same as those of similarly sized fields that stand alone.

One possible modification to lessen these problems would be to have separate components in the ELF formula for total field production and well productivity. While both of these are key indicators of profitability, they are largely independent. Thus, rather than treat them exponentially, where their effects overexaggerate economic tendencies when mixed, the ELF formula could be modified so that these distinct features could be summed.

For example, the ELF could consist of a total field productivity component and a separate well productivity component. Each of these components could be weighted 50% in the final ELF factor for each field.

This would result in less drastic swings in tax rates as field or well productivity changes. In general, where rates are now high they would be lower, and where they are now low they would be higher. The ELF would decline less drastically over time.

As a side benefit, this would also make the ELF easier to understand.

There are two other major problems with the production tax. First, because the tax rate is fixed, the government's share of profits is high when profits are low, and low when profits are high. This is called a "regressive" system and creates an unbalanced situation. At low prices or high costs, the burden of the tax creates additional investment risk. At high prices the state's share of the profits is much less than in internationally comparable conditions and the state leaves money on the table.

In addition, oil price could be incorporated into the ELF formula, so that the tax rate would vary with oil price. Bringing price into the ELF formula would create a "progressive" tax system, where the government's share of profits would vary proportionally with the profits. Having the tax rate vary with price is another way to better balance the tax system under a wide range of economic conditions, while maintaining international competitiveness for attracting investment.

The other major problem with the production tax is that it does not encourage re-investment in the state. Alaska's tax system is based on gross revenue at the wellhead: exploration, development and upstream operating costs are not deductible. Unlike other jurisdictions, the regressive system in Alaska does not allow deduction of exploration and development costs. In those other jurisdictions, taxes are reduced by investing there, and companies that invest pay less taxes than those that do not.

There is no such mechanism in Alaska. This may induce companies to take their Alaska profits and invest them elsewhere. A tax credit for exploration and development would enhance interest in investing here. The credit could be capped so as not to drop the actual production tax rate too much, but enough to be attractive to exploration and development.

The current ELF mechanism, established in 1989, was predicated on conditions that were in place then. Those conditions have changed. Would it be appropriate to change the ELF as a consequence? While frequent changes in resource taxes create instability — particularly where the economics are marginal — tax changes made in response to new conditions or structural deficiencies may be in the public interest.

Broad-based Taxes

Personal Income Tax

As Alaska moves closer to the day when the CBRF hits empty, more people are discussing the possibility of bringing back the personal income tax — Alaskans paid income taxes until 1980, when the legislature abolished the tax — and perhaps instituting a statewide sales tax. Most people probably do not remember, but Alaska's personal income tax was fairly heavy, and if the same rates and rules were in effect today that were in effect in the 1970s, Alaskans would pay about \$750 million this year in state taxes.

Of course, no one is suggesting such a heavy tax burden on wage earners. However, as Alaska faces a billion-dollar-plus annual shortfall in paying for public services, the possibility of an income tax often comes up at public meetings.

A personal income tax could be assessed on one of three options: The tax could be computed on:

- Adjusted gross income (no deductions for children, charitable donations, home mortgage payments or other typical deductions).
- Taxable income (income after deductions allowed).
- Federal tax liability (a percentage of each taxpayer's federal tax bill).

An income tax would collect money from non-residents working in Alaska. There are no exact numbers for non-resident wages in Alaska, but estimates range from 3% to 10% and we figure the true number is probably in the middle. Even at 6% or so, an income tax that raised \$300 million would collect almost \$20 million a year from non-residents.

Other points to consider in whether or how to adopt a state income tax are:

- The tax would be deductible from federal income taxes for Alaskans who itemize. IRS statistics indicate that about 25% of Alaska taxpayers itemize their deductions.
- The tax rate could be flat — everyone pays the same percentage of their income — or the rates could be graduated so that wealthier people paid higher rates (just like the federal tax table).

The table below represents some sample income tax rates (expressed as a percentage) and the revenue each would generate.

Table 12. Income Tax Rates Needed to Reach Revenue Projections

\$ Million Revenue	Percent Adjusted Gross Income	Percent Federal Taxable Income	Percent Federal Tax Liability
250	2.09	2.87	13.72
300	2.48	3.41	16.29
350	2.87	3.95	18.86
400	3.27	4.49	21.44

Sales Tax

More than one-third of the state's population lives in communities that collect a sales tax. Almost 100 cities and boroughs have a sales tax, with the distinction for the highest tax rate going to Wrangell at 7% on purchases — even on residential rent. Those 100 communities collected more than \$119 million in 2000, the latest year for which totals are available.

The state has never imposed a sales tax, leaving that revenue source to the cities and boroughs. However, some have suggested a state sales tax as a tool to help close the budget gap. How much money could be raised would depend on which goods and services are exempted from the tax, such as food and medical care. The department estimates:

- If all retail goods and services in the state were taxed, the state would raise about \$100 million a year for each 1% of tax.
- If all food and beverages, medical care and medicines were exempted, the revenue would run about \$70 million a year for each 1% of tax.
- Would the state join the national movement among states toward uniformity in rules to avoid sales tax losses to out-of-state businesses?

It's hard to say how much of the sales tax would be paid by visitors from out of state, although we believe it could be substantial, perhaps 10% or more of total tax revenues. Visitors spend heavily on gifts, food, lodging and tours.

Issues in considering a state sales tax are:

- What items, if any, should be exempted from the tax?
- Loss of local control if the state sets the rules for exemptions.
- Would a state tax, added to an existing municipal tax, hurt the economy in those communities that would have a combined rate of 7%, 8% or 9%?

Permanent Fund Earnings

One more possibility under discussion is to start using some of the earnings from the Alaska Permanent Fund.

The savings account was established in 1976 to save some of the state's oil wealth for when state revenue from North Slope production could no longer keep up with the need for public services. The dividends did not come along until 1982, although many Alaskans probably think of the Permanent Fund as a dividend generator first and as an eventual source of revenue for public services second.

In normal years — of which Fiscal 2001 was not — the Permanent Fund generates more investment earnings than are needed to pay dividends and inflation proof the fund. That excess of between \$175 million and \$300 million a year goes into the Earnings Reserve Account. It goes there by default; it doesn't take legislative action to make a deposit into the Earnings Reserve.

Those surplus earnings could be used to help fill the budget gap.

Legislative Fiscal Policy Caucus

A group of two dozen legislators, mostly House members and almost evenly split between Democrats and Republicans, held a series of town meetings in their communities this past summer and fall to discuss the state's fiscal problem. The caucus then got together in Anchorage on November 30 and December 1 to put together a starting point for legislative discussion during the 2002 session. The caucus members believe they need to take action in 2002 to prevent a fiscal crisis if the CBRF hits empty in the summer of 2004.

That starting point includes an income tax, a sales tax, an increase in alcohol and motor fuel (gasoline) taxes, a \$25 tax on cruise ship passengers, \$100 million a year in additional tax revenue from the oil and gas industry, a reduction in oil and gas royalty deposits to the Permanent Fund from post-1979 leases, and using the annual surplus earnings of the Permanent Fund plus changing the dividend formula to maintain the annual check to Alaskans at \$1,250.

That collection of revenue sources would generate an estimated \$1 billion in new revenues in Fiscal 2004, still short of closing the state's budget gap — which will grow each year as oil revenues decline. The additional revenue, however, would extend the life of the CBRF to the summer of 2008, allowing more time for a complete fiscal plan for the state. Caucus members expressed the hope that new oil discoveries, a natural gas project or other economic development project would add to state revenues before the end of the decade.

Alaska Department of Revenue Tax Division

December 2003

Frank Murkowski, Governor
William A. Corbus, Commissioner
Dan E. Dickinson, Director
Charles Logsdon, Chief Petroleum Economist

REVENUE SOURCES BOOK
FALL 2003

3.

RESOURCE DEVELOPMENT
OPPORTUNITIES

Looking for New Oil Reserves

There are essentially three phases involved in bringing new oil and gas reserves into production: leasing, exploration and development. In this section we will examine current trends in leasing and exploration as well as new development issues on the Alaska North Slope.

Leasing

The state's leasing program continues to be quite successful. There are currently over 4.8 million acres of state land under oil and gas leases. Since 1995, lease sale bonuses and rents have generated over \$200 million for the state. Leases are owned by many different oil companies and private citizens. As of today, ConocoPhillips controls the largest amount of acreage at 925,785 acres. The top ten companies control 3.7 million acres while 90 other entities control the remaining 1.2 million acres.

Table 3-1. State-Owned Leases
Thousands

Company	Acreage	Percent
ConocoPhillips	926	19.0%
Anadarko	514	10.6%
Petro-Canada	411	8.4%
BP	406	8.4%
Union	321	6.6%
Chevron USA	296	6.1%
Encana	236	4.9%
ExxonMobil	191	3.9%
Burlington Resources	184	3.8%
Forest	179	3.7%
All Others	1,201	24.7%
Total	4,863	

Source: Lessee's Acreage Summary, Division of Oil and Gas,
Alaska Department of Natural Resources, November 2003.

Since 1995 the total amount of acreage under lease has more than doubled. This suggests a successful ongoing leasing program that is generating state revenue and making a significant amount of acreage available to exploration. The diversity of ownership suggests that some leases are pursued with an eye to selling them to an entity that has the ability to explore or gain access to existing facilities. The bottom line is that considerable acreage is in the hands of lessees and the ownership of leases is diversified between large companies and smaller firms and individuals.

Exploration

In order to produce oil or gas you need to find it. Exploration is driven by many factors but the primary one is the likelihood of finding oil or gas in sufficient quantity to justify commercial production. The North Slope of Alaska has been explored by geologists since the beginning of the last century and ideas about where to drill the next exploration well continue to be refined as new pools are discovered.

The likelihood of finding oil or gas in sufficient quantity to justify commercial production is enhanced first by the availability of acreage with good potential. The use of improved technology provides a higher probability of discovery. The existence of surface facilities to collect, process and move the production to market lowers the cost of developing a discovery, thereby reducing the field size that is necessary to declare commercialization.

Table 3-2. Total Alaska Exploratory Wells, North Slope and Cook Inlet, 1995-2003

	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Total Wells	8	10	13	14	5	8	19	21	14	113
Prudhoe Unit			1	5	1			1		8
Other North Slope Onshore	3	4	4	5	1		4	1	0	22
Other North Slope Offshore			2					1	4	7
NPR-A						4	5	4	1	14
Alpine (Colville River Unit)	4	5		1	2	1	5		1	19
Southwest Kuparuk			4		1	3	2	3		13
Cook Inlet	1	1	2	2			4	3	3	16
Shallow Gas				1				8	5	14

Source: Well data from Alaska Oil and Gas Conservation Commission through November 2003.

Exploratory drilling in Alaska is risky. On the North Slope, since 1994, we estimate that about 70% of the wells failed to discover economically recoverable reserves. There were good years in which over 60% of the wells drilled led to commercial discoveries, interspersed with bad years where drilling failed to yield a commercial discovery.

Table 3-3. North Slope Exploration Summary, 1994-2002

	Total Wells	Oil Discovery	Suspended	Plugged and Abandoned
1994	6	0	1	5
1995	7	4	2	1
1996	9	2	2	5
1997	10	6	1	3
1998	10	6	0	4
1999	5	2	3	0
2000	7	0	0	7
2001	16	3	5	8
2002	10	1	2	7

In addition to being risky, drilling exploration wells in Alaska is expensive, especially "wildcat" wells or wells drilled in remote locations. The United States Geological Survey (USGS) estimates that drilling a wildcat well in a remote area like the National Petroleum Reserve-Alaska (NPR-A) costs over two-and-a-half times what it would cost to drill a development well at Prudhoe Bay.⁽¹⁾ The USGS believes that the accumulations in the NPR-A will be moderate in size, in the reserves range "commonly developed as "stand alone" or satellite fields on the central Alaska North Slope in recent years" of less than 250 million barrels. Large accumulations like Prudhoe Bay "are not expected to occur."⁽²⁾

Between 1995 and 2003 an average of approximately 12 exploratory wells were drilled annually on the North Slope and in Cook Inlet (see Table 3-2 on the prior page.) In 1999, the year of the last major oil price crash, only five North Slope wells were drilled.

A flurry of exploration activity occurred in 2000, 2001 and 2002 as the result of several key events: (1) the discovery of Alpine; (2) the leasing of NPR-A acreage close to the developing Alpine field; (3) discoveries and development of Tarn and Meltwater, southwest of the main Kuparuk field; and (4) high oil prices.

Oil discoveries were announced in the NPR-A but no specific development plans have been made public. The two key factors that underpin exploration activity, attractive acreage and proximity to existing surface facilities were definitely in play during this period. ConocoPhillips drilled 10 of the 14 NPR-A wells drilled over the 2000-2003 time period, with BP drilling two wells and Anadarko drilling one. Drilling in the NPR-A tapered off to one well in 2003 at Puviaq.

Seven offshore wells were drilled over the period 1995-2003: Liberty and Warthog in 1997, McCovey in 2002 and three wells in the Oooguruk Unit and one offshore Kuparuk in 2003. Marginally economic oil reserves lie in Liberty and oil was discovered in the Oooguruk Unit. The other three wells found little or no oil.

BP, as a Prudhoe Bay unit operator, continued a steady program of exploring near existing fields in the late 1990's that resulted in the several new commercial discoveries. BP has announced that they will not be exploring outside of existing units. Other unit partners such as ConocoPhillips and ExxonMobil would have paid a proportional share of the cost of these wells.

In 2002, policymakers decided that something must be done to encourage wildcat exploration on the North Slope. The number of exploratory wells drilled there had declined from 16 in 2001 to six in 2003. The second largest producer in Alaska, BP, swearing off frontier exploration in Alaska, had laid off or sent their exploration people to Houston, and sold off their exploration lands and 3-D seismic. As pointed out previously, wildcat exploration is expensive and risky. To encourage wildcat exploration, the legislature passed and the governor signed into law SB 185, that provides for a credit against exploration expenses for wells drilled far away from other wells or unit infrastructure.

(1) See USGS Open-File Report 03-44, "Economics of Undiscovered Oil in Federal Lands on the National Petroleum Reserve, Alaska," (January 2002) by Emil D. Attanasi [NPR-A Economic Report] at Pages 20-21.

(2) See USGS Fact Sheet 045-02, "U.S. Geological Survey 2002 Petroleum Resource Assessment of the National Petroleum Reserve in Alaska (NPR-A)" [NPR-A Fact Sheet].

Activity in the Cook Inlet saw an average of two wells per year with a total of 10 wells drilled between 2001 and 2003. The effect of higher natural gas prices and seasonal shortages of natural gas to supply industrial demand, as well as royalty incentives, all played a role in encouraging the search for new gas reserves in the Cook Inlet region.

The other major boost to exploration activity is in the drilling of shallow gas wells targeting coal bed methane as evidenced by the 13 shallow gas wells drilled by Evergreen over the last two years. Higher gas prices, proximity to the existing natural gas grid and local market as well as favorable royalty treatment no doubt have contributed to interest in exploring for this resource.

Given the high cost of drilling exploratory wells, it should come as no surprise that nearly 80% of the non-shallow gas exploratory wells over the 1995-2002 period were drilled by the two major producers/operators on the North Slope, ARCO/ConocoPhillips and BP. ARCO/ConocoPhillips accounted for roughly 60% of the exploratory wells drilled. The third major producer, ExxonMobil, did not drill any exploratory wells.

However, other companies have been drilling. In 2003, Pioneer Natural Resources drilled the three wells in the Oooguruk Unit between Kuparuk River Unit and Thetis Island that discovered oil. Winstar drilled offshore from Oliktok Point. Forest Oil has been very active exploring the Redoubt Unit in the Cook Inlet. Marathon and Unocal, as well as ConocoPhillips, have been active exploring for gas in the Cook Inlet.

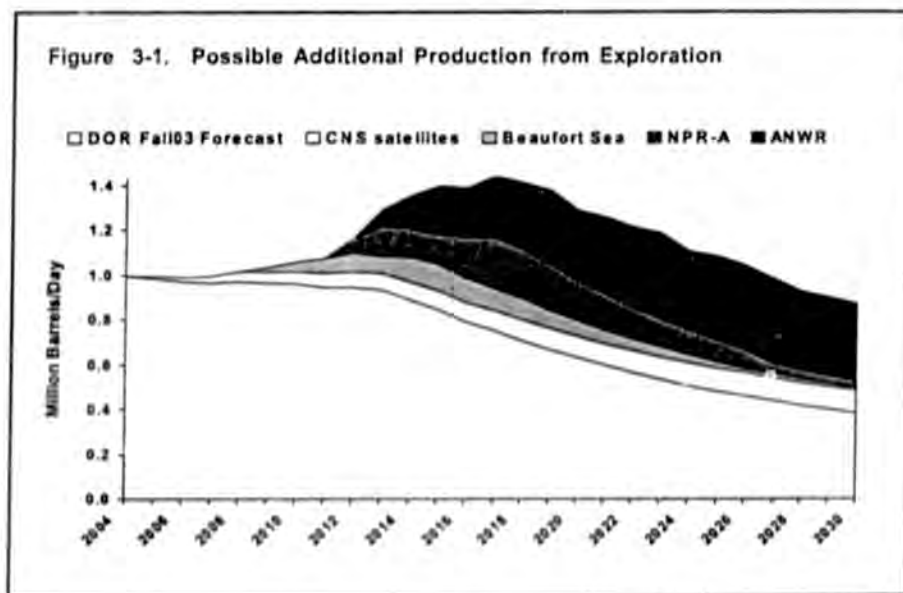
Conclusion

- Recent exploration activity has been relatively concentrated in one firm, ConocoPhillips.
- New entrants, however, are buying leases and in some cases drilling wells (Encana, Winstar, and Pioneer Resources)
- Major increases in exploration drilling are going to overwhelmingly be driven by the opening up of new areas that are located close to existing surface infrastructure. The most recent example is the NPR-A, where the eastern area lies close to the western edge of the North Slope oil gathering infrastructure at Alpine.
- Although oil and gas prices can make a difference in terms of cash available to explore, high oil prices alone may not be enough to cause the biggest current producers on the North Slope to drill North Slope exploration wells in 2004.
- Clearly, investment in surface infrastructure can dramatically improve the commerciality of exploring and development. This is the motivation for the initiative by the state to plan for road and bridge access to the NPR-A. Some exploration wells have been drilled recently by companies with little or no access to surface facilities; however most wells are drilled by companies with existing production and facilities.

Developing New Oil Fields

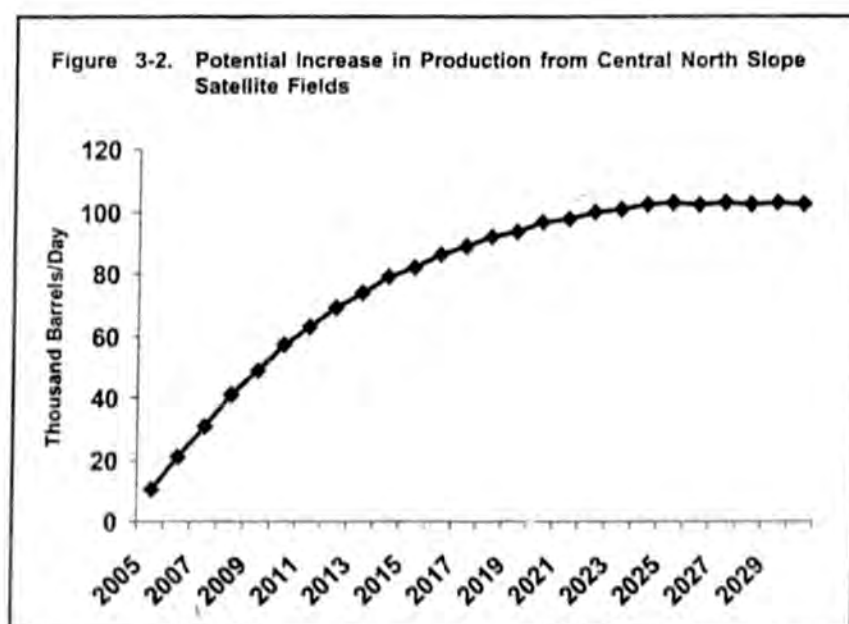
Exploration and aggressive development of found oil reserves could place ANS production on an increasing path by the end of this decade. Here, we have highlighted four areas that could be sources for such growth: the Central North Slope satellites, Beaufort Sea, NPR-A and ANWR. ANWR could provide as much — or more — in oil reserves and production as the other three areas combined. Oil exploration incentives, as provided in the recently adopted exploration tax credit, as well as the initiative to build a new year-round access road to the NPRA-A are designed to encourage the exploration necessary to realize this additional oil production.

Also, exploration is not the only way to add reserves. For instance, more aggressive development of heavy oil resources could add reserves and production. Whether we reach this higher production path depends crucially on the level of exploration and development spending, something which must increase from depressed 2002 and 2003 levels.



Central North Slope Satellites

In its last slope-wide evaluation of oil and gas resources, the USGS estimated that there were 2.3 billion barrels of technically recoverable, undiscovered oil reserves in the Central coastal regions of the North Slope. The USGS believed this oil would mainly be in the "Turbidite" and "Barrow Arch Beaufortian" geological plays.⁽¹⁾ Since that evaluation in 1995, producers have discovered and put into production more Turbidite (Meltwater, Tarn, Tabasco, Midnight Sun and Aurora) and Barrow Arch Beaufortian (Alpine and Polaris) reservoirs.⁽²⁾ Adjusting these technically recoverable barrels to take into account recent discoveries, we estimate that there are about 1.9 billion barrels of technically recoverable oil still remaining to be found in the Central Coastal regions. The USGS also felt that around half of this technically recoverable oil would be economically recoverable.⁽³⁾ Of the estimated 1.9 billion barrels of technically recoverable oil remaining net of post-1995 discoveries, 880 million barrels should be economically recoverable.



(1) USGS Open-File Report 95-751, Emil Attanasi and Ken Bird, "Economics and undiscovered conventional oil and gas accumulations in the 1995 National Assessment of U.S. Oil and Gas Resources: Alaska," [USGS95], Table 3, Page 37.

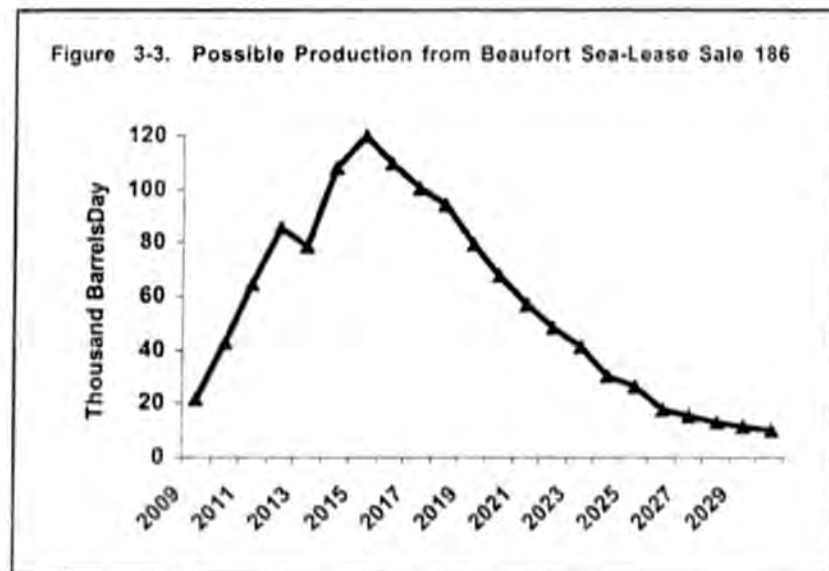
(2) Since these barrels were put into production and therefore economically recoverable, we could have adjusted the economically recoverable, rather than technically recoverable, reserve numbers down. However, recent discoveries will not only turn undiscovered barrels into discovered barrels. They will add geological information that increases the estimate of undiscovered, technically recoverable, reserves. To roughly offset this effect we have kept constant the percentage of technically recoverable barrels that are economically recoverable.

(3) Of the Central Coastal region's 1.9 billion barrels of remaining technically recoverable reserves, 45.75% (916 million barrels) should be economically recoverable. The economic recovery factors reflect mid-points between the \$18 and \$30 cases of USGS[95] Table 3.

Finding and producing these reserves will require further investments in exploration and development. Due to capital constraints, these reserves will come on slowly. We derive a conservative production forecast for these satellites and fields by assuming that 75 million barrels of additional Central North Slope reserves will be put into production every other year starting in 2005. The 75 million barrels assumption is conservative because in 2001 and 2002 the producers put three satellites with about 300 million barrels of reserves into production. However, in 2003 there were no new satellite discoveries put into production. Exploration efforts continue though. Pioneer recently announced an oil find just north of Kuparuk in the newly formed Oooguruk unit. By 2010, currently unannounced satellite developments could add around 50,000 barrels a day to our forecast.

Beaufort Sea

In total, U.S. Minerals Management Service (MMS) estimates that there are 8.82 billion barrels of technically recoverable reserves and 2.27 billion barrels of economically recoverable oil at \$18 per barrel oil prices and around 2.5 billion barrels at \$22 per barrel. The MMS recently held Beaufort Sea Lease Sale 186 that garnered \$10 million in bonus bids. For the Beaufort Shelf area, the MMS projects that the three fields developed from areas leased in this sale will yield 460 million barrels of reserves. See James D. Craig, "Economic Results, Beaufort Shelf Province."



NPR-A

In 2001, ConocoPhillips announced an oil discovery in the NPR-A. Currently, the Bureau of Land Management (BLM) is completing an environmental impact statement (EIS) for possible development of these discoveries as Alpine satellites. We estimate that the NPR-A will yield 430 million barrels of oil in our production forecast. Production starts in FY 2009 and ramps up to 60,000 barrels a day by 2015.

The NPR-A might yield more oil reserves, oil reserves that could be produced at a higher rate. The USGS evaluated the oil and gas resources in the NPR-A in 2002, and concluded that there were 9.3 billion barrels of technically recoverable reserves there. Of that amount, the USGS concluded that 1.3 billion barrels would be economic to explore for and produce at a \$22 per barrel ANS West Coast oil price — our long run price forecast.⁽¹⁾ In the EIS, BLM envisions a development of multiple drill sites along with two new central processing facilities in the NPR-A. Provisionally, the BLM estimates the NPR-A reserves from this development would be around 1.4 billion barrels, slightly higher than the USGS's 2002 number.

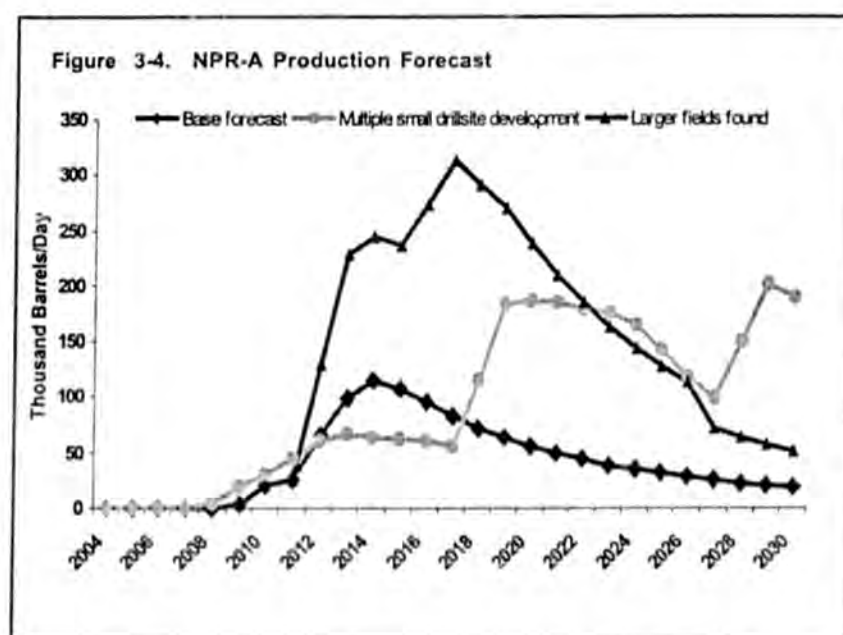
How quickly these reserves are produced depends on the pace of exploration and the size of the fields discovered. Since 2000, 14 exploration drills have been drilled in the NPR-A and a further three or four are planned for the 2003-2004 drilling season. The USGS assumed that there were about eight accumulations with 256 to 512 million barrels in the NPR-A, three of which were in "Subarea 110" of the NPR-A, the area closest to Alpine and TAPS.⁽²⁾ For the NPR-A these are large fields, and these larger fields would be produced before smaller accumulations since they are easier to find and more economic to develop.⁽³⁾ After an initial round of exploration (assuming 20 wildcat wells), the USGS believes that one of these three 256-512 million barrel fields would result in a 430 million barrel field discovery. Under the USGS's cost and development assumptions, to overcome the challenges facing NPR-A development requires that the potential prize of a larger field (400 million barrels or more) is needed for exploration at \$22 per barrel oil prices. Once found, a relatively small field (250 million barrel) will be economic. Explorers just will not incur high exploration costs to look for those fields.

(1) See NPR-A fact sheet.

(2) See USGS fact sheet histogram. The USGS divided the NPR-A into eight subareas for the purpose of estimating product transportation costs to TAPS. See Economic report at Page 17.

(3) See USGS fact sheet, "The economic analysis simulates exploration by assuming that larger accumulations will be discovered early..."

The graph illustrates the production from the NPR-A in our forecast, and the additional production from the NPR-A if a larger field is found or, alternatively, if smaller fields are found and can be economically produced. Lowering exploration costs (through the recently enacted SB 185 or through a permanent road) make the higher forecast more likely to occur. The USGS estimates that the initial finding costs per barrel for the NPR-A is \$0.39, or \$168 million.⁽¹⁾ Explorers pay out these millions of dollars years before first production. Decreasing the cost of this frontier exploration by roughly 30% due to the passage of SB 185 will increase the rate of return on a 430 million barrel field a full percentage point — from 13% to 14% — at \$22 per barrel oil prices.

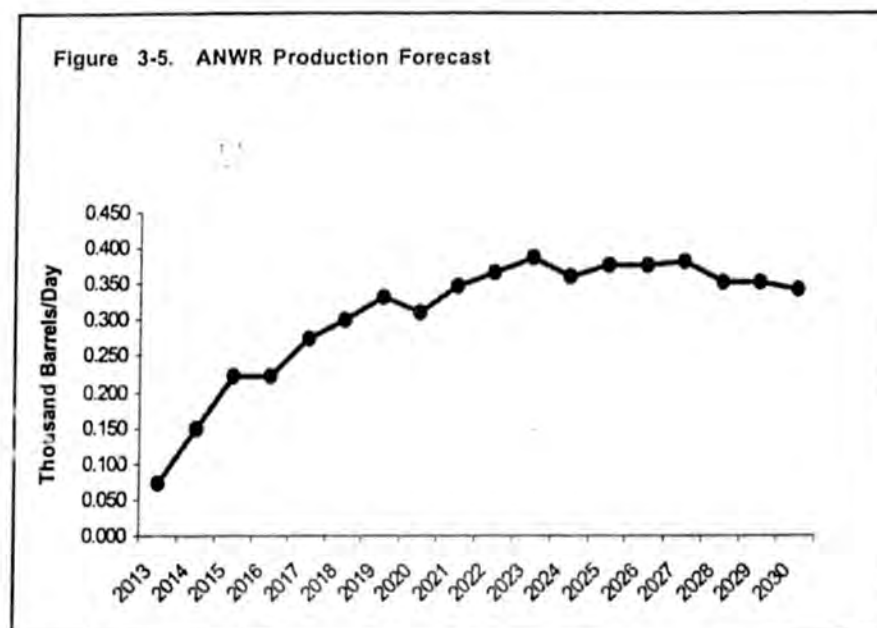


ANWR

The USGS estimates that there are 10.3 billion barrels of technically recoverable reserve in the Arctic National Wildlife Refuge (ANWR), or more barrels than the original estimate for the giant Prudhoe Bay field. At our forecast price of \$22 per barrel, the USGS estimates that 4.4 billion barrels are economically recoverable from federal lands, and almost another billion from non-federal lands. Since ANWR production will probably come from larger fields (with an 80% chance of there being a 1.024 to 2.048 billion barrel field), production should ramp up quickly. We estimate that once Congress opens ANWR to oil exploration and development it will take seven years for the first oil to be produced from the area. If opened in 2006, ANWR is assumed to add between 200 and 400 thousand barrels a day of production by the middle of the next decade.

(1) See NPR-A Economic Report, Table 4, Page 37.

Figure 3-5. ANWR Production Forecast



Gas Line

The producers, the state and other interested parties continue to explore ways to monetize the over 30 trillion cubic feet of natural gas on the North Slope.⁽¹⁾ The three largest producers on the North Slope (BP, ConocoPhillips, and ExxonMobil) have looked at a project to pipe about 4.5 billion cubic feet of gas per day to markets in the Lower 48 or Canada. Many hurdles must be overcome for the project to proceed. If these hurdles are overcome, the state stands to receive around \$600 million a year in royalty and severance tax payments per year. Including corporate income tax and property tax, revenues to the state and municipalities increase to around \$1 billion per year.⁽²⁾

(1) Producers on the North Slope currently use the natural gas there to enhance oil production through miscible injection (EOR) projects, cycling and pressure maintenance. Natural gas also is used as field fuel, to fuel some of the pump stations on the Trans-Alaska pipeline and is sold in small quantities to local utilities.

(2) For purposes of this analysis, we have assumed a \$4 per mmBtu price at market. We have not factored in possible changes to the state fiscal system. The state and municipal take is based on the current fiscal structure. We also have not taken into account oil losses due to gas voidage from an oil and gas reservoir.

Conclusion

In our forecast of oil and gas base revenue (production tax and royalty), we project a decline of 30% by FY 2010 and almost 50% by FY 2015. However, by FY 2015 revenue from future oil exploration and a gas line could more than offset this anticipated decline in oil and gas base revenue from currently producing or discovered fields. With a very active oil and gas exploration and development effort, by FY 2015 our oil and gas base revenue could be 30% higher than it is today.

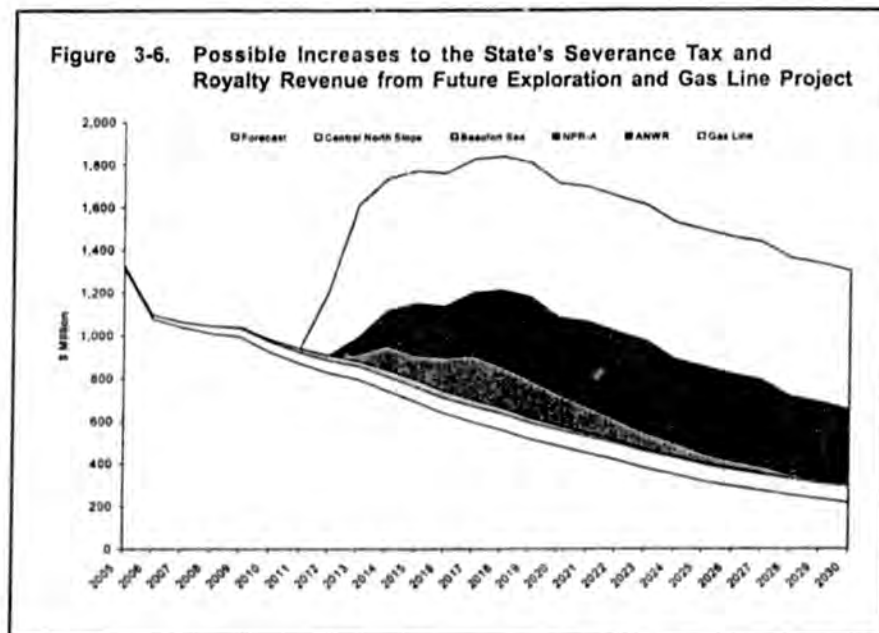


**Table 3-4. Cumulative Revenue from New Oil Exploration and Gas Line Project to FY 2030
\$ Millions (Undiscounted Dollars)**

	Central North Slope and Satellites	Beaufort Sea	Additional NPR-A	ANWR	Gas Line	Total
2006	27	0	0	0	0	27
2010	174	18	0	0	0	192
2015	480	145	261	484	2,156	3,526
2020	854	268	1,145	2,122	5,282	9,672
2030	1,622	338	1,644	6,058	11,671	21,332

Minerals

Alaska's traditional resource-based industries in mining, fish, tourism and timber all have potential for growth. In this Revenue Sources Book, we have chosen to examine the mining industry. Most of this information comes from the "Alaska Minerals Industry 2002" report, Department of Natural Resources, 2003.

Mining

Between 2001 and 2002, the production value of industrial, energy and metal minerals increased 10% to over \$1 billion. Industrial minerals (e.g., sand and gravel) increased from \$82.4 million to \$152.2 million, mostly as a result of increased road repair and construction. Energy minerals (e.g., coal) decreased from \$48.3 million to \$37.6 million, mostly due to the loss of exports to Korea. Metal minerals increased from \$788.6 million to \$823.1 million, mostly as a result of an increase in the price of gold.

In 2002, zinc prices decreased by more than 12% from 2001 but, as production increased, the total value of zinc decreased only by 1%. Even with prices dropping since the first half of 2001, zinc still accounted for over 60% of the production value for all metals.

Both gold and silver prices increased by 14% and 5%, respectively in 2002 and have continued to rise in 2003. In fact the price of gold in 2003 (January-October) is currently 16% higher and zinc prices are 3% higher than in 2002. According to Andrew Keen at the London Metal Exchange, lead and zinc prices should improve slowly in 2004. Additionally, Korea has signed a new two-year agreement to once again import coal from Alaska.

Employment in the minerals industry in 2002 was 2,824 full-time equivalent jobs, down by 11 from 2001. Average annual earnings in 2002 of \$63,763 were among the highest in the state.

Producing Mines

The four largest producing mines in Alaska are:

Red Dog: Is a joint venture between Nana Regional Corporation and Teck-Cominco and the largest producer of zinc concentrate in the world. Out of a total of 718,106 tons of zinc produced in Alaska in 2002, Red Dog accounted for 637,800 or 89%. Red Dog has almost 550 employees.

Fort Knox: Is owned by Kinross Gold Corporation and produced 410,519 ounces of gold in 2002. This is 73% of the total production of gold in the state. Fort Knox has almost 400 employees.

Greens Creek: Is a joint venture between Kennecott Minerals and Hecla mining and is the third largest silver producer in North America. Out of a total of 17,858,183 ounces of silver produced in Alaska in 2002, Greens Creek produced 10,913,183 or 61%. Greens Creek has over 260 employees.

Usibelli Coal: Is owned by Usibelli Coal Mines Inc. and has among the lowest sulfur coal in the world. Usibelli produced 1,157,879 tons of coal which is essentially all of the commercial coal produced in Alaska. Usibelli had approximately 80 employees in 2002. In 2003, Korea signed a contract valued at \$20 million with Usibelli to resume importing coal from Korea.

Advanced Stage Projects

The three largest advanced stage projects are:

Pogo: Is a joint venture between Sumitomo and Teck-Cominco and the closest of the three projects to construction. Start of construction should be by late 2003 or early 2004 and production should begin in late 2005 or early 2006. The mine should produce greater than 375,000 ounces of gold per year and should employ about 360 employees during production.

Kensington: Is owned by Coeur d'Alene min and still has some hurdles to overcome before construction can begin. However, if production does occur, then the mine should produce approximately 85,000 ounces of gold per year and have about 225 employees.

Donlin Creek: Is a joint venture between Placer Dome, NovaGold Resources, Calista Corporation and TKC and has the largest gold resource in Alaska. According to the Alaska Journal of Commerce (Bradner, 2003) the largest "challenge" to overcome for Donlin Creek to become a producing mine is to find enough power to operate the mine.

Revenue

According to the Department of Natural Resources, the mining industry paid \$15.2 million to the state and municipalities in 2002. Most of this revenue was from payments to municipalities (\$9.7 million.) The mining industry makes revenue payments to the state in the form of rents and royalties, corporation income taxes (if the businesses are subchapter C corporations) and mining license taxes. We do expect some increase in the state revenues as a result of strong gold prices, improving zinc prices, a new coal contract with South Korea and in the long run from new developments.

The only advanced stage project development that we included in the forecast was Pogo because this project is the closest to construction and is the most likely to begin production within the next five years. No tax revenue would be realized in the two-year forecast window because production is not slated to begin until early 2006. Additionally, because of the 3½-year tax holiday after production starts, we would not see any mining license revenue until FY 2010 or 2011 at the earliest. Exploration credits may be applied against 50% of royalties and tax liabilities and further reduce revenue.

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OPINION

OUR VIEW

Principles of a fiscal plan

Seven keys to progress

First in a series

Alaska's \$1 billion fiscal gap threatens to swamp our current prosperity in red ink and economic disarray. Nothing the Alaska Legislature could do — or not do — matters more than building sound fiscal foundations. As legislators struggle to craft a workable plan to put state finances onto a sustainable basis, seven key ideas should guide their work.



1. START NOW

The first principle is the most important. The longer we wait, the harder this job will be. The longer we wait, the fewer resources we'll have to deal with the problem. The longer we wait, the bigger the damage to the economy. The worst choice now is to do nothing because the long, slow fiscal deterioration of the past decade threatens to trigger a recession, or worse, if the slide deepens.

2. USE ALL THE OPTIONS

The second principle is to accept the wisdom of every study group and expert analysis that's been done for more than a decade. Alaska has plenty of money and plenty of choices; we just don't any longer have the luxury of a permanent free lunch. We can fix the problem and improve our prospects without much difficulty if we use a balanced approach: taking something from Permanent Fund earnings, ratcheting back the dividend, installing some form of general taxes and encouraging growth by closing the fiscal gap.

3. MAKE IT FAIR

Principle three means to spread the burdens among all Alaskans. This means recognizing the idea of progressiveness: That people who benefit the most from society should give the most back; or, at the other end of life's fortunes, that people who live closest to the edge should be burdened less. It is a matter of elemental fairness deeply rooted in American society, and no less true in Alaska even if often forgotten in our 20-year freedom from general taxes.

4. RAMP IT UP GRADUALLY

Principle four would give families and businesses time to adjust. Giving people time to adjust their patterns of spending and investment will make everything easier at the individual level and less damaging at the economy-wide level. If principle four is not followed, its reverse will swiftly become apparent: The sharper the turn required, the greater the short- and long-term damage to families

H-2 Sunday, April 7, 2002

and communities.

5. CLOSE THE "ALASKA DISCONNECT"

Principle five means removing a big negative result of growth. Under current laws, every new business, new job or new Alaska citizen actually damages our finances because we have no means of reclaiming the public costs. We are, as Anchorage businessman (and now lieutenant governor candidate) Ernie Hall points out, fiscal liabilities rather than assets. No community can prosper, long term, in that predicament. Thousands of new jobs in a growing economy would mean thousands of new schoolkids, more demand for road maintenance and police, increased use of parks and boat ramps, all the ordinary public accommodations of a prosperous state. In every other state, growth brings fiscal relief. In Alaska it brings more strain. To position ourselves to succeed, we need to close the disconnect.

6. ACCEPT NO GIMMICKS

Sooner or later the free lunch of the current era will change; sooner is better because it is less painful and more likely to lay the foundation for growth. But the political impulse will be to find some excuse to dissemble or delay, some popular gimmick that avoids the problem. Recent examples include proposals for a spending limit, a tax limit or just arbitrary spending cuts. These aren't going to solve the fiscal gap, no matter how much we wish they could. In the long run the economic fundamentals will dominate our choices. The fewer gimmicks we indulge before coming to grips with reality, the better off we'll be.

7. WE'RE ALL IN THIS TOGETHER

A lot of people are running around Juneau saying, in essence, leave me alone and hit somebody else first. That's both understandable and short-sighted. The truth is, very few Alaskans are immune to the risks posed by the fiscal gap. The answer to the don't-hit-me-first appeal is simple: Hit all of us first. We all face the threat; we all have enjoyed the long oil-fueled vacation from responsibility; we all should step up now for a solution.

Alaska cannot and will not prosper without a sound fiscal order. Even in decline, state oil revenues along with federal agencies and grants are a mainstay of Alaska's economy. Put the state's fiscal house in order now and our general prosperity can continue. Avoid the problem much longer and the consequences will be increasingly painful and difficult. And that takes us right back to principle one: Start now.

Alaska has the means to repair its fiscal foundations and restore a sense of opportunity and growth. Over the next week we will examine components of a proposal to close the state's \$1 billion-a-year fiscal gap and improve our future prospects.

Today: Principles of a fiscal plan

Monday: An overview of a fiscal plan.

Tuesday: Thinking about spending.

Wednesday: An income tax first.

Thursday: Sin taxes and other revenues.

Friday: What's the Permanent Fund for?

Saturday: Rethinking the dividend.

Sunday: Positioning Alaska for the future.



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OPINION

OUR VIEW

Fiscal sense

Here's how Alaska can win

Second in a series

Alaska's \$1 billion-a-year fiscal gap is a serious problem, but it is manageable if we keep our heads and act decisively. The best way is to keep our balance, to take something from each of several sources while ratcheting up changes gradually. Here is a proposal for how:

REFORM BUT DON'T ROLL BACK SPENDING

Alaska's economy is built largely around public spending, federal and state. This has been true for more than a century and likely will continue. Alaska's wealth, mostly land and natural resources, is owned largely in common. Any change in the fiscal picture must recognize that virtually everyone who lives and works here, public sector or private, depends heavily on government spending. We have already cut state spending by one-third in real terms in the past decade — the only state even to approach such cuts. This is not the time to further roll back services. Impact on the fiscal gap: not much.



START WITH AN INCOME TAX

The first big bite from the \$1 billion fiscal gap should come from a graduated income tax built on the time-honored principle of progressivity. Alaska had just such a system until 1980, when it abolished general taxes in the first big flush of oil revenues. Forty-three states choose an income tax as a mainstay of their fiscal structure; Alaska should too. An income tax with inflation-adjusted brackets based on the pre-1980 system would raise \$660 million. At just half that impact, we could close a third of the gap and keep Alaskans among the lowest-taxed individuals in the U.S. To minimize the difficulties of adjusting, we should increase the tax gradually over five years. Impact on the fiscal gap: \$330 million.

USE ALASKA PERMANENT FUND EARNINGS

For 25 years we've been accumulating savings in the Alaska Permanent Fund by trading the value of our oil in the ground for money in the bank. So far, all we've done with our earnings are pay ourselves dividends and add to the fund's value and growth. Those little blue umbrella pins you see on coat lapels around town are a harbinger of change. They say essentially that "the rainy day has come" and it's time to use our fund for common purposes. Payouts from the fund should be made on an endowment model providing 5 percent of its value in a given year — a figure that research indicates will maximize the payout and preserve the fund. The payout should be split between individual dividends and state services, in a proportion to be determined each year by the Legislature. Impact on the fiscal gap: \$500 million to \$600 million.

DECREASE THE DIVIDEND

Alaska's Permanent Fund dividend has been a remark-

B-4 Monday, April 8, 2002

able experiment, but now we can afford less and less of it. Over time, income supports to citizens should be crafted more on the basis of work or need and less on mere presence. Because we have created the fund and made it grow, we can still afford to pay ourselves a dividend to protect our stake in its future. But the dividend now should be phased back — slowly, so we all can adjust. The balance between individual dividends and support for public services could shift with changing needs, but over the long run we should reduce our dependence on an unearned state dividend check. Impact on the fiscal gap: depends on future legislatures.

ADD SMALLER TAXES AND REVENUES

An alcohol tax increase could raise \$30 million a year or more and would help offset the estimated \$450 million alcohol abuse costs the economy each year. A cruise ship head tax could raise another \$30 million to \$35 million, and a hike in the fuels tax a similar amount. Together these new levies would contribute only about one-tenth the amount needed to close the fiscal gap, but they would diversify and stabilize the tax base and call on industries and consumers of specific high-value items to contribute. Impact on the fiscal gap: about \$100 million.

REVISIT OIL TAXES

Alaska has a fiscal gap because the golden goose of oil isn't as golden as it used to be. The reality is Alaskans can no longer expect oil companies or anyone else to pay nearly all the bills for state government. That said, the fiscal gap is so big and so serious that no industry can be exempted from the solution, not even oil. Impact on the fiscal gap: \$100 million.

■ ■ ■

Taken together, the elements of this proposal would close the state's current \$1 billion fiscal gap and give Alaska the tools for a more sustainable future. They would minimize the negative impacts on the overall economy while providing a more solid foundation for growth.

Everybody, in the end, would give a little to avoid the coming crash and position the state for growth. But it can't be done with a reactionary spirit. The enemy of a better future for Alaska is the absolutism that says, in essence, don't bother me; make it somebody else's problem. The answer is this is everybody's problem, and we should come together as Alaskans to fix it.

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OUR VIEW

Spending

*We all benefit, no matter
which sector we work in*

Third in a series

Alaskans waste far too much time and antagonism on the question of whether we, as a state, spend too much or too little. In the debate over closing Alaska's \$1 billion fiscal gap, we'd do well to lay off the ideology, think hard about what we need and go with what works.

We are privileged with oil revenues that give us a huge head start on funding state needs, but we also face the challenge of a vast expanse of territory and diversity of communities. It costs a lot to live here, and it's worth every penny. State services, too, reflect that reality.

There is no such thing as an ideal level of spending, but there are consequences to our decisions. Schools are run well or badly. Potholes are filled or not. Parks are equipped or neglected. Troopers are hired or fired. Food inspections protect us or not. Research drives progress or stagnation retards it. Culture finds outlets or it withers. Fisheries management improves or regresses. The poor and the sick are lifted or left to private devices and charity. No society succeeds without sound public investments in these and many other endeavors. No society holds the line in the long run except by going into decline.

Is that our purpose?

Our society in Alaska has sweated the obvious fat out of its system with a decade of budget cuts and shrinking expectations. General fund spending declined 33 percent, in real terms, in the past decade. Per capita general fund spending is now more than \$1,100 lower than it was in 1979, at the outset of the oil era.

Further state spending cuts would make us weaker, not stronger. Our mission now is to find new revenues to stabilize our finances and new ideas to make the private economy a stronger partner for development.

THE UPSIDE

For a century, Alaska's economy has been built largely around public spending, both federal and state. As many as half the jobs in Alaska arise from government spending and its multiplier effect. Alaska's wealth, by virtue of public ownership of land and natural resources, is controlled largely by public institutions. This means nearly everyone who participates in the economy here — public sector or private — wins when public spending grows and suffers when it shrinks. Like it or not, we are all involved. For sound economic reasons, then, spending cuts are the most damaging answer to the fiscal gap. All this adds to the importance and impact of state services beyond the conventional benefits of roads, schools, police, public health and the like. Our economy is built this way and can't be significantly changed without major shock.

It's tempting but misleading to overstate the ways rural



B-4 Tuesday, April 9, 2002

Alaska benefits from state spending. Many funding formulas recognize the higher costs there and hence send more dollars to the Bush. Many services are provided by the state in communities with little or no local tax base and few private-sector jobs. But these high public costs in rural Alaska are a big piece of the economic pie in urban Alaska too, where services, contracting, supply, education, transportation and health-care industries are based.

Urban Alaska enjoys the comforts of a modern First World way of life, though not yet the benefits of a fully diversified economy or major population base. Rural Alaska is less fortunate. Over the past 30 years, most of rural Alaska has moved from Third World status to something more like the "Second World." Basic transportation, communication, education, health and social services are provided largely by the state. But the stakes are high: Indiscriminate budget cuts threaten a needless decline back to Third World status. What people often don't stop to notice is that urban Alaska would suffer, too.

THE DOWNSIDE

State spending paid for with oil revenues has few obvious losers, but long-term dependency is a deepening worry as those revenues decline. The risks are twofold: Deep cuts driven by revenue losses could send the economy into recession, as we saw in 1986 and 1987, or big tax hikes to fill the gaps could take too deep a bite out of industries and individuals. Either way, everyone suffers more if the changes are precipitous, and unsustainable fiscal practices are the ultimate culprit. Virtually everyone suffers in a general decline — through job losses, wage cuts, property value losses, business failures, diminished prospects. The fiscal gap amounts to a train wreck occurring in slow motion. But if we're smart we still can avoid it.

THE BOTTOM LINE

Alaskans may not always appreciate state services, but they use them and need them. The ideologues calling for revolution in state government reflect not the suffering of the masses but the anomalies and contradictions — and, yes, the inefficiencies — of our necessary embrace of government. What's needed is reform, not a rollback. State government is one of the engines of our economy and society; we should keep it oiled and tuned. To diminish our dependence, we should keep working for a strong private sector around and above the public sector.

For good reasons, we spend a lot. For other good reasons, it's not always enough. A much better question is: What should we do to prepare for the future and live within our means? In the long conversation of Alaska's democracy, this is the question that should linger.

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OUR VIEW

Income tax comes first

It's fair, so let's phase it in

Fourth in a series

Progressivity is at the nub of the argument over what taxes will best help cure Alaska's \$1 billion-a-year fiscal gap. There's no way to craft a lasting solution without including a broad-based tax, because without one there's no way to close the "Alaska Disconnect" that makes new growth a liability to everyone.

And with Alaska's budget sinking into red ink, the principle of progressivity — if wisely applied — offers simple guidance: We're all in this lifeboat together, and the strongest among us should pull the biggest oars.

The oars shouldn't be too big to handle easily. Everyone should pull. A progressive income tax must not be confiscatory or it will defeat its own purpose. At the other end of the policy balance, it should not be riddled with exceptions available only to the privileged.

But these are the details of design. The concept of a progressive income tax puts a solid leg under Alaska's revenue structure and is the best means of turning new jobs and growth into an asset rather than a liability. It's a painful but necessary part of a solution.



THE UPSIDE

An income tax based on graduated tax brackets is the fairest way to collect the necessary money from large numbers of Alaskans. Those who enjoy the most fruits of society's opportunities contribute the most. Those with the least pay little. Equity is served — and for many people that is the fundamental value.

But in Alaska there are three other compelling reasons to choose an income tax among the available solutions.

First, an income tax takes the smallest chunk out of the overall economy. A small part of income tax revenues would be contributed by out-of-state workers who currently give back nothing in Alaska. That is reasonable and appropriate. A larger, more important part would be contributed by the federal government because state income taxes are deductible from federal income taxes. (This is a big reason why 43 states have chosen income taxes as a mainstay of their fiscal structure.) All told, Alaskans would pay about 75 cents of every dollar collected under an income tax, according to University of Alaska economist Scott Goldsmith.

Second, an income tax helps close the "Alaska disconnect" whereby new jobs and growth actually leave us worse off than before because they impose new costs that can't be recouped. This perverse incentive not only increases as population grows, but also puts growing un-

B-6 Wednesday, April 10, 2002

certainty and risk into the investment climate. A rational company examining whether to locate here today has to wonder whether services will survive or industries will be hit suddenly with the bill. Closing the disconnect gives us a better chance of diversifying our economy and broadening our revenue base.

Finally, local governments already depend on sales taxes, the other major tax option. Sales taxes are high enough in many communities; a state sales tax not only could become confiscatory and regressive, but also would tend to drive down retail sales and business. They also would tend to drive up property taxes.

THE DOWNSIDE

Very poor Alaskans would pay no income tax under most proposals thus far. Those who favor a sales tax over an income tax say that everyone should pay something. But a sales tax is not the only way to accomplish that goal. Any fiscal plan that uses Alaska Permanent Fund earnings makes every Alaskan participate by reducing future Permanent Fund dividends received by all.

High tax rates may discourage work or investments. They may drive some work into the underground, unreported economy. They may shift income into unproductive tax shelters.

Some critics contend that an income tax penalizes those who show initiative and get ahead. Those critics forget that not everyone is born with equal advantages. Health, family support, access to education, the stability of a society and the state of its economy all make a huge difference in whether people prosper or fail. These are factors beyond an individual's control. A progressive income tax helps make up for the arbitrary way many advantages and opportunities are distributed in society.

A \$350 million income tax, started all at once, could be quite a jolt to personal finances and to the state economy. To soften the impact, it should be phased in over five years.

THE BOTTOM LINE

Alaska had an income tax before the big oil money rolled in, back when Alaskans really had to pay for things the state needed. The income tax was part of how people pitched in to help build the state.

Today, too many so-called Alaskans want somebody else — the feds, oil companies, out-of-state workers, tourists, drinkers, smokers — to support them in the style of government and giveaways to which we've become accustomed.

That free ride is just about over. One way or another, necessity will end it. The question is how Alaskans should begin contributing something toward our common efforts to build a better future. One answer is a state income tax.

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OPINION

OUR VIEW

Breaking the spell

Time to use Permanent Fund

Fifth in a series

It's time to see the Alaska Permanent Fund for what it is: A blessing of riches to use, not worship, for the public good of Alaskans today and generations to come. It's time to use some of its earnings to pay for public services and make the principal as permanent as we can.



Alaska voters created the Permanent Fund in 1976; beginning in 1983, Alaskans have received a Permanent Fund dividend check. Over 20 years, we've built the fund into a machine churning out bigger and bigger dividends that topped out at almost \$2,000 in 2000.

The Permanent Fund has earned \$25 billion since the first deposit in February 1977, according to Deputy Revenue Commissioner Larry Persily. We've saved \$14 billion and paid out \$11 billion in dividends.

Is that all the Permanent Fund is for?

No.

In 1999, Department of Revenue Commissioner Wilson Condon made a short speech announcing that year's dividend. He reminded Alaskans of Article 1, Section 1 of the Alaska Constitution. There we affirm our natural rights to life, liberty, the pursuit of happiness and the enjoyment of the rewards of our own industry. But Mr. Condon pointed out that the Declaration of Inherent Rights includes responsibilities:

"All persons have corresponding obligations to the people and to the state."

Good stewardship of the \$25 billion Permanent Fund is a vital part of meeting those obligations to one another and to our children. To that end, Alaskans need to see the fund as more than a dividend machine.

First, we should guarantee the fund's permanence by approving a constitutional amendment that would make the fund an endowment, paying out no more than 5 percent of a five-year market value average each year.

Second, we should devote some of those earnings to public services.

THE UPSIDE

Clark Grunning, one of the Permanent Fund's trustees, has said the endowment plan is the best way to guarantee the fund's permanence. Historically, lawmakers have been scrupulous in not only inflation-proofing the fund, but in loading it with extra deposits to speed its growth.

Inflation-proofing is protected only in statute, however, and that would be easy for a future Legislature to change.

Embodied in the Constitution, the 5 percent payout limit would be as close as we can get to written in stone. Given an average annual return of about 8.25 percent and

B-6 Thursday, April 11, 2002

an inflation rate likely to average about 3 percent, the amendment would protect the fund from inflation for keeps. It would continue to benefit Alaskans long after this generation was gone.

If we spend some of the earnings of the Permanent Fund to provide state services, to maintain and enhance our roads, schools, public safety and university, we'd be investing in a society that doesn't blunt free enterprise and the private sector but provides the foundation for it. As Mr. Condon said, we must recognize "the need to spend money as a community to protect our freedom as individuals."

THE DOWNSIDE

There's no getting around it: We'd all see a dip in dividends and the joys they bring — not only individual spending or saving, but also less cash circulating in the economy. Those costs are real, and use of fund earnings is a regressive tax that takes a bite from Alaskans too young to crawl and too old to walk. But that regressiveness can be tempered with a graduated income tax.

THE UNCERTAINTIES

The endowment principle is sound — provided averages calculated over 75 years of investment history continue to hold true. We can't know that for sure.

We can't know for sure what other income sources Alaska may have in future years. Will we continue to need a share of Permanent Fund earnings in the hundreds of millions of dollars, or more?

We can't completely chart the future, nor should we try to handcuff Alaskans who will make future decisions. We can act based on what we know, anticipate variables as best we can and share the burden of risk fairly.

THE BOTTOM LINE

Make the Permanent Fund an endowment, and we make it permanent. Spend some of the earnings on state government to fill the fiscal gap, and we draw from all Alaskans to build and maintain a better Alaska. Coupled with a progressive income tax, use of Permanent Fund earnings asks everyone to give, but asks more from those who have more.

Yes, this use of earnings breaks the spell of the fund as untouchable. It's time. That spell is a crippling illusion that weakens us in the long run. The Permanent Fund is not an end in itself, but a powerful means to the end of a more prosperous, stable Alaska. Together, an endowment and wise spending give us the means to provide for ourselves, our children and their children. We'll still have dividends, a benefit no other state in the Union enjoys. And we'll keep Alaska's economy sound. That's no illusion. That's good sense and good stewardship.

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OPINION

OUR VIEW

Phase back the dividend

But there's no need to kill it

Sixth in a series

Alaska draws about \$1 billion a year from savings to support state services at current levels. At the same time, we spend about \$1 billion a year for a program not found in any other state — cash payments to every resident, regardless of need, made through the Permanent Fund dividend program.

Couldn't we fill the \$1 billion spending gap by dropping the dividend and forget all this talk about taxes?

Mathematically, of course we can.

Making that \$1 billion shift, however, would be both economically harmful and inequitable.

Harmful because the \$1 billion in dividends amounts to about 6 percent of household buying power in the state's economy. Taking that much money out of circulation all at once would cost thousands of jobs.

Inequitable because taking \$1 billion entirely from dividends would hit hardest on the disadvantaged. The less money a family makes, the more the yearly dividend does to improve its circumstances. Balancing the budget solely with dividend reductions would put the burden on ordinary citizens while letting the wealthy off easy.

The great debate in progress is whether to raise taxes or cut dividends first. The best choice is to do a little of each — and retain the benefits of progressivity.

THE UPSIDE

Preserving the dividend at its current level is no longer an option except through draconian and self-defeating levels of taxation. Because the problem has been put off too long, the choice now is between phasing down the dividend to retain some of its benefits or eliminating it to stave off broad taxes. The only reason this choice hasn't been made already is that contributions from the Constitutional Budget Reserve have hidden it — but that source is running out.

Giving away \$1 billion a year in dividends may be poor fiscal policy in a state strapped for revenues, but preserving a smaller level of dividend is good social policy. State oil revenues belong to and should benefit every Alaskan; the dividends help make that possible.

The dividend provides a significant source of income to the less fortunate. That's especially important in rural Alaska, where economic opportunities are scarce.

Most families receive more in dividends than they would pay under an income tax. A family of four, for example, would have to enjoy an adjusted gross income of \$250,000 before it would pay more under the flat 2.25 percent income tax proposed by Juneau Rep. Bill Hudson



B-6 Friday, April 12, 2002

than it would lose if the dividend were eliminated. This means 98 percent of Alaska households would be worse off if the dividend were killed than if they paid the Hudson tax.

Under a more progressive tax proposed by Gov. Tony Knowles, the similar break-even point between dividends and taxes would be \$140,000. At least 90 percent of Alaska households would pay more giving up the dividend than paying the Knowles tax.

The farther down the income scale a person is, the more painful is the effect of losing the dividend. Killing the dividend, by itself, would be deeply regressive.

Still, a responsible long-term fiscal plan will reduce the dividend. Alaska is beyond the time when it can afford to send \$1,940 checks to every resident without reference to need or work. Alaska oil production has dropped by half, and the state has dug itself into a \$1 billion-a-year revenue hole. We can still have a dividend and all the benefits it brings, but it can't be as big as before.

THE DOWNSIDE

Using fund earnings for state services would shrink the dividend over time. An improved arrangement would convert the Permanent Fund to an endowment with a 5 percent yearly payout. Earnings beyond that payout would automatically inflation-proof the fund; the payout would be divided each year by the Legislature between state services and individual dividends.

To cushion the impact of such a big change, the new approach should be phased in.

Permanent Fund dividends have been woven tightly into the fabric of Alaska's family budgets and economy over the past two decades. Families at the upper end enjoy an extra vacation or build their portfolio a little bigger when dividend checks arrive. Families at the lower end pay bills or buy groceries. Families who depend on subsistence buy ammunition or gasoline. Some people get a new truck, a snowmobile, a couple of tickets to Hawaii or a party with all their friends. Wise kids or parents sock away dividend money for a good start in life — college, job training, a down payment on a home.

Many of us in the middle save some, pay off a few debts, take care of some necessities, treat ourselves to a nice dinner out, and thank our good fortune. The dividends are a windfall we appreciate but don't truly need. It's time to phase them back to a more sustainable level.

THE BOTTOM LINE

Combining modest dividend reductions with a progressive income tax puts the state's fiscal burden where it belongs — on those who can afford it. For low- and moderate-income households, dividend payments will still exceed the state income tax they might pay. Together, shrinking the dividend and bringing back an income tax are an equitable way to fill a substantial portion of the state's fiscal gap.

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OPINION

OUR VIEW

Targeted taxes

Alcohol, gasoline, cruise levies are part of solution

Seventh in a series

The state's financial situation is so serious that the repair job requires many different tools.

Unless an income tax is pushed to onerous rates, it will fill only about 30 to 40 percent of the state's \$1 billion-a-year hole.

An important contribution — roughly \$100 million — can come from three targeted tax measures: increasing the alcohol tax, increasing the motor fuel tax and setting a new tax on cruise ship passengers. These taxes would diversify and stabilize Alaska's revenue base and help balance demands on Alaska citizens and industries.

ALCOHOL TAX: Raise it a dime a drink

Increasing the state's alcohol tax is a two-fer — it's a way to raise revenue and it's good public health policy.

Dealing with the fallout from alcohol abuse — assaults, drunk driving, domestic violence, fetal alcohol syndrome — costs the state hundreds of millions of dollars. The alcohol tax recoups only a small share of those costs. The state collects about \$12 million; the cost to state and local governments for alcohol-related crime is at least \$148 million. The bill is even higher if government health care costs are included.

The state's excise fee on alcohol hasn't been increased since 1983. (Alaska charges a flat fee per gallon of alcohol, rather than a percentage of sales price.) Raising the price would help reduce consumption, especially among underage youths, who tend to be more price-sensitive.

Considering all the social costs associated with alcohol, a state criminal justice advisory panel recommended increasing the state's alcohol user fee by 25 cents a drink. The 10-cent-a-drink proposal being considered in the state House is, if anything, too low. It would boost state revenue by \$30 million, still well short of the state's costs.

The alcohol tax is really a user fee. When alcohol is widely consumed, abuse is inevitable. Dealing with that abuse is costly, and it's unfair to shift so much of the costs onto nondrinkers. Those who drink should pay a larger share of the bill.

GASOLINE TAX: Raise it to the national average

At 8 cents a gallon, Alaska has the lowest motor fuel taxes in the country. In other states, the average tax on a gallon of gasoline is 24 cents. By charging 24 cents a gallon, Alaska would collect another \$48 million.

The gas tax is another user fee. Alaska roads are not-



B-4 Saturday, April 13, 2002

riously expensive to build and maintain. Federal money pays 90 percent of major construction and overhauls, but plowing and patching are done with state funds. This year, the House passed a budget drastically cutting road maintenance. A higher gas tax could provide money to improve road maintenance instead of cutting it.

The number one source of air pollutants in Anchorage and Fairbanks is car exhaust. Increasing the gas tax would help cover some air pollution enforcement costs. It also would make public transit and car-pooling more cost-competitive with single-passenger car traffic; that, in turn, would help reduce auto pollution.

On the downside, a big gas tax increase would fall hardest on those already struggling to get by. It would take a constitutional amendment to guarantee that any gas tax increase is used to improve road maintenance. The gas tax is also the least popular — by far — of Alaska's revenue options, according to opinion polls.

Nonetheless, the state's road maintenance is poor and it's going to get worse. Someone else — the federal government and oil tax dollars — have paid most of the bills for Alaska drivers on the road. These days, the state will have to scrounge for money just to maintain services, let alone improve them. Alaska drivers have gotten a bargain on taxes at the gasoline pump for a long time. Having such low taxes on gasoline and diesel is a luxury the state no longer can afford.

CRUISE SHIP TAX: Charge \$50 per passenger

Tourism is one of the state's largest industries, but it produces little income to the state treasury. The main way the state collects revenue from tourism is the corporate income tax, but the Legislature has exempted the largest cruise ship companies from that tax.

Charging each cruise ship passenger brings in new money from out of state, rather than taking it from Alaskans' pockets. For that reason, it is one of the most popular revenue proposals. A \$50 fee per passenger would raise about \$33 million a year.

Taxes on cruise passengers are common in other jurisdictions. The state should take advantage of this readily available opportunity to raise revenue from one of the state's largest industries.

THE BOTTOM LINE

All three of these revenue measures are reasonable user fees. The use of alcohol inflicts heavy costs on society and the state treasury; a higher alcohol tax helps repay those expenses. With the gas tax increase, motorists would pay more of the bill for maintaining and improving the roads they drive on. Cruise ship passengers use the beauty of Alaska but pay nothing toward the state's costs for stewardship of our natural splendors. The \$100 million available from these three sources will make a small but useful contribution to a long-term fiscal plan.

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OPINION

OUR VIEW

A better future

Fixing the fiscal gap is key

Last in a series

Alaska's journey into the 21st century has begun on shaky legs. Though the economy is generally strong, major industries — fisheries, tourism, even oil — are struggling. Our politics are wracked by bitter partisanship and drift. State government is a mainstay of our future, yet financially unsound. Only federal spending and the long-run growth of the Alaska Permanent Fund stand out.

And a long-term fiscal gap of \$1 billion per year threatens to shorten the long arc of opportunity provided by North Slope oil development. Though revenues from Prudhoe Bay and other nearby fields give us a huge head start in meeting Alaska's needs, they aren't enough to carry the whole load forever.

The most important thing we can do to improve our prospects is fix the fiscal gap. We have the tools. Together, as Alaskans, we must make it our business to do so.

Events in the Middle East have pushed the price of oil back above \$20 per barrel — \$22.33 and falling at Friday's close. This is both a stroke of luck and a temptation to fool ourselves. It does not change the long-term fundamentals, which show a continuing decline in oil production and revenues. The North Slope produces half as much oil today as it did in 1990 and projections show that decline continuing. The state budget deficit still hits \$1 billion a year for as far ahead as we can see.

We are way ahead of most natural resource economies because we have more tools and more wiggle room. The Alaska Permanent Fund is a \$25 billion treasure, the envy of every other state. We are not overtaxed now; in fact, we are hardly taxed at all. Our single biggest expense is giving money away. Most industries are largely untaxed and, even in decline, oil probably could contribute more.

So far we are simply refusing to use the tools we have. But they are available if we can summon the leadership and vision to wield them. Our budget problem is fundamentally more political than economic. The reason it hasn't been solved sooner — when it would have been less painful — is that no political consensus exists on how.

On these pages for the past week we have explored a package of solutions we believe would remedy Alaska's budget troubles with the least long-term damage to both individuals and the overall economy. The package includes a progressive income tax (worth \$350 million), use of Permanent Fund earnings (\$500 million to \$600 million), smaller user fees and taxes (\$100 million) and, after all that, reworking oil and gas taxes (\$100 million). After a decade or more of budget cuts, the focus now must shift to the revenue side of the ledger. This package does so in a broadly balanced way.

The overarching principle is simple: Balanced contri-

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butions from several sources will do the least harm and position us best for future growth. The package is essentially conservative — it aims to change our economy as little as necessary while spreading the burdens of that change as broadly as possible. It also aims to work these changes in as progressive a manner as possible — to ask the strongest among us to pull the biggest oars.

Time is against us. The longer we wait, the harder we'll fail. The hope of another windfall — ANWR, missile defense, an even bigger price spike from spreading war in the Mideast — does not lessen the urgency to act now.

The case for these changes is largely negative — avoiding a recession that is likely if we don't put our fiscal house in order before reserves run out in late 2004.

But there's also a more positive case revolving around changing our political habits. Instead of the long, tired argument over how much spending is too much, we need a broader vision of how to build for the future. The starting point for that discussion is a sound fiscal order.

Without a balance between spending and revenues we can't make intelligent decisions. We can't make new investments in good ideas or confidently divest of bad ones. We become stagnant and reactionary — afraid to change, unwilling to dream, immune to opportunities, ever more aware of the state's shortcomings. Without sound fiscal foundations, state government is stuck in anxiety and decline. With them at least there's the chance to make responsible choices and chart future progress.

The fiscal gap is ultimately a test of whether Alaska can hold onto enduring gains built on Prudhoe oil revenues. Those revenues can't carry us forever, much as we wish they might. The failure to create a lasting alternative, and the failure to build a sound fiscal structure, eventually would wash away the gains of the oil era. And because the solution requires everyone to give a little in order to avoid losing a lot, the fiscal gap is a test, too, for whether we can rise above self-interest to achieve the common good.

An honest solution would do more to restore confidence in Alaska's future than any other step lawmakers could take. It would improve the climate for investment and growth. It would leave a better foundation for state services, and give all of us some assurance that the decline of the past decade will not be permanent.

And it would overcome the notion — apparently accepted by too many politicians — that Alaskans will not accept the changes needed to prosper in the 21st century. We believe just the opposite is true. Alaskans have come to understand that we're at a crossroads: We need to fix the fiscal gap soon or we'll betray not only our own prospects, but those of our children as well.

Sunday: Principles of a fiscal plan

Monday: The parts of a fiscal plan

Tuesday: Thinking about spending

Wednesday: An income tax first

Thursday: What's the Permanent Fund for?

Friday: Rethinking the dividend

Saturday: User fees and other revenues

Today: Positioning Alaska for the future

**Conceptual Components of a Long-range Fiscal Plan
For the State of Alaska**

1. Commitment to managing the cost and growth of public services.
2. Management of the Permanent Fund to protect its real value over time while providing a substantial individual dividend and a contribution to the cost of public services.
3. A structured general revenue system that minimizes the need for broad based taxation of individuals and accommodates local governments' revenue structures.
4. Real economic growth.
5. A balanced budget requirement incorporating a mechanism to mitigate the consequences of oil price volatility on the general revenue system.

House Ways and Means Committee

Discussion of the Conceptual Components of a Long-range Fiscal Plan

April 29th, 2003

Conceptual Components

Cost Control

**Economic
Growth**

Permanent Fund

**Balanced
Budget
Mechanism**

**General Revenue
System**

Cost Control

HJR 9 – Constitutional Spending Limit

- Less Essential Program Reduction**
- Contain Formula Growth**
- Outsourcing**
- Reduce Statewide Administration**

Permanent Fund

- **Limit Permanent Fund Distribution**
- **Dividend Statute**

General Revenue System

- Hydrocarbon Resources -

- Production and Royalties**
- Property Tax**
- Corporate Income Tax**

General Revenue System

- Excise Tax -

- Alcohol**
- Tobacco**
- Motor Fuels (highway, aviation, marine)**
- Rental Vehicles**

General Revenue System

- User Fees -

- Licenses and Permits -

General Revenue System

- Public Corporation Dividends -

- **AIDEA**
- **AHFC**
- **Student Loan Corporation**
- **Mental Health Trust**
- **Alaska Railroad**
- **Municipal Bond Bank**
- **International Airport Fund**

General Revenue System

- Insurance Premium Fees -**
- Seafood Industry Taxes and Fees -**
- Gaming -**