

Prisoner's Collection

1 deal for Alaska.

1. Every lessee on state land has equal access to pipelines.
To assure same, State agency shd. operate pipeline. (See Lammont).

Present rate structure, high early rates, falling over time,
As cap. requir. of lessees.

State can apply leverage to change rates by holding back
new leases until ~~they~~ ^{rates} fall.

Re Risk

Books

P. Roberts thesis

M. Conrigny

Dick Norgaard

Dan Brunk books

Lady Luck

Cultivert analysis

Cronmeltin paper re risk premium.

Risk premium vs. reserve for losses

Timing.

- Depends on time-pattern of pipeline rates, exogenous, so retain responsive flexibility.
- Current mood of legish. is cool it, hold back, "protect environment."

OCS lands. Interior, BLM & USGS involved, but goes up to level of asst. secy.
Conflict of Alaska & Feds. Feds may be pushing faster than Ak. wants.

Gas. Shd. wait until gas can be marketed, too?

Water xpt. Was it considered?

Info.

Alaska.

Fishing & exploring.

Where the resource is mobile and hard to find, terms may still be given, like hunting & fishing licenses.

Re exploring. Give x-year hunting license.
At end of x years, licensee ~~is~~ discloses all he has found, as payment:

- 3rd party appraisal of value
- auction

Contractor keeps either:

- Fixed % of value
- All above prior est. of value
- Small % of all above his costs, ^{and 100% of his costs.}

This has advantage that you can audit books, analyze costs, disallow some.

There shd. also be an Alaska Geol. Survey, constantly at work.
Assignments:

- Find valuable resources
- Put prior est. of value on areas before contract expln.
- Assemble, integrate & publish info.

Teams of costs, engineers, geologists.

Arton Turing, Sunday.

1. He's for Alcan

Blair, of Alta. Pipeline, interested.

Short time horizon, hot to trot Constn. interests. For them, costs are income.

2. Jay Hammond, reps:

a. Env.

b. Anarchists, sanddoughs

Is vs. development, org. labor. Auch. Times, business. Is a reaction to the pipeline boom.

So Atwood is pro-dev, it seems.

3. B.C. favors Alcan, esp. G. Gibson, but all 4 parties.

4. R.V. Belt, Auch - Fairbanks.

5. A.T. is consulting in Canada a lot.

also w. H. Jackson. Lives in D.C.

also w. Alberta

But works for "The Inst."

6. He talks a lot about avoiding excess capt. - intensity.
One proposal was to fly crude to Calgary (but that sounds energy-int.)

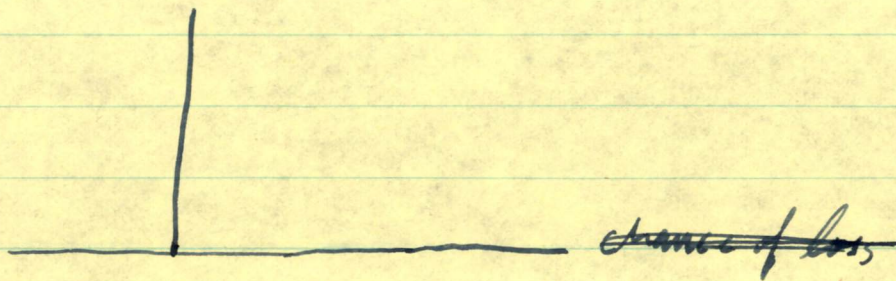
Alaska.

Risk. Cases. Consolidate what I know

1. Size of culvert
An event is probable, Time unknown.
It is a single event (altho. rep. possible)
2. Attrition.
A % of Trees may be lost from fire, insects.
3. Chain of risk -- risk of going broke. Exploration.
4. An event will occur; Time unknown
Death (inheritance; life insurance)
Polly's problem.

In regular gambling, 2 players, you have to match the other player's bid. You can only win as much as you stake.

In gambling vs. nature by prospecting, yr. winnings are unlimited, but yr. losses can be no greater than yr. stake.



You have 50% chance of losing yr. stake, another 50% of doubling it.

K = stake

$p = 50\%$	of return of the $2K$, is minimum acceptable
$p = 25\%$	$4K$
$p = 10\%$	$10K$
5%	$20K$

So you accept long odds, i.e. low p

GEOLOGIC PARAMETERS

Field Type	Name	Recoverable Reserves (MMB)	Pay Feet (Ft.)	Area (Acres) (Sq. Miles)	Ave. Overlife & of all pools GOR (SCF/STB)	Ave. Gravity API	Sulfer Content of Crude (Wt. %)	Ave. Porosity (%)	Ave. Perm. (Md.)	No. of Pools	Depth of Pool (Ft.)
MARGINAL	MERCURY ¹	50 [±]	100-300	1,400	300	32.8	.08	16.1	130	1	7,500
SMALL	MARS ²	100 [±]	250-600	3,200	400	42.5	.02	14	10	1	7,750
MEDIUM	VENUS ³	600 [±]	0-450	12,400	400	34.6	.11	14.8	73.3	1	9,100
LARGE	NEPTUNE ⁴	1000 [±]	0-444	19,000	730	28	1.12	22	265	1	8,200
GIANT	JUPITER ⁴	5000 [±]	0-444	94,000	730	28	1.12	22	265	1	8,200

1 Based on Trading Bay Field (Rec. Res. 75 MMB)

2 Based on Granite Point Field (Rec. Res. 110 MMB)

3 Based on McArthur River Field (Rec. Res. 503 MMB)

4 Based on Prudhoe Bay Field (Rec. Res. 8,000 MMB)

ENGINEERING PARAMETERS

Field Type	Name	No. of Expl. Wells	Yrs. to Compl. of Expl. Well #1,2, & 3 from Lease Sale	Number of Platform (if offshore)	Years to Platform #1,2,(3)	Total No. Wells	Total No. INJ Wells	Yrs. to Initial Production from L.S.	Initial Production Rate (B/M)	Yrs. to Peak Pro. from L.S.	Peak Prod. Rate (B/M)	Yrs. Peak Prod.	Yrs. to INJ from L.S.	Type fo INJ Rate System	Rate Decline (%)*	Final Prod. Rate B/M	Cummulative Production	Production Life
MARGINAL	MERCURY ¹	3	1,2,2.5*	2	4,6	32	13	5	12,500	7	400,000	5	9	water (725,466* B/M)	15	41,110		25 yrs.
SMALL	MARS ²	3	1,2,2.5*	3	4 4.17 4.25	40	16	5	127,700	8	787,400	6	9	water (720,000* B/M)	11	105,300		20 yrs.
MEDIUM	VENUS ³	3	1,2,2.5*	3	4 4.17 4.25	63	22	5	760,000	9	3,830,000	7	8	water (5,047,000* B/M)	① 15% @ 4 Yrs. ② 20% @ 12 Yrs.	182,000		25 yrs.
LARGE	NEPTUNE ⁴	3	1,2,2.5*	4	4 4.17 4.25 4.42	100	20	5	3,040,000	8	6,080,000	8	9	water (7,600,000** B/M)	15	240,000		29 yrs.
GIANT	JUPITER ⁴	3	1,2,2.5*	7	4 4.17 4.25 4.42	361	30	5	9,120,000	8	29,000,000	8	9	water (38,000,000** B/M)	15	1,330,000		29 yrs.

The certain equt. of a prob. dist. is not = the mean.
Is lower.

The very hi values aren't that clearly distinguished.
Sensation is affected by 90 Ls. The possibility of \$2b is only a little better than \$1b, to a poor man. (a large corp., on the other hand, wd. perceive this more ~~as~~ routinely, and so might bid much higher for small chances of very large gain. ~~Putting a ceiling on gains wd. $\therefore$ help smaller firms win more bids)~~

For + risks, $\therefore$, a log. mean is better.

The neg. risk is different. There is a floor, 100% of P.
Can lose bonus, plus several expl. wells.

These neg. risks hurt more, per \$, than the + risks help.
But they do have a floor, while there is no ceiling.

The neg. deviations from the chosen ave. shd. not be damped. It is not the log of the devns. we want. ~~to~~ Want to damp the + devns., but exagg. the neg. ones.

For this, might start from 0, gross yields. Say, the K has been spent. You find a PV, min. value = 0.
Now take geom. mean or log. mean of all possible outcomes.
I.e., take mean of logs, & anti-log of that.

This is a highly risk-averse assumption. Such people wd. not bid much. If bidders are like that, don't use bonuses.

But $\log 0 = -\infty$. Absurd.

Front money hurts lean lenders 2 ways

- 1) K costs them more
- 2) They shd. be more risk-averse, bcs. of dim. m.u. of wealth.
- 3) (1) & (2) combine. Hi cost of K As risk. They suffer more leverage.

Give a numerical e.g. comparing ~~for~~ log. mean & arithm. mean

	Values	Logs
	1	0
	10	1
	100	2
	1000	3
	100	2
	.1	-1
Total	1211.1	7
Mean	$\frac{202}{1211.1}$	1.164
Anti-log		ca. 15

The neg. values of logs become quite absurd, however. $\log 0 = -\infty$. No one is that dependent on one thing.

M. a. Adelman, '69 (in G. Rogers)

"There has always been enough oil in the old provinces, and still is, but at a higher cost." p. 26

✓ "Development of known oil pools can be calc. w. tolerable accuracy even on the basis of incomplete data." p. 26

"Proved reserves is the Σ of planned prodn. from all facilities already installed and paid for."
Last 3 words seem strange, & ambiguous.

a "field" is one or more pools in the same geo. "structure," but def. of structure is blurred.

A "Trend" or "basin" is one or more fields.

Stratigraphic traps are horizontal, the permeable layer (oilifer?) blocked at one end.

Structural traps are domed or capped.

Since ca. 1950, few new fields in U.S., but much devmt. of known fields. Tendency to $\downarrow$ costs offset by tech. advance, but suggestion of dim. returns.

Adelman 69

Drilling costs

A. 1. First N. Slope dev. wells ~ \$4 m.

Includes facilitation (airstrip, road, campsite, rig location) adequate for many more wells.

Includes 500,000 lease premium.

2. Later N. Slope dev. wells cost $\leq$ \$1.5 m per well

B. Cal. onshore. 7.5 k - 10 k ft., cost \$230k @ if wet (dry holes cost \$12,000)

So N.S. well costs $\frac{1500k}{230k} \approx 7$ times as much

Initial Prodn. per well, N.S. est., 10k - 20 k bbl/day.

$$\frac{\$1500k}{15k \text{ bbl}} = \$100 \text{ per daily bbl. (pdb)}$$

Less opt. guess is \$200 pdb, which Adelman uses. Note this is cap. cost only.

So the unit of prodn. is large, but costs are low pdb. Infrastructure is lacking, minimizing niches for smaller guys. Ak. shd. provide as much common infrastructure for all as ap. (Why is ILL regg. pipeline, intrastate?)

Dry dev. holes. There are 5-25% of all holes drilled, (outside of U.S. cont. not relevant to new area like Ak.)

Assume 15% dev. dry hole, & @ costs $\frac{1}{2}$ producer hole.
For many dev. wells, then, reduce yield by 15%, and cost by $7\frac{1}{2}\%$.
So this is ~~cost~~ capl. p/b by 1.09, to \$218 (from the assumed \$200. Note this factor is very small cfd. to arbitrary fudge factor raising \$100 to \$200.)

Decline rate of 10% is very fast, shows "extremely in-
termediate dev." 5% is "modest". (I wonder if
actual decline is exponential, or declining balance as Max
Lingo says)

✓ p. 34 Risk in refining & marketing is greater than in
development prodn. i.e. devmt. is low risk.

Assumes 15% r.o.r. after tax, and 5% decline, 20 yr.
life, gets cap. cost per bbl. of 11.5¢
at 20% r.o.r., & ~~10%~~ 10% decline, gets 16.7¢ p.b.

How? PV of annuity declining at 5%, disc. at 15%
= 5.18 he says. Let's see.

$$PV = \frac{1 - e^{-(i+d)n}}{(i+d)} = \frac{1 - e^{-.20 \cdot 20}}{.20}$$

$$= \frac{1 - \frac{1}{38}}{.20} = 5 \cdot \frac{37}{38} < 5$$

Why is he > 5 ? Probably handles rate of decline
differently. E.g. $\Sigma = 1 + \frac{1-d}{1+i}$ etc.

$$PV = \frac{1 - \frac{(1+i)^{-n} (1-d)^n}{i+d}}$$

Refer for later refining.

$$\text{Unit cap. cost} = \frac{\$218}{365 \cdot 5.18}$$

p. 31 u.

I wonder if he's done this right?

$$\frac{\$218}{365 \cdot 5.18} = 11.5 \text{¢}, \text{ but there is no } \text{entry}$$

for yield here? Yes. \$218 is K pdb, or $\frac{\$1500 K}{15 \text{ K bpd}} \times 2 \times 1.09$

$$\cancel{K = 218} \quad K \text{ pdb} = \$218$$

$$PV = 5.18$$

$$i = .15$$

$$i/365 = .000411$$

$$\text{Adelman's unit cap. cost} = \frac{K \text{ pdb}}{365} \cdot \text{crt}' = K \text{ pyb} \cdot \text{crt}'$$

where crt' is crt adjusted for decline rate.

$$\left[K \text{ pdb} = \frac{K}{\text{yield per day}} = \frac{K}{\frac{\text{bbl per yr.}}{365}} = \frac{365 K}{\text{bbl per year}} \right]$$

$$\frac{K \text{ pdb}}{365} = K \text{ pyb}$$

So he's basically OK. ~~too~~ He may overstate K by his handling of decline rate -- I'll check that later.

also, he uses too hi an i. 15% is above prev. & contains unspecified funds.

✓ Upshot is, the ~~very high~~ high yields per well results in
very low K costs per barrel --- 11.5¢ or so.

Op. costs per bbl are like midwest & Libya, <.06

May 6-94.

K + Op. cd. be as low as 18¢; as high as 26¢.

✓ These low costs are bec. the oil is not locked into
tight sands.

1959-68, 65,000 new-field wildcats were drilled in U.S.
7-10 b. bbl. of proved reserves with result. Bad record. But
has no bearing on Alaskan prospects. It is risky, but
not that risky.

Pipelining costs: - p. 37 u

2 in bd

Cost: \$1.56

5 yrs. to build, makes it \$2.16

Cost of K per bbl: 29¢

Op. costs "normally": 6¢

Unusual Terrain results in: 15¢

15¢ + 29¢ = 44¢. "This (estimate by Adelmann) is
on the high side." [to be thought, 1969.]

Cost to Valdez: 22¢ + 45¢ = 67¢

Tanker to Phita, via Panama, 35¢ (Intascale less 70)

Pipeline across Panama, 10¢

Alternative, tanker to Puget Sound,	8¢
X cont. pipeline	25¢
Σ	<u>33¢</u>

Jones Act doubles cost of Panama ste., rules it out.

Tanker, Valdez - Japan, 20¢
 $22 + 45 + 20 = 87¢$

But Kuwait oil in Japan costs 9¢ prodn + 85¢ taxes
 + 29¢ frt. = \$1.23.

$1.23 - .87 = 36¢$ Alaska pure profit

p. 39, Alaska Div. of Oil & Gas expects inlet demand
 prorating.

Adelman favored import controls for nat. security
 1969, so long as U.S. price above world price. pp. 39-40.

p. 40. Output per well-day

Alaska,	1,000 bl.
U.S.	15 bl.

End Adelman

Joe Fisher '69

Bristol Bay - rich red salmon grounds

Gold & salmon were early mainstays

Cu. episode by Kennecott, Cordova and Cu. R. Valley,
1916-37. { killed by depression, might it revive? }
(residual Kenn. holdings?)

War caused Alcan hiway and improving Alaska rwy.

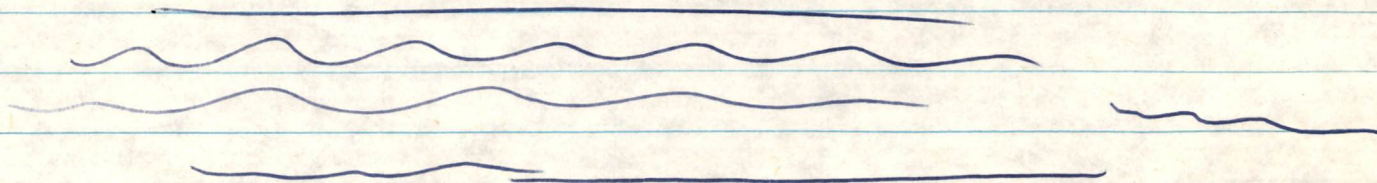
ca. 1955, pulp mills established in s.e.

Kennai & Cook oil fields

Lack of an agric. base. I bet Alaska cd. have one.

Seasonal employment

Temporary constn. employment - e.g. DEW line.



Guy Martin. Oct. 20

Adm. vs. Leg. is problem. So

1. Goal: complete before leg. opens.
2. Not an advocacy piece, but present alternatives.

Basis for debate — not a conclusion.

Leg. will be tugging at me.

A bill ~~to~~ is to be introduced for discussion purposes.

3. Limit no. of alts. -- classify, subordinate some to others.
Consider applying diff. system, varying w. circumstances.

4. A) Define objectives.

DCT

Openness to public scrutiny.

Environment

Compu.: small size; vertical disint.: interloper

Community stability impact.

Develop policy inclis.

Leave in action to explore, but

not elsewhere.

~~as on much higher rate than most provincial corporations.~~

~~comi~~

~~outweighs~~

- B) Means of reconciling conflicting objectives.

5. Re #1, administrator shd. make complex ~~just~~ decisions, but not risk decisions.

Pat & Pedro, 9AM Fri.

equal degrees of ineptitude in all politicians, but a
man's ambition must be small to opt for this choice.
^{sign}~~write~~ his name under this ~~slogan~~ motto.

Another proper applic

~~One may also apply the reasoning to factor
proportions. A common kind of partial equilibrium
argument commonly made against royalties is that
they cause miners to high-grade deposits. There is
much truth in that but it is too ^{partial} simple by a far
piece. ^{The depletion allowance is a negative royalty that needs offsetting.}
H — We have noted that the capital input is
made artificially cheap ~~it is expensive~~ to minerals
investment. This, too, needs offsetting, and royalties
have some crude thrust of this kind. But ~~have we~~
~~meet a net anti-labor bias.~~ Payroll taxes are
like a royalty on the labor input and cause~~

SCANNED AS FOUND

1 Sets Decision Deadlines

Times Washington Bureau

WASHINGTON — President Ford today signed into law a bill establishing a procedure for a decision by late 1977 on a route to transport natural gas from the North Slope to markets in the Lower 48.

In signing the bill Ford ignored the objections of the Office of Management and Budget and the Federal Energy Administration and accepted the advice of campaign strategists that it could be key to winning in California.

The bill calls for the Federal Power Commission to decide between the three competing gas line applications by March 1, with other agencies and the states submitting reports by April 1.

The President is directed to issue his gas line recommendation by July 1, although he may take 90 more days if he needs it. Congress would then have to act on the recommendation within 60 days.

The bill limits judicial review as was done in the oil pipeline authorization but requires the President to submit to Congress a report each time he waives agency procedures in connection with the gas line decision.

The legislation also contains a controversial provision directing the President to insure that the approved transportation system will provide for direct pipeline delivery to points both east and west of the Rocky Mountains.

The bill also requires the power commission to authorize the shipment of Alaskan royalty gas on the interstate pipeline for use within the state.

Rep. Don Young, R-Alaska, said,

(See Page 2, Col. 4)

and Signs Gas Line Bill

(Continued From Page 1)

"The significance of this provision to Alaska cannot be overemphasized."

In remarks prepared for insertion in the session's last issue of the Congressional Record Tuesday, Young said, "For decades Alaska has seen its natural resources stripped from its land and shipped out of state, often to return in processed form at very high prices." Young is seeking re-election to Alaska's sole U.S. House seat.

"Use of Alaska's royalty gas within Alaska may help end Alaska's status as a ward of the federal government," the congressman said.

Young said Sens. Ted Stevens and Mike Gravel and Gov. Jay Hammond share his views, which were

included in the record to establish a "legislative history" on the Alaska royalty gas provision.

Stevens said in Washington this morning the measure is a "substantial achievement for Alaska."

"This law makes Alaska the only state with this control over its royalty gas. And Don is to be highly commended for his work in gaining this provision for our state."

The senator said the law has some flaws but "we can work to make it better."

"The important thing was to get the ball rolling now so the decision-making process can begin as soon as possible. Alaska and the country could not afford the delays which would have occurred if we'd had to consider this legislation from the beginning next year."

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advocates

ency

gh.

1. Calif. wants gas from Alaska, a major factor.

2. FPC has auth. here rather than FEA.

3. Fed. subsidy & Calif. position likely by inference.

4. To hold off, to get better price for gas.

5. Direct pipeline delivery. LNG is out.

6. Royalty gas may be kept captive in Alaska. Watch & warn vs. that! Young favors it. So may Stevens, Gravel, & Hammond.

OMB is Admin.

GAO is more Congressional. Confield is GAO (OSD)

8/5/76

Sohio Lifts Estimated Cost of Developing Alaska Oil Stake, Says Unit to Place Notes

By a WALL STREET JOURNAL Staff Reporter

CLEVELAND—Standard Oil Co. (Ohio) sharply increased its estimated cost for developing its Alaskan oil holdings and said an affiliate is placing \$500 million of long-term notes privately to help finance the trans-Alaska pipeline project.

In addition, Sohio said that the affiliate, Sohio-BP Trans Alaska Pipeline Capital Inc., is seeking permission from existing note holders to allow it to borrow more money to finance the pipeline.

The company said it expects the initial development phase of the western portion of the Prudhoe Bay field to cost it about \$1.78 billion, including its share of the cost of a power station and gas-compression plant that will service the entire Prudhoe Bay field. In January 1976, the company said it expected the costs to total \$1.4 billion, up from a still-earlier estimate of \$1.1 billion.

Reasons for Increase

Sohio said its costs on the project are exceeding estimates for a number of reasons, including lower-than-expected productivity, higher costs for materials and equipment and the costs of the 1975 shipment of material to Prudhoe Bay.

The company said its revised estimate doesn't include any additional costs that might come as a result of unitizing the entire Prudhoe Bay field or reallocating costs among participants. The estimate does include a provision for contingencies, however. Unitization allows a field to be operated as a single entity regardless of the number of owners. The eastern portion of the Prudhoe Bay field is being developed by Atlantic Richfield Co.

Sohio said proceeds from the sale of the \$500 million of notes being placed by Sohio-BP Trans Alaska will be used to finance a share of Sohio's and British Petroleum Co.'s costs on the pipeline. A Sohio subsidiary owns 67.8% of Sohio-BP Trans Alaska; a British Petroleum unit owns the remaining 32.2%.

Alyeska Boosted Estimate

Sohio noted that Alyeska Pipeline Service Co., the group of oil companies building the massive pipeline, recently increased its estimate of the project's cost to \$7.7 billion. Sohio owns a one-third interest in the project.

As a result of the higher estimates, Sohio said, Sohio-BP Trans Alaska is asking holders of its 10% notes due Jan. 1, 1993, and Jan. 1, 1998, to approve changes in the covenants covering the notes. The changes would allow the affiliate to increase the maximum amount of borrowings permitted to \$5 billion from the current \$3.75 billion.

Sohio said the proposed increase in borrowing limitations would allow it flexibility to finance its Alaskan costs and would also provide for unexpected outlays. It said that the proposed covenant changes would reduce the percentage of Prudhoe Bay reserves the company could sell outright but it would still be able to sell "a sufficient portion of its reserves to provide significant flexibility to meet further contingencies."

projected costs. Originally, the plant was to have been finished in 1974 at a cost of \$349 million.

A Consumers Power spokesman blamed the latest cost increase on meeting new federal requirements for the project as well as costs resulting from more detailed engineering design work.

1. Sohio hunting for cash? Considering selling leases?
By inference, leases are now alienable.

2. Value of lease is suggested, at least, by the
large unit they can borrow on it. (Alienability
has that positive value, too, in a lease.) But really, Trans-
Alk. Pipeline Cap. Inc. is borrowing on the pipeline.

3. Is raising another \$500m - long term
On top of unstated unit.

4. Unitizing might add to cost? I shd. think it
wd. reduce cost.

5. Either the reporter or Sohio is ~~fighting to decide~~
merging the pipeline & the leases.

6. Trans. Alk. has debt limit of \$3.75b; being
raised to \$5b. And it owns only 1/3 of pipeline.

7. It is mortgaging some leases to pipeline debt;
but not all.

FPC report finds Prudhoe gas adequate

From Our Washington
Correspondent

WASHINGTON — The Federal Power Commission's legal staff has released a brief indicating it feels that there is sufficient natural gas available at Prudhoe Bay to support either the El Paso or Arctic Gas plan to bring North Slope gas south. Both companies' plans call for daily transport of more than two billion cubic feet of gas.

At the same time the commission staff argued that either the El Paso or Arctic Gas system would be in a better position to accept new volumes of gas if there is additional production from as yet undeveloped fields either in the Beaufort Sea or the Arctic National Wildlife Range.

THE BRIEF, presented to the commission, held that Northwest Pipeline's Alcan Highway route assumed too little gas available at Prudhoe Bay and offered too little space for expansion if further gas supplies are developed.

The brief called the wildlife range among "the most promising areas of potentially large gas reserves . . ." The brief quotes several witnesses before the FPC hearings who testified that 14 trillion cubic feet of gas or more could be trapped in rock formations below the range.

The other most promising area, it said, was in the Beaufort Sea offshore from Prudhoe Bay and the wildlife range.

IN OTHER briefs released by the commission, the staff argued against certification of the "western leg" of the Arctic Gas system and in favor of a liquified natural gas terminal in Cook Inlet rather than Prince William Sound if the El Paso system is ultimately approved.

Arctic Gas has asked the FPC to allow it to build a "western leg" pipeline into the Pacific Northwest and California in addition to its major route east from Prudhoe Bay, across Canada and into the U.S. Mideast.

However, the commission staff brief argues that without firm gas supply contracts Arctic should not be allowed to proceed with such a large and expensive project.

RATHER THAN build a new pipeline to serve the West Coast, the staff argues, that area should be served by "displacement," moving gas from other areas in existing pipeline systems. This approach, the brief

says, is without risk and will cost little to implement. The annual savings of the displacement approach are estimated at \$49 million.

The commission legal staff also disagrees with the commission's environmental staff in arguing for an LNG facility on Cape Starichkof in Cook Inlet. The environmental impact statement recommended that site.

The staff contends that El Paso's own witnesses testified that a Cook Inlet facility would save as much as \$171 million in pipeline construction costs since it would eliminate expensive construction through the Chugach Mountains.

1. It's all or nothing, once you build. Pressure will be on to guarantee supply. And yet - with what power? Gives Alaska great bargaining power to demand a high price.

2. If Feds. subsidize pipeline, it will be under less pressure to buy gas than if privy. forced.

3. Are pipeline bonds taxable?
I surmise Yes.

WSJ 10/29/76

Argo Petroleum to Sell Sun Co. 286-Acre Lease

By a WALL STREET JOURNAL Staff Reporter

LOS ANGELES—Argo Petroleum Corp. said it agreed to sell its 286-acre lease for the Hamp site in Ventura County, Calif., to Sun Co. for \$18.3 million. Argo said the property encompasses about half its proven developed reserves of oil and gas and 35% of total proven reserves.

Argo said it would retain certain acreage around the Hamp lease and a 50% interest in a recently discovered producing zone that is believed to extend across part of the lease. Argo and Sun are jointly exploring and developing the zone.

Proceeds from the sale will be used to reduce debt and expand Argo's operations, including drilling in other acreage around the Hamp lease, said Morris S. Frankel, chairman and president.

Prices of Recent Issues

Current quotations are indicated below for recent issues of corporate senior securities that aren't listed on a principal exchange.

Issue	Moody's				Chg.	Yield %
	Rating	Bid	Asked			
UTILITIES						
CinnG&E	8.55s '06	Aa	100	100 1/2		8.51
DukePwr	8 3/8s '06	A	98	98 1/2	+ 1/4	8.53
FlaPwr	8 3/4s '06	A	101	101 1/2		8.63
HoustnL&P	8 3/8s '06	Aa	99 1/2	100	+ 1/4	8.37
NorIndPS-n	8 3/8s '06	Aa	98 1/2	99		8.46
NyTel-n	8 1/4s '15	Aaa	99	99 1/2		8.28
INDUSTRIALS						
ArcoPipe	7 1/2s '82	Aa	100 3/4	101 1/8	+ 1/4	7.31
ArcoPipe	7 3/4s '86	Aa	100 3/8	100 3/4		7.64
1stChicago	7 3/4s '86	Aa	98 7/8	99 1/4	- 1/8	7.84
FordCr-n	8 3/8s '01	A	98 3/4	99 1/4		8.45
FdCr-n	8.1s '84	Aaa	99 1/2	99 7/8		8.12
GMAC-n	8 1/8s '96	Aaa	99	99 1/2		8.15
HsehdFin	8 3/8s '03	Aa	99 1/2	100	- 1/4	8.37
SoRIwy-n	8 1/2s '01	A	99 1/4	99 3/4		8.55
Weyerhs-n	7.95 '06	Aa	98 3/4	99 1/4		8.04
FOREIGN						
HydroQueb	8.6s '06	Aa	97 1/4	97 1/2	- 3/8	8.83
NewBrn-n	8 3/4s '01	A-1	98 3/8	98 5/8		8.86

n-New listings.

Minerals Engineering To Close Mill Yielding

Argo seems to be a firm that specializes in proving reserves,
then selling & moving on.

(Is this the way to use Cap. Gain
loophole?)

Corp. Inc. Tax, Messinger.

Jerome Ziefman, Ste Clara,
Lawyer, Judiciary Comm.

Kenneth Cinsworth, ecst.

Conf. W. Mrs. La., submerged lands.
Z. was a counsel to various subcomms.
Worked w. Rodino.

Cinsworth worked w. Brown, then
went into teaching. Worked for NRC,
ca. '65. Then State of La.

Appointiment of inc. of multi state
corps. Teacher Public Educ.

Separate acctg required by net
proceeds tax.

Multi-state real compact.

NZ doesn't belong.

Solution: Let lessee deduct

int. on K -- but at a low
rate, below mkt.

Wa. has no inc. tax, so firms allocate profits to Seattle.

Jt. Comm. on Int. Rev. Taxn. has power to examine corp. tax returns. I was there in '68, working on tax reform.

Ideas

1. Pedro's objective was developmental, to get the indy. established.
2. He's very vague about most everything.
Data kept in primitive ways. Not set up to use computer.
3. There shud. be a post mortem after ea. sale, to evaluate procedures & improve them. This hasn't been done.
USGS - BLM automatically do this. - p. 24
4. BLM requires 20% advance bonus, at time of bidding.
[That sure disqualifies some bidders!]
5. Letting open. have free energy is a bias to sub. energy for other things.

2. cont. p. 29, Cronmuelin et al. neg. this.

But ultra. rate is only prog. up to 1200 b/mo, = 40 b/d, so
applicn. is limited. Ave. ultra. wll is 80 b/d.

7. There is a way to avoid problem of selecting i . Let the lessee expense K invd. currently.

This ~~in effect allows~~ has the same effect as allowing a higher i to the more pinched bidder.

Against what, however, shall he write it off? If there is a bonus, he can write it off against that.

(Altly. can write off vs. yields, thus encouraging early prodn.)

If $K > \text{Bonus}$, we can:

a) Allow him 5% or so on $K-B$, then a high rate on all beyond that.

b) Let him write off $K-B$ against yields

Saudi etc. royalties de facto that are treated as taxes de jure are tax credits, thus leaving U.S. corps. abroad.

Alaska royalties or taxes are simply deductible from income. Why shld. U.S. treat Ak. worse than Arabs?

Alto & B.C. royalties were not deductible at all -- for a while, anyway.

STATE OF ALASKA OIL AND GAS LEASES

ACREAGE CONTROL BY COMPANY

25 of 12/22/76
by Pedro Newton

<u>Name</u>	<u>Net Acreage</u> * ¹	<u>Type</u> * ²	<u>Total Acreage</u> * ³
Acoma Oil Corp.	1470.60	C	9033.00
AGIP Petroleum Co., Inc.	1024.00	"	5120.00
Alaska Energy Corp.	7571.56	"	7571.56
Alaska Exploration Corp.	2503.50	"	5007.00
Alaska Energy Development, Inc.	1734.40	"	2168.00
Alaska Int'l Petroleum Corp.	1760.00	N	1760.00
Alaska Kenai Oils, Inc.	5049.10 1262.38	C N	8078.56 2463.15
Alaska-North American Co.	32,666.49	N	32,666.49
Alaskan Offshore Petroleum Co.	12,249.00	"	12,249.00
Alaskco USA, Ltd.	317.00	C	634.00
Al-Aquitaine Exploration, Ltd.	4,670.84	"	20,453.00
Amarex, Inc.	8,206.00	"	16,412.00
Amarillo Oil Co.	7,065.00	N	7,065.00
Amerada Hess Corp.	19,262.97	C	58,495.00
American <u>Petrofina</u> Exploration Co.	1,280.00 1,851.75	N C	1,280.00 7,407.00
Aminoil USA, Inc.	531.97	C	5,120.00
<u>Amoco</u> Production Co.	97,532.62 42,944.51	C N	274,134.05 53,851.94
Ampco-American Mineral Petro. Co.	1,640.00	N	1,640.00
Anadarko Production Co.	7,670.00	C	7,670.00
Anschutz Corp., Inc.	877.76	N	877.76
Apco Oil Corporation	1,072.50	N	4,130.00
Apexco	4,736.00	C	7,680.00
Arnold & Associates, Inc.	105.76	C	1,410.00
<u>Ashland</u> Oil, Inc.	811.75 3,913.36	N C	3,101.67 18,691.08

*¹Calculated on basis of % of interest owned in each lease*²N=Noncompetitive/C=Competitive*³Total acres of all leases in which they have interest

<u>Name</u>	<u>Net Acreage</u>	<u>Type</u>	<u>Total Acreage</u>
Atlantic Richfield Co.	33,402.30	N	51,277.40
	401,400.02	C	932,724.22
Aztec Oil & Gas Co.	5,122.96	C	5,122.96
BP Alaska, Inc.	544.00	N	2,560.00
	102,674.99	C	351,151.00
Beard Oil Co.	29,765.19	N	29,765.19
	40,855.00	C	40,855.00
Beel & Beel, Inc.	94.70	C	4,735.00
Belco Petroleum Corp.	70.52	N	70.52
Brinkerhoff Drilling Co., Inc.	13,491.90	N	14,271.90
	2,019.64	C	8,078.56
Burton/Hawks, Inc.	1,920.00	N	1,920.00
Buttes Gas & Oil Co.	1,280.00	C	5,120.00
Cable Investment Co., Inc.	334.15	C	4,735.00
Cabot Corp.	11,105.79	C	11,105.79
Cache Investors, Inc.	640.00	N	640.00
Calderwood & Magnus, Inc.	1,199.48	C	1,211.24
Canus, Inc.	625.25	C	2,501.00
Carling Brewing Co., Inc.	540.80	C	20,453.00
Champlin Petroleum Co.	1,476.00	C	10,284.00
Cities Service Company	70,006.91	N	70,006.91
	117,681.23	C	139,284.93
Clark Oil Producing Co.	2,920.00	N	3,250.00
	3,031.49	C	8,830.00
Coastal State Gas Producing Co.	662.63	C	15,360.00
Colombia Gas Development Corp.	368.12	N	2,560.00
Continental Oil Co.	671.57	N	1,343.15
	49,145.82	C	121,459.73
Derby Refining Company	255.93	N	639.82
	4,787.98	C	23,753.00

<u>Name</u>	<u>Net Acreage</u>	<u>Type</u>	<u>Total Acreage</u>
Dixie Gulf Petroleum Co.	200.00	N	2,560.00
Dome Petroleum Corp.	2,560.00	N	2,560.00
Exxon Company	10,102.00	N	18,362.00
	147,205.23	C	291,884.00
Farmland International	8,872.00	N	8,872.00
1409 Corporation	256.00	C	2,560.00
Gas Supply Corp. of Alaska	10,531.00	C	17,990.00
Geopol, Inc.	2,560.00	C	2,560.00
Getty Oil Company	13,778.12	C	58,454.00
<u>Gulf Oil Corp.</u>	24,546.51	C	38,994.71
Halbouty	20,508.43	C	29,291.35
Hamilton Bros. O&G Company	1,356.28	C	17,334.00
Hamilton Bros. N.S. Venture #1	2,143.88	C	20,464.00
Hamilton Bros. N.S. Venture #III	1,429.25	C	20,464.00
Hamilton Bros. Petroleum Corp.	63.88	C	2,555.00
Hartog Oil, Inc.	194.67	C	324.45
Highland Resources, Inc.	45.51	C	7,680.00
Home Petroleum Corp.	6,515.25	N	8,862.00
	8,320.00	C	10,240.00
Hunt Industries	1,589.66	C	38,129.00
Hunt Oil Co.	2,216.85	C	14,779.00
Hunt Petroleum Corp.	1,182.32	C	14,779.00
Husky Oil Co. of Delaware	149.61	C	1,243.00
Inexco Oil Co.	12,149.00	C	12,149.00
Inlet Oil Corp.	2,956.20	C	4,735.00
	1,032.50	N	4,130.00
Little Bear Petro. Corp.	1,140.00	N	1,440.00

<u>Name</u>	<u>Net Acreage</u>	<u>Type</u>	<u>Total Acreage</u>
<u>Louisiana Land & Expl. Co.</u>	24,451.34	C	80,161.36
<u>Marathon Oil Co.</u>	16,594.04	N	22,085.37
	31,917.69	C	60,529.20
Maruzen Oil of Alaska, Inc.	4,329.84	C	43,297.44
Mitchell Energy Corp.	1,110.01	C	8,880.00
Mobil Oil Corp.	17,280.50	N	29,564.14
	120,203.04	C	218,685.44
Newmont Oil Co.	13,993.34	C	45,828.71
	730.29	N	2,940.00
Oil Development Co. of Texas	8,320.00	C	8,320.00
Oil Resources, Inc.	21.47	C	20,453.00
Oxy Petroleum, Inc.	2,816.00	C	5,120.00
Ozark-Mahoning	2,487.00	N	2,487.00
	1,143.97	C	1,143.97
<u>Pacific Lighting Gas Devel. Co.</u>	3,629.50	C	15,322.00
Pan Ocean Oil Corp.	32,041.00	N	32,041.00
	937.88	C	2,501.00
<u>Pennzoil United</u>	22,658.95	C	64,997.36
Phillips Petro. Co.	1,858.00	N	3,716.00
	270,826.50	C	413,54.68
Placid	14,769.00	N	14,769.00
	10,737.99	C	60,669.36
Salcha Company	37.75	N	37.75
<u>Shell Oil Company</u>	1,773.20	N	4,039.74
	37,578.64	C	71,554.28
Simasko Production Co.	461.25	N	461.25
	26,356.66	C	26,956.16
<u>Skelly Oil Company</u>	9,562.00	N	9,562.00
	10,577.00	C	40,449.00
Sohio Petroleum	138,875.88	C	447,674.00

<u>Name</u>	<u>Net Acreage</u>	<u>Type</u>	<u>Total Acreage</u>
South States Oil & Gas Co.	2,560.00	N	2,560.00
Standard Oil Co. of Calif.	13,336.35	N	21,107.14
	162,323.78	C	248,271.89
Sun Oil Company	1,249.51	N	5,000.00
Sundance Oil Co.	6,786.54	C	8,880.00
Sunlite Nevada, Inc.	214.42	C	20,453.00
Superior Oil Co.	9,520.05	C	19,163.66
Tenneco	3,817.51	C	10,183.00
Tesoro	5,705.00	C	5,705.00
Texaco	113,238.64	N	119,513.19
	63,708.10	C	84,218.47
Texas Int'l Petro. Corp.	3,713.34	N	3,713.34
	26,413.05	C	27,422.45
Tidelands Energy Co.	4,693.00	N	4,693.00
Transocean Oil, Inc.	1,477.90	C	14,779.00
Ulster Petroleum, Inc.	9,436.50	C	18,873.00
Union Oil Co. of Calif.	109,809.97	N	117,328.52
	172,792.05	C	381,893.67
Westcoast O&G Corp.	9,436.50	C	18,873.00
Yates Petroleum Corp.	21,168.29	C	21,168.29

Ideas.

1. Loan policy needs to recognize that Prudhoe is extraordinary, & probability of finding another like it is small.
∴ is important to get \$ from Pr. rather than use as bait.

2. The reason errors are so exercised re seemingly innocuous pipeline is, they overest. future demand.
a. They expect more Prudhoes
b. They do not realize how K-int. it is, how exorbitant the constn. payroll, how minimal the spillovers & stimulus.

3. Tendency to premature use may result from confusing ~~and~~ gross for net benefits, bcs. pipeline "makes jobs"; "attracts business"; etc.

Reaction vs. such overstatement has not taken the exts. bottom line form, but envl. movement form.

4. Pipeline(s) is (are) an enormous hostage by indy. to State.

Their inflexible rating creates wellhead conditions that ~~put~~ are parameters for state strategy.

For state, opt. timing is when refining price is high. It has no interest in a full pipeline

For cos., steady flow is desirable.

For state to benefit, ∴, it shd. retain some control of timing - or else make its revs. indep. of timing.

5. Value of State's royalty gas (& oil?) depends on where rec'd.

If pipeline rates are paid, State cd. counter by taking its share at "pipeline," or line's end, tidewater value. Take a free ride on pipe.

This is a pretty good situation for sharecropping, once the line is in, and if K cost is hi relative to vble., o & m.

Wd. be better, tho, if State had no interest in ^{petrolific} petroferous land, oil bearing land. Res. lowers field value of crude.
& oil-prone

6. Sharecropping is good where there is a lower limit on what the lessee puts up; and an upper limit on what lessor puts up.

If lessee has to drill & produce; and gets only so much land per well; royalty can be OK.

7. ROW for pipeline — what is state getting?

8. Reward system. Mgrs. are often penalized for running out, but not rewarded for saving carry costs. Result: excess stocks.

"We're running out," is as good as "The Russians are coming."

Ok. Ideas

1. Re environment,
 - a) Squeeze the intensive margin before pushing to new fields. Old fields are already impacted, and lines are in place.

Ok.

1. Refineries are where the shortage was in '73 - '74, causing energy crisis. Really? Then how did OPEC get so strong?
Xfr. of profits to crude was partial cause.

(Too simple. Refineries are a leverage point for mfg. cos. so large & few.

Why wd. they give away profits to indep. crude producers?

- Bec. they own ~~much~~ more crude

- Bec. they want to stimulate crude supply, lower

price

✓ Bec. to xfr. profit to captive crude, their major source, they had to create a market price for IRS

Shortage of refinery capac. wd. result from:

- mfg.

- ~~Lacking mfg.~~ too few incentives

- Env. explosion

)

~~Unitizn. cd. be handled by petro. districts, like WCD etc.
Seem perfectly analogous.~~

Having made profits in crude, cos. can then use proceeds to build refineries. So no refinery shortage wd. result.

But they might be driving or keeping out other refiners by keeping margins low -- extinction pricing -- and then limiting refinery capac.

6 Mcf gas = 1 kbl. oil in BTU.

If Mcf costs \$1.⁰⁰, 6 Mcf cost $\frac{\$6}{6}$ and gas is a bargain.

C, 11 Info. generation & control.

Bigger fields & deposits are easier to find.

i. the idea of giving away a few great anticlines in order to spin on the ^{costly} search for many little strat. traps & fault-sealed traps & dolomite reefs is not ev. for the state. These elephants will be found anyway.

So put a max. on what finder can get from any one well. Pay him for what he found but:

Nothing for the first subec. flow

to 100% of flow from X up to Y, where

$X \cong 100 \text{ b/d}$, depending on threshold of viability in the location. Recalling that a low producer of hi cost is not worth much env. damage.

$Y \cong 1,000 \text{ b/d}$.

Then ~~also~~ re-lease to new high bidder, based on known facts, subject to his paying finder. But finder's override stops at 1000 b/d, thus not restraining input effort by producer.

The "big prize" system for incentive expln.

Pro. Exploits gambling preference

Con.

- ~~the~~ Opens door to unsupported, untestable allegations, and associated bluffing, about likely effect of taxes on incentives. The state conducts its business in open & cannot bluff back, hence loses at this game. Also, indy. has a voice on the state side, like any citizen, and knows his, of their wealth, their many dependents, and thus his stake in state policy.

- Gambling results in unequal distr. of wealth.

MEMORANDUM

January 28, 1976

Subject: Background on Proposed System of "Competitive Contract Exploration" on State-Owned Oil and Gas Lands (Work Order 1943)

TO: The Honorable Terry Gardiner

FROM: Gregg K. Erickson
Director of Research Services

THE SYSTEM AND ITS ORIGIN

The system of competitive contract exploration was originally formulated to meet objections which have been raised to the bonus bidding arrangements currently used in leasing most publicly owned oil and gas lands in North America. On the one hand, the current bonus bid system makes it very difficult to decide against development of a particular tract once it has been leased and a discovery made on it. From the point of view of optimum policy making, many people felt and still feel that it is impossible to make a considered judgment as to whether development is worth its associated environmental and social costs until one knows how much oil or gas will result from it. For example, in areas such as Kachemak Bay and Bristol Bay, it may be that oil and gas development would be justified if a tremendous Prudhoe Bay-type reservoir were discovered thereunder, but that a lesser reserve might not justify the environmental and aesthetic damage that could result from such development.

This might be built into the lease -- no prodn. less than 1,000 b/d for 20 yrs, e.g. Then let them bonus bid. However that wd. force an expensive study before it is known to be needed.

Secondly, it has been suggested that the high degree of uncertainty concerning taxation and possible government mandated prices of oil makes it very difficult to obtain bonus bids that actually reflect the expected value of the tract in question. This result, it is alleged, comes about as a consequence of the fact that bidders tend to crank in "worst case" assumptions about government policy when determining the amount they can offer for a tract. *Evidence for this?*

Under the proposed system, exploration would continue to be carried out by the private sector, but the rewards to successful exploration, rather than the right to develop and produce oil, would be based on a fixed reward per barrel discovered. Bidding would be on the basis of the reward, in dollars or cents per barrel, that the firm would be willing to accept if and when it makes a discovery. The state would naturally accept the lowest bid, *i.e. the highest royalty* and once a discovery was made would pay the successful explorer that amount for each barrel discovered. Thereafter, the tract would revert to the state, and its development--if development is considered appropriate--*the state pays for some oil, it may not want produced at all.* would proceed under any number of possible different arrangements. At this point the traditional approach would be for the state to simply re-lease the tract on the basis of a bonus bid, but any number of other possible arrangements could be invoked. For example, the state could hire a development contractor, compensating him on the basis of so many cents per barrel produced. All oil produced would thus belong to the state. *This is like ~~royalty~~ royalty, again, but w. more control by state.*

This is much like royalty bidding.

a staged system →

✓

ADVANTAGES OF THE SYSTEM

If Alaska were to institute such a system of "competitive contract exploration", it might be expected to go a long ways towards reducing the legislature's apparently perennial preoccupation with oil and gas taxation revision by tending to bring about, in a generally automatic way, a more equitable distribution of profits between oil and gas finders, developers, and the state.

If, as it has been alleged, the adoption of petroleum tax legislation currently being considered would result (assuming the continuance of current leasing arrangements) in an exodus of exploration investment from the state, then the competitive contract approach has a further appeal: under such a system the explorationist will be absolutely indifferent to the terms that govern the taxation or regulation of oil and gas production. *Bluff - calling --- maybe worth a lot.*

Another potential advantage of competitive contract exploration is that it might reasonably be expected to result in increased competition in the exploration phase of the industry. Under the current bidding arrangements, successful bidders are usually large integrated petroleum companies who can capture substantial revenues and benefits from the downstream utilization of crude discovered and produced in Alaska. As a consequence, these integrated companies have a substantial competitive advantage over those firms only in the business of exploring for oil. *↳ this must mean crude is underpriced, is it? Has been the reverse historically.*

The competitive contract exploration system would tend to eliminate this advantage and place all bidders on a more equal footing.

FURTHER ANALYSIS REQUIRED

To the best of our knowledge no other jurisdiction has utilized such a system, and its implementation in a piece of practical and workable legislation would require careful thought and analysis. For example, an acceptable method of determining the amount of reserves discovered would need to be developed. Presumably this function would best be placed in the hands of some impartial board composed of persons particularly qualified in the area of reserves assessment. Perhaps half the board members could be chosen by the state and the other half by the industry, with the tie breaking member chosen jointly. Criteria to be used by the board in determining the amount of reserves discovered should be carefully thought out, but might be similar to those used by the American Petroleum Institute in preparing their well known and widely distributed estimates of "proved reserves". If actual production of the field shows that reserves are more or less than were originally estimated, additional payments or rebates, with interest, might be called for.

Because both oil and gas are a joint product of any exploration effort, the state would need to specify in its solicitations for bids the number of Mcf equivalent to each barrel. For example, if the state specified that six Mcf were equivalent to each barrel discovered, a firm bidding one dollar per barrel, would receive one dollar for each six Mcf discovered. Six Mcf per barrel happens to be the approximate Btu equivalence of the two products, but since natural gas has in the past generally been priced at less than its Btu equivalent value to oil, this ratio would need to be the subject of careful analysis, and would

perhaps be best determined administratively for each offering.

In order to insure that successful bidders are serious about their intent to explore a given tract or tracts, it would probably be appropriate to require the successful bidder to post an "exploration bond" which would be forfeited if no exploration took place on the tract within a certain period of time, or to have him pay a nominal fixed bonus, which could be refundable after exploration.

An important consideration in implementing such a scheme is the impact it might have on the state's financial planning. The required payment on the basis of discovered reserves, particularly if they are very large, could create certain cash flow problems for the state. However, in most cases "proven reserves" are assets against which financial institutions are willing to lend money. Should the need to pay off a successful exploration contract create financial difficulties for the state in terms of cash flow, it should not be too difficult to use the assets generated by the successful exploration to collateralize a loan sufficient to make the payment. The loan would then be repaid on the basis of future production from the field. Of course, the legality of such a transaction, in the light of Article IX, Section 8, of the Alaska Constitution would need to be ascertained. It would, of course, be appropriate to utilize the competitive contract exploration system with some caution in certain areas, for example where the lack of transportation systems or other problems might make it difficult or impossible to secure a loan on the basis of proven reserves, or to expeditiously develop the discovery. Also to be taken account of is the fact that

relatively small discoveries in remote locations might not be economic to produce. In such cases the exploration contract might be phrased in such a way as to limit the state's obligation to make immediate payment unless a discovery is larger than a given threshold level. Payment for smaller discoveries would be deferred until such time as development became feasible.

Competitive contract exploration is, of course, not the only approach to the revision of lease terms that meets some of the objectives outlined above. Net profit share arrangements of the sort utilized by the several Alaska Native Corporations that have negotiated petroleum exploration on leasing agreements have much to recommend them. A recent bill that passed the U.S. Senate (S.3221) dealing with Federal O.C.S. land for example, provided that the leases could be offered "(1) on the basis of a cash bonus with a fixed share of the net profits derived from operation of the tract of no less than 30 per centum reserved to the United States, or (2) on the basis of a fixed cash bonus with the net profit share reserved to the United States as the bid variable."¹ More information on this approach and the details of how the legislation specified it would be implemented is available.

✓ ¹ Energy Supply Act of 1974, Senate Committee Report 93-1140 (September 9, 1974).

Sat. Nov. 13, '76 Call to John Wilson

- ① Terry Soggin, SB, runs hearings pro Cal. as gas consumer. Cos. give figs. understating reserves. Their game is to fuzz over what they mean: proved, probable, & potential. John's role is to x-examine them re defs.

Pac. Lighting is a h.c. owning SCE or/ & PG&E, etc.

- ② El Paso serves S.C. from W.T.s. It now wants to abandon pipeline, in order to:
- Use it for oil, West to East. ‡
 - cut off wkst. in S.C. so S.C. must get gas from LNG. El Paso is heavily committed now to LNG (including now Ak. royalty gas)

E.P. has failed to find new gas in its W.T.s. Tradit. terric, for several yrs. now, by not trying. N. Nat. Gas, meantime, in same area, a much smaller co., has found lots of gas.

- ③ Cong. John Moss, Dem., Cal., is good, factual. Re accusations of indy. panicking us by talk of declining reserves. Bill Brann, former FPC Atty., is now on Moss staff. Is learned, factual, good man to talk to. Re leasing, e.g., and Th. Murphy bill.

F Oil, reg. by ICC, they use higher rate base, cost of reprodn. FPC gas line base is hist. cost deprec., and it's all gone.

- (4) Dick Sullivan is joining John W. Warner w. Minn. PAC for 2 yrs.
- (5) Katten has play-in program. Is less strong on interpa. & analysis.
- (6) Stevenson bill for public oil corp. has died quietly.
- (7) Ford admin. trying to lease as much OCS as they can quick. Lawsuits are stopping them.
Nassau & Suffolk Counties, e.g. Motives are curious - mental: other reasons given.
- (8) Canfield w.g. Chasen. Bureaucrat admin., no analytical ability, worries re image. Lazy.
- (9) Freeman walked the line friends w. all: Mead learned.
(Then why did Mead join attack on Freeman?) Mead joined w. extremist right wingers.
- (10) Spiegel into coal leasing.
Wants a Competition Impact Statement
" pref. for coops, smaller firms.

Re inv., figure what's there before selling -- i.e. do we want them to have it. to produce.
- (11) Huge LNG invts. by indy, pressures higher gas price.
\$2-\$4 / mcf.
(Oil lease buyer gets gas, too -- valuable in future)

Why lease land that will be shut in?

- to guide bldg. of future lines, e.g. Alyeska.

This doesn't apply as much under water, altho that, too, is done by pipes in part.

For this purpose, is there a hurry? Socially, Prudhoe shd. have come in later.

(12) Current hgs. in Sacto. re Pac. Ltg. h.c. depending on LNG from Indonesia.

But why ship Alk. gas to Japan, & Indon. to U.S. X-hauling?

(13) Each lease might require

- a Market Structure Impact Statement. Or just as mergers require Justice Dept approval, so might leases.

The public int. might better be served by awarding lease to 3d highest bidder. Dangerous arbitrary power, tho.

(1) Terry Loeppin. How wd. I tie in w. him?

His game is to compel utilities to serve Cal. at low prices. Then to show they have ample low-cost reserves.

And to get it here cheapest way. Doesn't need it siphoned off in overpriced pipeline, or unwanted LNG.

May want to force expln. Cal. cd. go direct to fields, as pipelines have done, force expln. Alk. cd. deal w. Cal.

or let Cal. compete for leases.

Call John Wilson, re ²⁰²⁻ 333-7442

1. Reserve ests.: Techniques. ~~Plans~~

Basis of Michael Hamington's 'panic' accusation.
(Goggin, office in S.B.)

Cong. John Moss of Cal. good on panic accusation.

Galligan now w. J.W.

Bill Braun, x FPC Atty, was on Moss's staff.

2. Line on:

Kalter.

Erickson (Gregs)

S. 521, Jackson & Hollings

Th. Murphy asks Braun

Public Corps.

Chasen.

Camfield. Conventional bureaucrat, no analytical ability.

Mead. Chummy w. indy. Typor, in EPP period. Freeman walked the line, good rapport w. all sides, Mead decided to do the same.

3. Pipeline cos. & routes, & Atk. revision.

Any work bearing on.

George Spiegl is into learning, ^{cost benefits} but learning occurs w/o consider. of compen. A compen. impact statement - prep. for corps etc.

Figure what's there before selling.

Cities have gone to court & blocked fuel sales.
Morise in env., but arguments only Nassau & Suffolk cities.

Price of nat. gas going up. Big LNG invs. by indy.

It is possible that g & g adds no value to large areas of land.

Firms do it for their own gain - to avoid bidding on worthless land.

If it doesn't, in general, add to value of state land, then state needn't pay for it, or allow for it.

It should add the cost of expln. - the land is worth more bcs. the work of pinpointing value has been done. But this may be a small factor cfd. to a larger factor, i.e. risk pref. If risk pref. is +, knowledge devalues the whole.

Can sift out 2 other factors; one owner vs. many owners.

- One owner has whole thing, then knowledge will raise value if he is a pessimist, but lower value for optimists. The fact he has whole thing means he knows his got whatever is there, wherever it is.

- Several owners, they gamble both on what is there, & where. They must be optimists re both.

A.) If lease bidders have opt. bias, then sell before expln, and in many small tracts.

B.) If pess. bias, explore first, and sell in one big tract.

If A, the small tracts interfere w. opt. expln. So have govt. explore. But this extracts the pure lottery element. Govt. wd. make money from small gambles, where M wd. serve no fu. None? Govt. cd. use M to force expln.

Result wd. be unequal distn. of wealth. So another plan

wd. form a corp. from all the high bidders and pool all findings & divide among all. Phillips plan.

Known fact: lotteries pay. Irish sweeps, etc.

People will pay \$1 for a 1% chance of getting \$50, or something like that.

In fact, many will pay \$1 for an unknown chance of getting an unknown amt.

There aren't many legit. ways of doing this. If the gamble is a real one, it is probably that much more exciting.

Corpus. may be less prone to this than individ. investon. $\therefore$, open it up to indivs., by pooling the funds to explore. Give them option of exploring their own tracts, too.

State sponsorship & open records & admin. add confidence — no shady characters.

How much shall be spent on expln? That's the rub. If spend it all, state gets nothing. ~~So, winning bidders~~. State ed. agree to spend announced amt. But then, where? Everyone wants on his land.

State ed. agree to go & everywhere. then home in on promising structures. Lessees wd. accept that in advance.

But now, must give much of pay rock to ^{some} lessee. State gambles that this will be less than it got. Not so at Prudhoe.

Again, in general, firms have been out playing the

lessee's game for decades, and grown very rich.
Of course there were differences:

- did their own exploring
- dealt w. plain folks, dazzled by new wealth.

3. Robt. Katter uses bonus as the bid vble., but differs in their contingency payments

a. Royalty rate varies w. ^{value} ~~rate~~ of prodn. ea. yr. (meaning price, or Q ?)

b. "Fixed rate annuity cap. recov. profit share." (?)

c. "Vble" (?)

d. Fixed rate Brit. type cap. rec. profit share system

e. Vble

b. & c. are original. They are included in current S. 521, "OCS Mgmt. Act of '76"; amending orig. OCS Lands Act, '53.

They convert ~~the~~ lessee's cap. invt. to an annuity. (over what life?) Subtract annuity from CF. Lessor takes a % of all above that. (What %? Bonus is the bid vble.) (In c), with what does the annuity rate vary?) (It cd. be time)

British method, d & e, are similar, but ~~the~~ lessor takes nothing until lessee has recovered some % of K .

4. 7 stud. recommendation ~~last~~

- Prodn. schedules & MER. This has big effect on what we get from lease

- Same went for last

- Rate of leasing, when prodn. will peak, when end -- Katten did.

(Katten recommended on some of these)

5. Ak. gets ~~for~~ a % of Fed royalties (i.e. revs?) from Pet. 4 (but not from OCS, probly)

Interesting: where U.S. owns land & gets full revs., it adopts competit. bidding. But where U.S. has to give most revs. to State, stays w. old system.

In 1969-70, Ak. share was 90%. — p. 77, PLLRC; p. 80

Res. of 90% of revs. from mineral leasing on Fed. land are allotted to state. There is little incentive for the "national public" to invest in geol. survey. p. 80. (This helps explain why Feds haven't done this.)

6. The public of Ak. is much more diversified than most bidders for state land. This argues for state participating in future, accepting risks.

Espy: state can accept exog. risks, not affected by quality of input. Risks of what nature put there.

7. Idea - Farm land rents may adjust for weather, (price) by using county average yields.

An oil producer could pay an annual rental based on current price of the product. Base wd. be prodn. capacity $\times$ price.

As you move from unknown to known info, move towards fixed cash rental. May begin w. royalty, less costs. In establishing costs, firms disclose info. On basis of that info, assess capacity.

The 'real' price -- (CPI or cost of doing business, I'm not certain?) -- and a rising % as real price rises.

8. Royalty bidding results in lessee only looking for big prizes - he will stint on explor. outlay, hi-grade ~~drilling~~ during Stage 2 (drilling).

Cash flow bidding has same problem, to some degree.

So you must let them deduct K costs, too.

✓ In exposition, explain just that right balance being sought - deduct just enough, not too little nor too much.

In rem, in situ, net proceeds approach grounds vs. some kinds of x sub., but not vs. intra-lease x sub., & rent dissipation. i.e. if there is an elephant on a lease, lessee who cd. deduct K costs + int. at his rate wd. go drilling for dogs & write off vs. elephant.

9. Rental bidding (w. fixed bonus & royalty) is also possible, mentioned by Lindahl & Ureman, p. 37.

Like bonus bidding, this is based on ex ante value only. Is same as bonus bid pd. on installment plan.

L & U say it wd. cause early shutdown. But we can solve this by lowering it as reserves decline.

10. Profit-share bidding.

Firm still bears risk of 0 prodn. or low prodn.

Cd. add a hurdle factor by letting them deduct so much each year, provided there was any prodn; if not, the year's deduction wd. be lost.

11. Price risk need not be shared; it shd. be born by govt. Lessee e.g. cd. get \$x per bl., regardless of price, & govt. get all above, & make up all below.

12. Instead of paying bonus on instalment plan, pay it in parts, depending on events. L & U seem call this "Staggered bonus bidding".

Depending on events means it is understood if no oil is found, payments can stop.

Lessee pays $\frac{1}{4}$ or so of bonus up front; next lump when he hits payrock; next lump right along; next lump when prodn. begins.

In return for option of not paying bonus, we put upper limit on what he can produce.

He will find the elephants anyway.

Now we must prevent his losing future prodn. by current waste. MER regn. is done anyway.

13. Use of bonus money as credit for K is part of Phillips plan. L & U, p. 39.

14. Now, tract max is 5700 a., OCS. So one structure has many lessees -- unitizn. must be admin. by govt.

15. Govt. can contract out g & f, provide, publish findings, w/o int'g. free to all. Anyone so wishing cd. also do his own, before bid. Thus govt. hires advisor to report on & appraise its land, but grandly

spreads the info. around, rather than trying to lead itself, exploit inside info.

16. A public corp. might serve a yardstick fn. (See Stevenson paper, Wilson Conf.)
(But profit-sharing does same thing) (& rent-sharing)

Michael Harrington
re H/R 12104, accused indy. of "attempts to trigger public panic by underreporting available supplies." Wants public corp. to
inv. This is a nat. consumer view - not for Ak. so much.

On contrary, in Ak. the indy wants to go faster, & Ak. to go slower.

Indy. wd. underreport vol. to lower reserves tax, is one thing.
" " " " " " solicit expln. aid. Ak. has an
interest in keeping things going.

17. Sen. Lloyd Bentsen has proposals to A fed. revs. from fed. lands.

See J. Wilson to get wind in on current thinking: Bentsen, Harkell, Stevenson, Harrington, FRC, etc.

18. Re Impact, Atl. coast states perceive it as negative, mainly, & oppose OCS leasing.

~~Lib. Works~~

Call to

Robt. Katter, ~~607-256-3095~~, Nov. 12, 76.

Obs. 1. See ajae, article on learning, recent. Obsolete, says R.K.

With and 2. w. Tynan & ^{geologist} Hapner, "Alt. Energy Learning Strategies & Schedules for OCS."

12 learning methods tested (for what?) (For many values, but not clear how trade-offs were made.)

Obs. 3. Ecs. of Acc. OCS Learning, Cornell Ag. E., Staff Paper 74-18
8/74 (w. Stevens & Bloom)
Has Cruces. No longer involved.

✓ 4. Ask Wm. Lord for appraisal of Katter & work.
Appraise " " simul.

5.521 was studied in last minute rule, by House. Jackson & Hollings
of N.C.

Ernest Hollings of N.C. He & Jackson competed for jurisdn., compromised.

"Royalty bidding leads to spec." Meaning, presumption.

Maybe in Works Dec 1-7.

Says bonus bidding is best w/o risk; but introduces Monte Carlo simulations into models, other systems look better.

Appears to mix risk & credit rationing together.

Hirshleifer could help me evaluate Katter, re risk.

Royalty bidding experiment resulted in free riders getting land. They wait for neighbors to explore. R.K. concludes some front money needed — but I conclude annual payment is better, but of

both systems.

Kalter downgrades cunnity as being same as bonus, w
shunning of risk. But

- he overlooks higher value of credit extension to
poorer firms. Mixes risk & firm strength qn.

- cunnity can be changeable

a) by amount of reserves

b) by contingencies, 3-stage bonus e.g.

"MPC", a Commission (?) is multi-state.

Barbara Sorenson - Ron Welele

14 in Multi-state; 11 going to unitary.

New trend, double weighting of sales in formula.

Gene ^{Morgan?} ^{Sutton?} of Multi-state, joint audit.
Corrigan

Unitary is trend. Uniformity; full apportionment.
Worldwide is favored by members of compact.

Ill. just went off Multi-state

Unitary concept eliminates all intra-firm actions, including sales to subs & affiliates

Valuation of property.

"Throwback rule" means cello. tax to pt. of shipment —
origin only. Another trend is destination only.
Peru. has a "throw-out" rule. Gene likes better.

Boulder, 1719 8th (?) St. Gene Corrigan

**SCANNED
AS
FOUND**

LNG SITES

Continued from First Page

The bill would finance the operations of the Energy Commission by applying a surcharge of one hundredth of a mill per cubic foot of natural gas sold to consumers.

The fund, which would have a limit of \$20 million, could be used by the Energy Commission for research and development of new natural gas supplies and to develop forecasts of supply and demand.

Gas Terminal Curbs Sought

Bill Would Also Bar LNG Facility at L.A. Harbor

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CALLED VIRTUAL PRISONER

- 7 Eye on the Street—Los Angeles
- 8 In Search Of
- 9 10 Space 1999—Sci-Fic
- 11 39 Lawrence Welk
- 13 Tarzan—Adventure
- 15 William F. Buckley
- 24 Rebo—Education
- 28 Dr. Who—Mystery
- 30 Earnest Angley Hour
- 34 Boxing (Live)
- 40 Church in the Home
- 52 Little Rascals—Children

— 7:30 —

- 2 Here and Now—Magazine
- 3 Andy Williams Show
- 4 In Search of . . .
- 7 Disasters: How and Why
- 8 Untamed World
- 24 Once Upon a Classic
- 28 Monty Python's Circus
- 50 Orange County Philharmonic

8:00

2 8 Mary Tyler Moore
A distraught Lou is caught in a vise between rejecting a favor for an old Casanova army buddy, who once saved him from the stockade, or granting his request for a date with Mary.

4 10 Emergency—Drama
Gage and DeSoto respond to a traffic accident call and are shocked to find that Dr. Kelly Brackett is the victim.

5 UCLA Basketball (Live)

SPORTS Bruins vs. Stanford at Palo Alto. Mike Walden, Mark Harmon report. (2 hr.)

7 3 39 Wonder Woman

Wonder Woman befriends Andros, sent to earth by a council of planets alarmed that humans may become a threat to more civilized plants. Stars Lynda Carter,

9 Movie—Drama (1965)

✓ ✓ ✓ "King Rat," George Segal, Tom Courtenay, James Fox.

11 Undersea World of Jacques Cousteau

"The Unsinkable Sea Otter."

13 Wildlife Adventure

15 Lowell Thomas Remembers

22 Owarai on Stage

28 Once Upon a Classic

30 Look and Live

40 Let Go—et God

50 Nova—Documentary

52 Fairy Tales of Japan

— 8:30 —

2 8 Bob Newhart Show

Bob's invitation to lecture at a prestigious sex seminar results in a distressing situation for him when the audience shows up nude.

13 Collage—Variety

28 15 24 The Way It Was

"Swaps vs. Nashua."

30 Voice of Calvary

40 Dwight Thompson

52 Tasty Dishes from Around the World; Japanese News

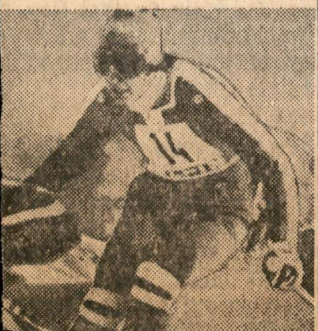
— 8:45 —

22 Greetings to East and West

9:00

2 8 All in the Family

Archie suffers through trauma and outrage at the disappearance of a very close friend—his chair.



9PM

"THE DEADLY TOWER"

The real-life drama of the sniper who terrorized a campus and the Mexican-American whose bravery stopped the carnage!

Starring
Kurt Russell and John Forsythe.

Designed for mature audiences.
Parental discretion advised.



This Weekend, **CHANNEL 13**
Gives You The Best In Motion
Picture Entertainment!

Today At 5:00 PM

Marriage-Go-Round

Starring

**JAMES MASON
SUSAN HAYWARD
JULIE NEWMAR**

A single Swedish beauty asks a simple question and creates a hilarious calamity!



Tonight
A Los

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The bill effectively excludes the proposed \$500 million Los Angeles terminal by requiring that the Energy Commission not certify an LNG or liquefied petroleum gas site within a one-mile radius of any indigenous or working population or within six miles of a population of more than one person per 10 acres.

Goggin referred to it as a "sanitation zone" and said it was necessary because "scientists do not agree on key problems of the LNG vapor cloud dispersion and detonation".

McKinney said the zone was both "unreasonable and unnecessary" and repeated Pacific Lighting's position that LNG can be handled safely.

The bill has bipartisan support and was coauthored by Assemblyman Charles B. Imbrecht (R-Ventura), who said at the press conference that he supported the bill on the basis that the Oxnard siting authority be exempted from the Energy Commission's jurisdiction.

Imbrecht said that "an enormous amount of time, money and emotional energy has been expended to date" by Oxnard officials and that they were entitled to make the siting decision.

Goggin and Imbrecht said the Oxnard project does not have the same ship traffic problems as Los Angeles and avoids the seismic difficulties.

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1 clear

1. How treat inc. taxes when bidding for defining net profit, in profit share lease?

Taxes are a cost, but hard to allocate among leases.

State cannot get into bus. of monitoring & correcting for fed. tax bias. $\therefore$ take share before taxes. Taxes depend on the share taken, so wd. be circular to do otherwise.

- 2 Primary term of a lease is pd. for expl. drilling. Is now 5 yrs., but pressure is on to extend to 10, bec. of deep water, bad wx.

Shd. Ak. extend? Depends on b & c — how much more will firms bid to get the extra time?

Ak. loses a PV $\approx$ royalty of year one.

Another approach is hi delay rental.

- 3 Royalty is takable in kind.

Profit requires valuation & price.

To guard vs. underpricing, Ak. shd take its share in kind at the alleged low price. But that's not good enough.

Shd. sell oil on open mkt. to test mkt., find real price. Set up mktg. agency.

- 4 Prohibiting flaring seems arbitrary, but probly makes sense as a compensatory bias.

Flaring suggests premature produ. Prohibition discourages premature produ.

5. Re oil, tendency now is safeguard vs. postmature use.

Re ~~the~~ ripening urban land, entire bias is the reverse, vs. premature but for postmature use.

Urban sprawl results, As demand for oil
Lease &c. policy As supply of oil.

1 decs

Mainly re Jackson Rpt.

1. S.C. imports Arab oil. LA Times, 11/22/76.
50 Cal & Shell lighters off San Clemente Isl. since Aug.
Taken 20 days w. one lighter. From super tankers carrying 1.5 m bbls @.
[i.e., one day's output from Valdez]. 65' draft, too deep for
w. coast ports.

L.A. Harbor is 51' draft.

Offloading buoy & pipeline off coast of central Cal. is being
discussed, state level.

They are unloading one supertanker a mo.

Torrey Canyon carried .714 m. bbls. only.

Outside 12 mi. fed limit, oil cos. cd. operate w/o fed. regn.
(B.S. - U.S. protects them ~~at~~ anywhere.) But cos. cooperate, submit
to inspection. (How can U.S. islands be outside limit?)
Coast Guard jurisdn. limited to 12 mi. offshore.

Query. If Cal. is a surplus area, why not stop
importing Arabian oil?

2. Source of info - studies of estimating ^{potential} reserves, undiscovered
Terry Goggin, John W., etc.
Geol. inference from indirect evidence.

3. Rate of learning. I must walk the line between mngy. expln.
and social opt., in light of imperfectly elast. supply of lenses.
It's bilateral mngy, which helps justify holding back.

4. But first. Reject idea of "distributing evenly", as in S.3221, (p. 6, Jackson Rpt.) And "equitable sharing" of b & c "among various regions".
S.3221 goes vs. "full cost funding" principle.* Is the govt. sickness.
cf. Clawson re F.S. policy.
5. Cong. quit claimed offshore lands to states, remember: Ak. has longest coastline, vast offshore jurisdn.
6. S.3221 is one-sided: grants to impacted areas, but no reimbursement for benefits. (Sharing from uplands is established, however.)
7. Avoid provisions w/o teeth; or w. teeth that are easily & which history shows are customarily pulled.
8. Nomination ^{process} inconsistent w. learning program, in part.
9. Line between public & priv. info.?
Data are public
Interpers. of data are proper.
10. Liability for oil spill damage can be cond. of lease.
Fund may be set up to assume payment. Since all contrib., this helps smaller firms, like ins. Jackson Rpt. pp. 15 ff.

11. Compare oil business vs. bldg. a high-rise.

Land cost is 20%; bldg. 80%. Cash flow must cover both, and is $\frac{20}{80} = 25\%$ higher than bldg. front money, to pay for land.

W. oil, bonus bids are much less than 25% of expln & dev. costs; yet cash flow from good deposits is mostly land return, b/c. so much higher than 10% ret. on E&D.

12. Ak. needs stuff of env. costs. to evaluate env. damage & costs.

Community impact stud. be coord. w. env. impact. (Tech. & pec. externalities.)

Coordin'd Comm. Impact Assess. stud. find bottom line.

13. Fixed bonus is a problem b/c. it's not a %, must be specified absolutely for ea. tract.

Fixed profit share, etc. can be a %.

14. All areas stud. be ranked by expected value,

More sophisticated, rank by ripeness, i.e. expected ^{percentage} growth rate of in situ value, net of env. cost.

15. Ak. cd. require of bidders that they release info. not just on Ak. lands but on Fed. lands in & around Ak. B/c. Fed., Interior has not enforced such requir. (D.I. vs. Jackson Rpt., p. 34)

16. "Stratigraphic drilling" is part of early advance survey of frontier areas.

'Survey' is good term for Stage I.

~~But~~ Cos. & D.I. think prelease drilling is a waste - p. 42.
But this may not refer to strat. drilling.

17. Large "end users" of oil bid hi for known deposits bcs. they need oil.

Some independent producers specialize in finding oil, & handling that particular risk. (alleged, p. 42)

18. p. 43, D.I. has practised checkerboard leasing, 1 permit in Gulf

[Cos. complain this has reduced amt of voluntary unitization.]

Norgaard could look into this.

19. Joint bidding can't have any motive besides reducing compn., if the joint bidders also bid on other tracts. Except it spreads their risk over more tracts

20. Large firms not only can borrow at prime, they may get interest-free loans from end-users. Gas utilities, pipeline cos. a-f effect -- pipelines seeking to hold up rate base.

21. Russell Peterson, CEA, is all B.S.!

22. NOAA took over Coast & Geodetic Survey

Does "bathymetric" surveys (deep sea sounding).

Claims expertise in mapping & charting coastal waters. Bath. & geophysical maps cont. shelves, 1:250,000. Also magnetic & gravity maps.

are now coop'g w. DE to produce more maps they need in resource assess.
(Atk. shd. at least do as much)

Noaa coop in est'g marine boundaries - techn. side. Pvt. as well as govt. bodies use Noaa (what pvt. people?)

1: "principal repository of expertise to settle boundary disputes."
States consult Noaa.

23. $5760 \text{ acres} \div 640 = 9 \text{ sections}$. Max. size of tract, 0.5

24. There is a geo-data indy. which sells info. to pvt. cos - on condition they hold confid. (but what conditions do buyers impose on sellers?)

Analogy:

Wx. reports - shd. everyone have to buy his own?

Earthquake hazard

Flood

"

Navigation aids, ocean maps

Title search

Air. Mkt. info.

There are cases where govt. info., freely given, is the ec. way to go.

Pvt. firms may still sell - its not an exclusive franchise like P.O.

25. Indy. Senators object to gov. selling, royalty oil, & using bids to establish mkt. price. So this must be a sensitive, vulnerable point.

It's like the big landowner objecting to the valuation placed by sale of a small parcel.

Fact is, if oil is worth more to small firms in small shipments or sales, then it shd. be subdivided.

26. Opt. incentive to "explo" involves not just g & g_f , but also lease acqu., expl. drilling, without acreage.

As long as there is a bid vble, however, this is taken into acct. If bid vble is rent, firms will not bid to give 100% to gov. except on drainage sales.



UNIVERSITY OF ALASKA
FAIRBANKS, ALASKA 99701

DEPARTMENT OF
NATURAL RESOURCES

MAY 2 1975

RECEIVED
JUNEAU, ALASKA

April 30, 1975

Mr. Guy Martin
Commissioner of Natural Resources
State of Alaska
Juneau, Alaska 99801

Dear Guy:

A variety of concerns has created a movement either (1) to get the federal government directly involved in oil and gas exploration on the Outer Continental Shelf, or (2) to separate OCS leasing into two stages corresponding to exploration and production. Some of these concerns are probably unfounded (e.g., the notion that the government is disposing of OCS oil and gas too cheaply because of its lack of information before leasing), and others are based upon naivete about how oil and gas discoveries take place (e.g., the notion that it is practical to "inventory" reserves accurately before developing them for production). Nevertheless, there is now a powerful political thrust, led by some of the coastal States, in favor of changes in the leasing system in the direction of governmental management of exploration efforts, or other means of separating exploration and production rights.

In my opinion, the performance of the present system based upon a fixed royalty rate and bonus bidding for relatively small tracts is generally satisfactory, though it could be improved in detail. For example, the present royalty as a proportion of wellhead value could be replaced with a net profit share, and a more explicit role can be given to potentially impacted coastal communities in planning and surveillance of federal leasing. Also, the modification proposed last year by Phillips Petroleum (a copy of the proposal is enclosed) may make sense in areas where there is concentrated interest in a well-defined

*at the very least,
make it well-bottom
or well-foot value.*

Mr. Guy Martin
Page 2

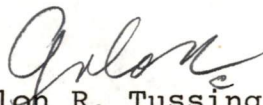
geological structure. (If this system were to be adopted, the money bid ought to be treated as a bonus, rather than as a fund from which the operator may draw exploration expenses, a provision that would encourage wasteful over-drilling.)

The enclosed paper is, however, part of a search for some institutional arrangement that would accommodate the widespread desire to separate exploration and production decisions and to maintain government title to discovered reserves, without needlessly sacrificing discovery expectations or the resource revenues of the government.

? ✓ The essential feature of my proposal is that competition among private exploration companies be retained, but that the government pay the successful bidder for the quantity of oil and gas he discovers, in contrast to the existing system where the lessee pays the government for the right to find and produce oil and gas. Within this broad principle many variations are possible in detail, and a few of these options are discussed. If the system I describe makes sense for the Outer Continental Shelf, it may also be worth considering for Naval Petroleum Reserve No. 4 (where, for historical reasons, separation of exploration and production decisions seems politically mandatory) and for Alaska's state lands.

The enclosed memorandum contains my first thoughts on such a system, and I would appreciate your reactions to it.

Very truly yours,


Arlen R. Tussing

ART:cmc

Enclosure

A SYSTEM OF COMPETITIVE CONTRACT EXPLORATION FOR THE OCS:

AN ALTERNATIVE TO GOVERNMENT EXPLORATION

BY ARLON R. TUSSING

APRIL 17, 1975

There has been an intensified interest over the last year in modifications of the Outer Continental Shelf leasing system to provide a greater role for government in exploration, and in some fashion to separate government decisions regarding exploration programs from the decision whether or not to produce. The current motivation for such proposals has not been mainly the traditional (and highly fallacious) "yardstick" argument for a federal oil and gas corporation, but rather a desire, particularly by coastal state interests, to control environmental and social-economic impacts of oil and gas production.

Development systems proposed so far along these lines for the Outer Continental Shelf (and for NPR #4) have been rather unsuccessful in reconciling (1) the expectation of a successful and efficient exploration effort with (2) separation of the decision to explore a particular area from the decision to produce from it if a commercial discovery is made, and (3) optimization of revenues from the leasing or sale of government-owned resources.

GOVERNMENT EXPLORATION

A major advantage recently being claimed for government exploration is the ability to separate exploration decisions from decisions to develop for production or to produce for sale. Under such a system the government "would know what it was selling." With exploration conducted by governmental enterprise, moreover, the present commercial imperative to keep geological and geophysical and other relevant information confidential would be eliminated. With more information publicly available, long-term secondary impacts (such as transport systems and refinery construction) could be anticipated by state and local authorities and by the public at an earlier point in the decision process.

Proposals that the government itself conduct exploration for oil and gas would, however, sacrifice a critical advantage of the present leasing system. Competition and a diversity of leaseholders in each area assure that a variety of exploration strategies will be pursued by different teams of geologists and petroleum engineers. With competitive leasing, and allocation of acreage by bonus bidding, each tract tends to go into the hands of the operator who is most optimistic about its commercial potential. It is doubtful whether any system that depends for its exploration effort upon a single entity, whether private or governmental, would be as successful in discovering hydrocarbons as is the present system.

Even apart from its lower likelihood of exploratory success, governmental enterprise in exploration is unlikely to produce as much revenue for the government as a competitive system in which each lease is bought by the company assigning it the highest expected value. The winning bid on each tract reflects the most favorable opinion regarding its potential, not the industry's average opinion, while the latter may, on the whole, reflect the real expectation of exploratory success. In any event, analyses of past OCS sales conducted for the Public Land Law Review Commission showed that the industry as a whole has tended to pay slightly more in bonuses than the fair market value of the leases. *Endorses Mead findings.*

SEPARATION OF EXPLORATION AND PRODUCTION

One variant of the existing leasing system now being proposed for the purpose of separating exploration and production decisions is the issuance of conditional leases, under which the operator is permitted to explore but does not have an automatic right to produce the oil or gas he might discover. A development plan and environmental impact statement would have to be prepared after any discovery, and the government would have the opportunity (with or without compensation to the operator) to prohibit or limit production from the lease.

A major drawback to this arrangement is the fact that uncertainty whether a discovery could ever actually be produced would cause considerable reductions in bonus revenues. These reductions could be expected to exceed the proportion of discovered oil and gas whose production would actually be prevented.

The government could offset this tendency by contracting to pay the lessee the full value of any reserves that he discovered but was not permitted to produce. This point seems hard for most people to grasp, *no wonder!* however, and legislation presently being considered would limit the lessee's reimbursement to his actual expenses -- a restriction that is sure to cost more in bonus payments than it would save in reimbursement.

The following proposal is an attempt to resolve some of these conflicts. Its merit is that it preserves the advantages of competition and of a decentralized exploration effort, until the government chooses to lease discoveries or sell oil and gas from its properties outright.

COMPETITIVE CONTRACT EXPLORATION

The essential feature of the proposed system is that the government pays the private operator for the quantity of oil or gas he discovers, rather than the private operator paying the government for the oil and gas he extracts. Within this broad principle many variations are possible in detail:

Fixed per barrel reward-bonus bid. One combination is a mirror image of the fixed royalty-bonus bidding system. Analogously to a fixed royalty, the government would contract to pay the operator a fixed "reward" for each recoverable barrel of oil (or MCF of gas) discovered. As in the existing system the contract would be awarded to the high cash bonus bidder but bids need not be positive. If no positive bids were offered, the contract would go to the operator who offered to conduct the exploration program at the lowest cash price to the government. If in the judgement of the Interior Department, however, the expected value of reserves to be discovered (taking into account the "rewards") were less than the price to be charged the government, all bids would be rejected.

Bidding on reward per barrel. An alternative variant is analogous to royalty bidding. The bid variable would be the "reward" the government would pay the operator for each barrel (or MCF) of recoverable oil (or gas) discovered. (Bids would be expressed in oil equivalents but bid specifications would prescribe a valuation ratio between oil and gas.)

In either the fixed reward, or the bidding-on-reward case, some pre-qualification procedure, and/or a substantial cash deposit, would be required in order to limit bidders to responsible operators. If "bonuses" were negative, i.e., paid to the operator by the government, the contract would have to include a work program requirement, to assure that the operator would not simply "take the money and run."

Bidding on Percentage Working Interest. The structure of the proposal advanced in 1974 by Phillips Petroleum could also be accommodated under the principle that the government pays the operator to discover reserves. In this instance, as in the original Phillips proposal, each bidder would specify the percentage working interest in the exploration contract for which he wished to bid, and the amount of the bonus he was willing to pay (or wanted to be paid) for each percentage share of the working interest. In contrast to the original Phillips proposal, however, the working interests put up for bid would total 100 percent because all the oil and gas discovered would belong to the government.

The joint exploration venture would be composed of the high-bonus (or, in the absence of a positive bonus bid, low-price) bidder to the extent of the interest for which he bid; the second high bidder to the extent of the interest for which he bid, etc., up to a total of 100 percent. As in the Phillips proposal, the area for which the contract applied would encompass the whole of a prospective geological structure. Doing so would be expected (1) to economize on exploration equipment and efforts, (2) to reduce the commercial imperative for confidentiality, and (3) to limit disputes among the parties regarding their respective equities in any oil or gas discovered.

✓✓ In any of the three major variants, the volume of reserves discovered would be assessed by an independent body of petroleum engineers. Reserve estimates made immediately after a discovery would tend to be conservative (i.e., to favor the government), but the scope for dispute would be narrowed by granting the operator his contractual reward for any later increases in the reserve figures resulting from "revisions" or "extensions." (Arguments can be made both for and against paying interest from the discovery date on such reserve additions.)

PRODUCTION FROM GOVERNMENT-OWNED RESERVES

There are several possible systems for disposing of any of its own oil and gas that the government decides should be produced. One option is, of course, to have the government itself enter the production business, either with its own equipment and personnel, or through a private contractor.

Another alternative would be to allow or require the operator under the exploration contract to remain the operator for purposes of development and production. He would also have a right of first refusal, or an option to purchase at fair market value, any production from the property. Development and operating costs would either be reimbursed to him by the government directly, or credited to him against the payments for oil and gas he produces and buys from the government.

A third alternative would completely separate from the exploration phase the selection of an operator for the producing phase and disposal of the produced oil and gas. The simplest such manner of disposal would be by lump sum cash bid, that is, "bonus" without a royalty. Because the government is selling proved reserves rather than unexplored acreage, the discount for uncertainty in the bonus bids would be relatively small. The government would simply be selling oil in the ground, and it would be up to the operator to maximize recovery and to minimize his development and lifting costs.

This system would probably be the most efficient in terms of ultimate recovery, government revenue, and administrative costs. A contrasting system (analogous to the Forest Service's timber sale system) would have the operator bid a price per barrel of oil (or per MCF of gas) that he would extract from the lease at his expense. This system is not a desirable one, as the operator would tend to suspend production as soon as his operating costs per barrel (including his payments to the government) exceeded the wellhead value of the oil. Per barrel bids would be a higher proportion of wellhead prices under this system than they would tend to be in bidding for an exploration lease, and the tendency to premature abandonment would be correspondingly stronger. Between these two variants would fall the familiar combination of bonus bidding plus a fixed royalty.

SYSTEM OF CHOICE

I have not had the opportunity to analyze all the implications of each variant. On first consideration, however, I would recommend as first choice (1) a system of fixed reward per barrel (set by the Interior Department on an area-by-area basis), coupled with bonus bidding (permitting either positive or negative bids), and (2) an option for the exploration operator to become the production operator and to purchase the product (as an additional exploration incentive).

Where there is clearly defined structure of exceptional exploratory interest, however, (but only in such circumstances) I would suggest the Phillips system, modified as described above to retain title to discovered oil and gas in the government.

(PHILLIPS PETROLEUM COMPANY PROPOSAL REFERRED TO ABOVE IS ATTACHED)

1 dear

1. A net proceeds tax, allowing deduction of in-state costs only, wd. sooner or later violate Comm. Clause.
a lease, doing same thing, is probly constl.
2. Needed: a section on why leasing is pref. to
 - a) Taxes
 - b) a mktg. agency.
3. Leases & planning.
Re rentals, critics object at both ends: a) Early abandonment
b) Late beginning. These partly answer ea. other.
Known rental will result in later beginning.
4. Lease payments to state are deductible for fed. tax.
Any income left to indy. by state is fedly. taxed, and $\therefore$ that much less incentive to indy.
5. Re taxes, Huber has done a lot of thinking.
Where he hasn't, and where I can contribute, is on handling K costs: deprecn., life, interest.

- 6 If Ak. keeps royalty gas at home, it avoids jurisdiction of FPC. FPC may a) Regulate price
b) Capture reserves for certain customers.

Customers go after gas reserves the way they go after water rts.
Prior appropn. prevails, under FPC. Builder of early, costly pipeline gets gas.

Seller shd. $\therefore$ hold for his initial price. K wanted an early pipeline can go to seller as rent.

- 7 General influ. is another reason vs. bonus bidding.
Bidders must gamble on this Δ element of uncertainty.

- 8 24 largest wells, $> 2,000$ bpd, $= \frac{1}{3}$ Ak. prodn.
Denton shd. get me data like this, re leases — —
call him Huber, p. 48

Then write him, to have record

- 9 Ak. uses 18% cap. rate for reserves tax. Huber, p. 47.
Shd. use Ans bond rate, 7.1% or so.
Likewise, when leases use rental, based on reserve asmt., use 7-8%.

Or, if sell & tax, can do on this basis.

10 Flaring gas, or venting, must lower res. drive.
If flaring is allowed, to save cost of reinjecting,
they may be lowering ult. recovery. Why, then,
apply MER to rate of produ?

11 Ecs. of scale - are they misused?

How? Wide spacing, to drain more oil per cu. well,
lengthen life of well. Over 1 mi.² per well,
rpt. in Encl. Times, is high spacing.

If there is to be later infilling, why not now?
Maybe to ease on pipeline.

12 Flaring is a use of oil's resource, same as produ., and
shd. be paid for -- lease shd. stipulate that.
Same royalty rate, or whatever, shd. apply.

(Is done so as to use crude in "topping plant".

13 James Smith might measure comen. of leases.

14 Leasing is no sub. for tax. ~~reason~~ On pub. lands
(Native Corps) must get taxes, from both lessees & lessors.

15 Defining Economic Waste is part of job. - an oppy. to introduce ex. analysis.

16 Expl. drilling is not all chin. rets.
Contrary, by ruling out some areas you may Δ chances in others.

(Funny no one has made a game of this!)

Ex. Drill produces more info. to guide next one.

17 No one has done much on whether more info. raises or lowers bonus bids. Let's say it doesn't. Then:

a) Is no interest in State's paying firms to get info.

b) Is still desirable to have info., for dist. equity

The moral of Mead findings is that info has no value to state. Has value to firms, to reduce expec. bids.

18 Katten says the size of petrol. deposits fits lognormal distr. sources, q.v.:

Uhler, R.S. & Bradley, I.G. "A Stochastic Model", *J. Am. Stat. Ass.*, 6/70, 623-30.

Miller, B.M. et al, "Geol. Ests. of Undis. Resor. O&G Res in U.S." USGS Circ. 725, 1975

Kaufman, G.M. *Stat. Decisions & Related Techniques in Oil & Gas Expln.* 1963 (Typewritten)

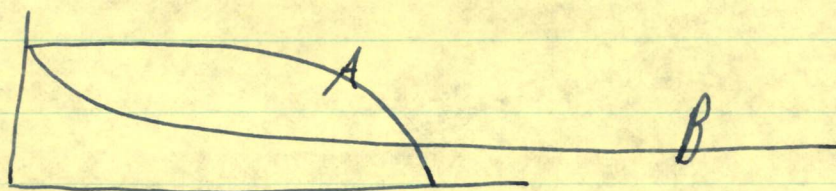
I'm skeptical.

19 If prodn. falls over time, you end up w. excess well capacity.

To avoid, start slower and continue longer, before decline begins.

After decline begins, produce as fast as possible, bcs. the capacity is there anyway.

Pattern A is better than B



20 There are lots of holes in Katter. I might get him to evaluate a few systems for me, but I need wd. specify them, & the criteria & the inputs.

21 PLLRC found that when ~~trucks were~~ all bids were rejected. & trucks subsequently reoffered there was more bidding & higher offers the 2d time. Norgaard might look into that. Lessor needs to set a resn. price. If he has all the seismic, more than others, he can do so.

Q: why; if Ak. had info. at Prudhoe, why did they let best trucks go for \$6m?

Rate of flow is determined by state rev. enf.

As long as this is true, whole gen. of periodic rent's speeding prodn. is a phony issue. It can't do so.

Premature shutdown caused? Shouldn't, ~~but~~ if rent-based. But if does, revert to state, which ~~is~~ puts up for bid -- like a tax sale.

Risk. State can bear a lot, bcs. has so many kinds. Yet now, indy. is bearing --- bcs. state so hard up for front money.

What is risk. It is putting up grubstake. ~~It~~ is return for contingency payments. [The risk of not participating in a bonanza is another usage, but not used here.]

To change royalty to net, go from wellhead to wellfoot value.

Oct. 20, 1976

1. We need a scale for grading or rating env. costs.
EIS may not provide that.
Fed. EIS will suffer by using arbitrary nat. standards, irrelevant. Ark. can do better by tailoring its own.
2. Since U.S. is bound to leave fast, Ark. shd select lands mingled w. U.S. as much as possible, then leave out later. Thus gain benefit of checkbook w/o costs.
3. Find niches for small firms; new firms
 - a. Reduce delays -- front-loading time.
 - b. Defer payments to landlord
 - c. Where giant firms are merely serving as contractors, State might replace them.
 - d. Open access to info.
 - e. Keep size of lease small
[ASAP x 2 means As soon as pos.
" Small " " "]
 - f. Encourage interlopers -- pave their way.
Newcomers, big or small
 - g. Break things into stages.
Thus discourage vertical intra. as much as possible.
Alta., good precedent. Nursery of small firms.

The objective of a government leasing lands should be to collect all the rent from rich lands and let the poor ones go. } If there is to be any ^{cross} subsidy ~~let the~~ government } There is no call for any cross-subsidizing, and if there were there is no private corporation with the moral authority to do it for us.

Then there are eight ^{common} ~~basic~~ errors to avoid in the effort to maximize and collect rents from Crown lands: overdecentralization, overdelegation, overallowance for risk, overadmission of prospectors, underpricing primary products, confusing rent and ~~income~~ ^{profit}, overlooking non-mining taxes, and overconsolidating accounts. Reviewing them one ^{appreciates} ~~realizes~~ more fully the proverb "It is easier to face a ^{common} calamity ~~together~~ than to share a surplus."

1. Press-Ent. Nov. 25, '16

Am ~~BP~~ can refine its crude, 20% of Pr. Bay.

Exxon own 20%

Several cos. own 6%

54% Solis has biggest share (w. BP). Wants to ship to Midland, TX.

Elkh Hills added 200,000 bpd to Cal supply. (why not close it?)

Tankers cd. get Ak. oil east, but "there ain't enough" (U.S. tankers, i.e.)

(Swapping cd. do it, about vertical intr.)

2. Times. 11/25/16 Cal. Energy Comm. favors overland pipeline for Ak. gas. Western leg to serve Cal. (Eastern leg 1 to Midwest, no doubt.)

3-2 vote.

Risk

-1-

Given a future cash flow.

Expected mean is const.

σ & i.e. c.v. rise w. time.

Other factors:

- If res. is a fund, richer have more option of holding or selling for best price. Fuch. reserve reduces risk.

- If res. is a flow, each year is another chance, thus spreading risk.

Polly's point. A flow res. future returns are less certain. These less certain future values are a larger share of PV as perceived by low i bidder

No, her point is an algebraic one:

$j > i$

an asset yields R_5 and R_{10} , with $\sigma_5 < \sigma_{10}$

$$\frac{\sigma / \Sigma PV}{\Sigma PV R} = \frac{\sqrt{\Sigma \sigma^2}}{\Sigma PV R} = \frac{[\sigma_5^2 e^{-i5} + \sigma_{10}^2 e^{-i10}]^{\frac{1}{2}}}{R_5 e^{-5i} + R_{10} e^{-10i}}$$

Numerical e.g. shows that $\sigma / \Sigma PV$ is decreasing fn. of i , altho not strongly so.

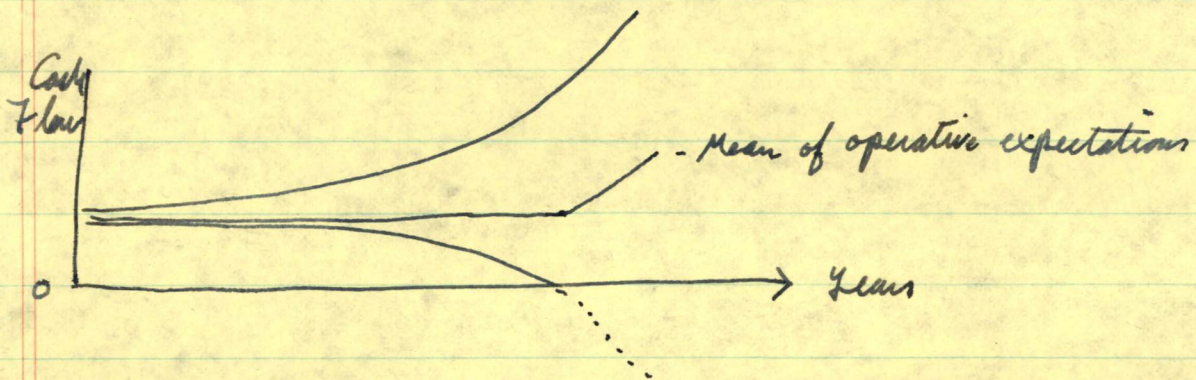
However this result hinges on particular defn. of σ , and it's not clear this is how people should or do evaluate risk.

Just take mean deviation.

Then divide by mean expectation.

Here we see a bias, of sorts. Say mean is \$100, & mean devn. As w. time. When mean devn. > 100 , the negative values drop out. This raises mean.

Also you can reduce low values in many ways by changing assoc. inputs.



Losses are limited to 100%, but gains can be much greater.

100% of what? If assoc. invts. are high, can lose them too. The 100% loss limit applies to extensive uses.

Squaring and adding has something to do w.
assuming risks are indep. of each other. $\therefore$ there is
pooling, so there is some offsetting. i.e. R_5 may be
high & R_{10} low.

**SCANNED
AS
FOUND**

State May Probe Cost Of Pipeline

By SUSAN ANDREWS
Times Staff Writer

The State of Alaska is considering conducting its own investigation into the construction costs of the trans-Alaska oil pipeline prior to setting intrastate tariffs for the line.

The study would concentrate on cost overruns, including late payment penalties which reportedly have run into millions of dollars, on the premise that such expenses should not be allowed when setting the fee charged for oil moving through the pipeline.

Consultant Milton Lipton has estimated that the state will lose one cent for every five-cent decrease in

the wellhead value of oil — which could add up to \$400 million a year. The wellhead value of Prudhoe Bay oil will be determined by subtracting pipeline and tanker tariffs from the West Coast price of oil.

The state study, at an initial cost of \$150,000, would be conducted by Terry Lenzner, partner in a Washington, D. C. accounting firm. A second phase of the project would involve a massive number of person to person interviews, including officials of Alyeska Pipeline Service Co., builders of the pipeline, and would cost from \$500,000 to \$750,000.

Gov. Jay Hammond reportedly will ask the Legislative Budget and Audit Committee to give its blessing to the study at its next meeting Friday in Anchorage.

State consultants — most recently Milton Lipton — have suggested that the Alaska Pipeline Commission should be responsible for setting the tariffs for the pipeline as a whole because the pipeline lies entirely within the state.

However, the federal Interstate Commerce Commission is asserting its jurisdiction because the oil flowing through the pipeline is destined for interstate commerce. The commission has hired Touche Ross, an international accounting firm, to begin an investigation of cost overruns on the pipeline. Ronald Trevithick of Anchorage is in charge of field work. The two-phase study ultimately will cost more than \$1 million.

Alaska Pipeline Commission member Bob Breeze, former Anchorage borough attorney, said the

(See Page 2, Col. 1)

Patients

1974 to the Kodiak Island Medical Center, of which Falcon is one owner.

suit said the disclosure rule (See Page 2, Col. 5)

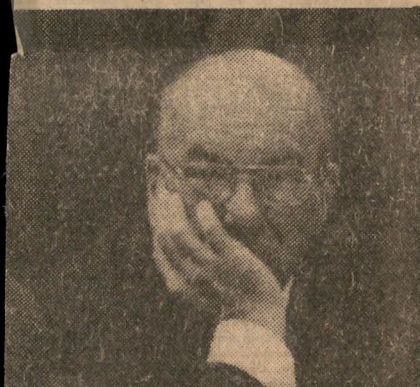
From Hotel

Hotel in Peking yesterday for his office which includes

earthquake.

was able to
ed 6.5 on

along



question of state jurisdiction of pipeline tariffs is one which will have to be raised by the state attorney general's office. But "to our knowledge, the attorney general is not intending to raise that issue.

"The Alaska Pipeline Commission believes it would be valuable for the state to thoroughly research the issue," Breeze said, "because it is ultimately to the advantage of the consumers in Alaska for the APC to have the sole regulatory authority. This exact issue has never been decided by the U.S. Supreme Court."

In addition to the Touche Ross study, the federal government's General Accounting Office also is expected to conduct an inquiry into the cost of the pipeline project, at the urging of Sen. Henry M. Jackson, D-Washington, chairman of the Senate Interior and Insular Affairs Committee.

Breeze said the action by the Interstate Commerce Commission is highly unusual. He said it is the first time the agency has made such an inquiry prior to a tariff filing. Normally the filing isn't made until ten days before the pipeline builders wish to initiate throughput.

"This approach (the Touche Ross study) is a radical departure from the historically passive role the ICC has taken in regulating oil pipelines," he said.

Breeze said the Alaska Pipeline Commission has been assured access to the work product of both the federal inquiries.

"We have been monitoring the progress of the ICC study and have noted that so far they have fallen behind their original time schedule because of the refusal of Alyeska to allow them to interview a number of employees. Touche Ross has asked to interview 60 but they have been allowed only six."

The state study, if authorized, would be limited, Breeze said, "to those aspects not addressed adequately by the ICC and GAO. We are not going to waste taxpayers' money by duplicating others' efforts."

As far as the investigatory effort is concerned, Breeze said it makes

no difference if the Alaska Pipeline Commission is setting only the intrastate tariffs or all tariffs because the pipeline costs are intermingled. However, he said, "a legitimate legal question exists as to whether the ICC has any jurisdiction over this line."

Breeze said in addition to Milton Lipton, the state's petroleum consultant, Professor Gerald Wither-
poon of the University of Texas also has raised the issue of whether the Interstate Commerce Commission has any regulatory authority.

Quake Forces State

(Continued)

with Sen. and Mrs. Carl Curtis of Hollings of South Carolina, Sen. and Mrs. Milton Young of North

The State Department said the planned and that the senators arrived in Washington Nov. 23.

ON
'76 DATSUN
BUILT TO

BUY
'76 PRICE
S



Notes from Lipton are here.

- 1 Among objectives, include:
~~At~~ Achieving progressive expln.
 Enhancing value of state lands.
- 2 Present system includes 20% down w. bid. Lipton
- 3 1969 amendment killed discovery royalty rate? Lip. p. 3
- 4 Max. acreage limit is full of holes - p. 4-5
 Denton intimated they didn't bother trying to enforce it -
 didn't even know who had what.
- 5 a lease sale is a discrete event. Why not a continuous
 progressive process?
- 6 A checkerboarding or other spec. holding back causes urban sprawl.
 a city owning land wd. not speculate so.
 Likewise w. oil. State can partic. in apprais. by
 appraisal, e.g. As comparable leases are sold for higher
 prices, added payments required on extent ones.
 Thus as with lessee finds structure, all on the structure
 must pay up, & the discoverer pays less.

A6B But if expln. devalues land, is no gain at all, only costs. Lipton
 assumes there are mainly gains. He allows that expln. may devalue lands, but

for vague reasons - tho he is right - rules it out.

- 7 a few low bids on cheap acreage may be good to accept, because if indy. has low opinion of area, is ~~good to~~ nothing to lose by having it explored. Lip. p. 14 (nothing but \$106. of oil)
- 8 Rental could Δ ~~exply~~ exponentially until lease is abandoned.
- 9 5% discovery royalty was resumed "last year", 1968
- 10 Lipton, p. 19, recommended State select first three Fed. lands on which lease applns. are pending. - to extinguish $\$$ leases & control lands.
20 m.a. of such applns. outstanding.
- 11 p. 20. 1960, rental raised on non comp. Fed. leases. Results in Ak.

Date	No. of Leases	Acre under lease	Σ rental	Rent/acre
1960	16,500	< 35 m	\$2.8 m	.08
1961	< 4,000	7 m	4.3 m	.61
- 12 There has devd. a "bribe trade" in prior rts., despite uncertainty of eventual status. They are alienable.

13 Bidding "consortium".

14 It is argued vs. bonus bidding that oil cos. have high i.i.v. I wd. reject this argument, citing evidence I have gathered.

Update data on gross & net worth, recent Fortune.

→ Hire R.C.

15 To min. front-money barrier, but still get a commitment, work-commitment looks good.

Couple it w. hi deferred payment — rental, or staged contingent bonus. Might also couple it w. Time limit

16 Royalty bidding is like sharecropping, lessee adds land until $MP=0$. But here there are new wrinkles, bcs. of hi dispersion of outcomes, small chance of large payoff. He wd. get lots of land, use the very best, neglect the rest.

17 Lip. states royalty bidding is better on proven acreage. p. 28 seems to me one constraint, can use (deferred) bonus there. Royalty is approp. if at all, where nothing is known.

- 18 Lip. p. 28, says unidimensional bid is essential. 1 question that. Irvine is bid up & up by rivals w. different conditions.

There's much to say for letting bidders put together bids in their own way. They know what they can do. All the agency needs do is establish a rate of exch. among likely bid elements. Select a r. of i. -- fairly low.

But if royalty or any contingency payment is involved, this involves something more than mechanical, a judgement call. Direct negotiation between DNR & lessees. DNR cd. negotiate to max. likely rates, as Miter did w. East Side A. History under Urban Renewal is not good.

So, a compromise needed, offering some flex. but not in many dimensions, or not re contingencies.

19. "Production bonus" is 2d instalment payable when prodn. reaches certain level (or profitability?) Lip. p. 29, thinks it shd. not be a bid vble, bcs. he's assuming basic or "signature bonus" will be.

But sig. bonus cd. be const., & prodn. bonus vble. ... & deferred. Prodn. wd. est. credit of the lessee, so he cd. pay then.

20 p. 30. Lip. favors bonus bidding in general.

21 In "slide bidding," you can bid on several tracts offered simul, but when or if you win on one, yr. bid on another is automatically withdrawn. p. 30.

This seems almost foregone as the only reasonable thing to do. Fact that slide bidding has a special name suggests they have normally done it the other way.

So, recommend on how many leases to offer in one "sale". Why more than one? Checkboarding, selling 50% may be extravagant, when one success will turn on a whole structure - and one dry hole, or dry tract, may turn off a whole structure to the same degree. Ask Mike C.

22 p. 30. & elsewhere. Lip. ~~do~~ puts down sale of unproductive acreage, may make money in s.r., but hurts future lease sales.

23 Shifting royalty according to produ. might be usable - esp. if State controls rate of produ. But it's a blunt instrument. Seek evidence.

24 Call O. Burt, re his formula.

25 Fed. onshore leasing. 1.32

Lands "w/in known geol. structure of a producing field"
and

"leases deriving from discoveries made on early prospecting permits"

carry royalties & well production.

On certain leases,

Step-scale royalty, 10 steps

Step #	B/d	Royalty
1	110	$12\frac{1}{2}\%$
≡	≡	
10	400	25%

26 Alta. leases on Crown land, sliding scale royalty based on productivity.

B/Mo	B/d	Royalty
750	25	8%
≡		
2700	90	$16\frac{2}{3}\%$

Note lower levels. Alta. has not used ^{high} royalty, ~~bidding~~ having other techniques at hand.

27 Lip. favors leaving all but broad guidelines to admin. discretion.

Nowhere does he breathe concern re concn., bribery, influence, etc.

The history of oil cos. bribing officials, e.g. in Italy, is now public record. The disposition, the ^{ready} moral rationalizations, are present. The state must guard itself En garde!

28 Big DNR data bank needed.

Buy

Make -- by own staff

Require -- from drillers.

All shd. be made public.

Shd. not try to gain from inside info.

Fu. of state shd. be to disseminate info -- & sell good land. Knowingly to sell bad land & use inside info. for narrow advantage is:

Dangerous -- invites corruption, leaking

Immoral -- caveat emptor

Unrec.

To require disclosure, & accept non-disclosure as condition, is a bad bargain. State can buy cheaper if it

binds itself not to disclose. But it's buying something of less value. It buys basis for setting holdback price.

Holdback price, too, shd. be pre-announced. State shd. be open in its dealings. Make every effort to break the info. mupg & bottlenecks.

This doesn't really limit us to one info. source. The innovator w. a better idea can still explore.

This means State shd. not require disclosure. Rather, it shd. unitize expln. --- same concept as res., early grasped, parallel rationale.

Contract out g & g, publish findings.

Then let others if they wish duplicate & innovate.

Shd. have an office of its own, too, Director of Innovation, try to keep up, & ahead.

29 p. 35, Lip. writes of royalty as a cost.

Same talk I heard in Montana re coal royalty.

I shd. write re incidence. We do not affect world price. Are sharing fixed pie.

30 p. 36 Fed. govt. sets 5% limit on cumulative value of lease overrides, as a condition of lease xfr.

31 p. A-2. Fed. onshore comp. leases, rental is \$2/a-yr —
cf. 604, above.

p. A-3, Fed. non-comp. leases, onshore, are 60¢
basis, but \$2 if on a known structure.

12 $\frac{1}{2}$ % royalty.

Fed. leases in Ak. had the 5% discovery
royalty rate. (No State borrowed from Fed.)

32 p. A-4 Max. acreage that can be controlled in any one
state is $384.5 \text{ mi}^2 = 246,080 \text{ acres}$.

In Ak. it's 600,000 a. = 931.5 mi^2 ,
max. 300,000 a. in ea. of 2 sections, n. & s.

33. p. A-5. Min. Leasing Act of 1920 has orig. lease
ff. by Renewal Lease, of different rules.
So there is precedent.

34 1920 Act, had 2-yr. prospecting permit.
1935 amendment changed to 5-yr. lease.

35 OCS, max. on ea. lease unit is $9 \text{ mi}^2 = 5760 \text{ a.}$
Rental of \$3/a is used "in practice".
Except on drainage & dev. tracts, "either \$5 or \$10 p.a."

\$3 $\times$ 5760 a. = 17,280 per year
\$5 $\times$ 5760 a. = 28,800 " "
\$10 $\times$ 5760 a. = \$57,600 per year.

36 p. A-8 OCS, 1954-69. have leased
1450 tracts, 6,500,000 acres. = 4482 acres/tract.

Bonuses were \$3.46 = \$523/a. This is
hi cfd. to rentals, & shows rentals cd. have been a
lot higher.

There cd. be a rule that rental wd. be 10% of
bonus, as a min. Thus a \$500 bonus bid wd.
mean \$50/yr. This automatically stretches out bonus,
and relates rent to bonus, etc.

(Cd. also have royalty & w. bonus ---

37 p. A-10. Indy. says it is getting low returns in Gulf.
(So Mead was just recapping indy. claims.)

36, resumed.

Rental to be 15% of bonus, or 15% of appraised value of deposit, whichever is greater.

Whenever state believes it cd. gain, send in Parrshall to assess reserves. But use cap rate of $i + .15$.
(a standard asmt. practice.)

Indy. can abandon tract whenever they think 15% of bonus is too high. Then State can ~~release~~ ~~the~~ lease again. This reduces lessee's risk, bcs. of lower bonus.

It wd. be wrong to let lessee reduce rent by abandoning selectively & partially. But you cd. require him to relinquish 20% per year.

38 Long Beach case, E. Wilmington Field.

City of L.B. did a lot of surveying first. (drilling?)

City & State split 50/50.

6 undivided interests were created, & bids solicited on each.
The largest was 80%.

Consortium of 5 majors, THUMS, won the 80% int.
Bid 95.56 of profit.

The other interests ranged down in size, 10% down to 1%.
"These interests brought higher bids than did the 80% interest." p. A-13.

<u>Undivided Int.</u>	<u>% of profit</u>
80%	95.560
10 %	98.217
5%	100.0
$2\frac{1}{2}\%$	99.54
$1\frac{1}{2}\%$	99.54
1	99.55

Clearly I must go to LB & Sacto, because more.

Note how smaller units pay more. Ak. shd. sell small units.

Lessee ed. take depletion -- helps explain why they bid so high. Lip is vague -- p. A-16.

39

La. lets bids vary both royalty & bonus.

Then, Board decides.

(If State has inside info., this wd. be a way to use it.
If ~~not~~ nothing is there, take hi bonus; if a lot, take hi
royalty.)

40

Ts. uses simple bonus bidding.

Ak. ideas

1. Krueger study shows no. of bidders is crucial factor pushing up bids. Sealed bidding is also better.

∴ Ak. should set a reserve no. --- so many bids or the sale is off.

2. The sooner a sale occurs in the accum. of knowledge, the more you need royalty bidding.

∴ for 2dry recovery, use bonus bid. Also for drainage sale. And apply a delay rental. - or just a short annuity.

Royalty bidding -- or other particn. -- is only approp. when bidding occurs before much is known.

3. If particn. is needed, however, ~~rental~~ rent share bidding is good.

Let them ~~have~~ recover capt. on installment plan over 15 years, at low i.r., from prodn. No prodn. no return -- this keeps them from overinvesting. They pay for ~~but~~ dry expl. wells. But if another well somewhere "on the tract" hits oil, they can write off dry holes on the tract.

How about dry holes on other tracts? This will Δ bids from those who have other tracts, bias for them. A bad deal for state.

Let them instead take full risk on each tract.

If state wants to share risk, better it shd. partic. in expl. wells. It will cover half their cost. This shd also discourage state from offering bad land for bid.

✓ It will assure lessees this is not occurring, and strengthen their bidding. State will cooperate by giving all its info. to lessee, to help him locate well.

It might, and should, reserve right to refuse to share well cost, if staff thinks is wrong. But lessee reserves rt. to proceed alone --- and get guaranteed return if he strikes enough to pay it.

4. Is there any value to state in advance expln?

Suppose there were ^{no expln.} ~~none~~. Then you are offering an average piece of earth's surface. Assume that is what it really is. Then you could sell all on that basis - leaving to buyer the cost of exploring. He wd. pay you less bcs. of that, at least.

You cd. concede it all to one huge firm. Or divide in smaller tracts. If latter, each offers small chance of large reward. Sounds like A. Marshall. Sounds like Uthwatt's floating value. Sounds like Wendell's N.D. You might do better this way.

Get Alta. thrown by chkdg. The presumption there is that negative findings on leased ~~area~~ squares merely confirm a presumption

of no value, and do not hurt you; while positive findings raise adjacent values, (& others, too, "comparables".)

To max. the gambling spirit by buyers, we must first excite them.

To outdo them, we should know more than they. Sell when they overest. real values by max. emit. We must know real values; and have an index to their present excitement, & forecast of future;

If a large area is considered oil-prone, but you know it really isn't, then sell ~~expl. & lease~~ leases. But buyers in fact want to know more before they buy. They do seismic, & nominate.

5. When & on what evidence was Pet. 4 set aside? Someone must have known oil was there for a long time.

6. When you let cos. go by on yr. land before they nominate & bid, you are doing them a favor: saving them from bidding on the whole area. So you needn't pay them in any way for expl. effort (e.e.) They shld. pay you.

7. It may take a first strike to excite buyers. If so, you want to incent that, in a producing province. Then you can sell off everything around, unexplored, for bonuses.

That means allowing a big prize for the first strike.
But you can limit the big prize

Dave Knudsen (Farpo) & MSU
Wms.

~~MSU~~

Gas will be reinjected. Flaring illegal in Ca.

Big qu: Shd xptn. lead expln., or v.v.? Xptn. can't lead, bcs. where wd. it go?

State can ~~lease~~ build xptn., & make lessee pay, as condition.

Now, anyone can roam & explore, w. permit, & not disclose.
Then, when there is bidding, shd he not disclose? If he nominates, that is a kind of disclosure.

Or he could bid for a named Q.

Points of attack

Spacing. 4 section min? $4 \cdot 640 = 2560$ a.
A min. is for indy. convenience. For landlord, he shd. set a max.
MER. Effect of more wells, closely spaced,

overrides

Shut-in leases.

Bag limit?

Why is indy. in a hurry? They have big invt. in pre-drilling expln. Let Jim Rhode said they employed only 800 men on n. slope at the peak. They are truly soomers!

Govt. in expln.

a. Ala. has surplus to invest.

b. Govt. has or can have all the info.

Now, it has drilling logs, but not seismic info.

Tom Kelly, now a consultant, was director of leasing. He strong-armed cos. into revealing info. from their seismic, that he could use in selecting areas to bid. Says Cheney C. C.C. wants to systematize this.

Dave Kunzman philosophy re reserve tax is very pro. Justifies hi level, basing on "real value", on grounds a lower value is validating, stealing by U.S. from Ala.

Also notes the indy. is x'fing profit now to refineries. But price control is big thing.

FEA on oil

ICC on xpln.

FPC on gas

(Who on xpts. gas?)

Purdue Bay was a prestige thing for many cos., to take a position. I can believe that.

✓ But if a co. shd. be in the action, why shd'n't a landlord? A state agency out exploring might make or lose money, but it wd. put govt. people right in touch.

Explorers required to disclose wd. explore less, True. But something is needed to do that? No, not if explorer doesn't

establish tenure thereby.

The indy. may lose much of its info. Suppose one firm finds a structure on the ~~star~~ tundra, far from xptu. They might just keep it quiet. If state made same find, they might a. Explore further and b. build a pipeline. Pvt. firm might lie back & wait -- but for what? If indy. has to nominate, they might as well do so.

C.C. wants disclosure of seismic. Co. motive wd. be impaired but not wiped out, he says, bcs. disclosure is in effect partial at best: those who do the job can interpret it better.

Still, my belief that open tenure ff. by closed is overincenting may not apply. The rover only gets a little jump, re bidding for leasehold, (the rt. to drill for 5-10 years, & then produce.)
(cf. Canadian system)
(Check the other 8 ways of overincenting)

Timing lease sales by rev. need is very bad.
" " " to keep pipeline full would be good if rates were flexible & dropped when not full (& ad reserve tax.) But lacking that, rate is const. & state has little direct int. in keeping pipe full. That is co's problem, & their bidding shd. show it.

Alaska

Sec. tax is turned on & off, at convenience of owner.

Risk

Low quality incl. invt. is riskier.
Under invt. is least risky.

Invt. w. one chance (in time) of a payoff is riskier than
one w. many chances. Thus growing ~~grapes~~ vegs, truck crops
annuals is highly risky. Finding oil is much less so.
✓ Even a bldg. is riskier, bcs. you can't avoid bad years.
Oil, you cd. pick yr. years.

Books on Alaska

1. Adelman, Bradley Norman, Alaskan Oil: Costs & Supply
N.Y. Praeger, '71.
2. Cheung, The Theory of Share Tenancy Chi: '69
pp. 22, 23, 27, 29, 31, 40, 41, 46, 47, 80, 81
3. George W. Rogers, Change in Alaska, U.A. Press, '70
4. P.W. MacAvoy & R.S. Pindyck, The Economics of the Natural Gas Shortage 1960-80 1975
5. Adelman, The Supply & Price of Natural Gas Basil Blackwell,
1962
6. Mary Clay Berry, The Alaska Pipeline, Bloomington, IU Press '75
7. Cicchetti.
8. Al Utton, ed., Nat. Petrol. Policy, UNM Press '70

Rent-share bidding, variable variation.

You could take 100% of cash flow, less a capital recovering allowance per bl.

Analogy: Oil reserves tax, recoverable from later royalties.

allow a low i.e. recovery too... same as applying lower t to i .

(Buy a H.P. for explaining to legisla.)

Rate per bl. can be very hi, but lessee gets a c.f. bcs. he's recovering capl.

As to predicting life, you have guides:

- history
- State regn. of rates
- am.-n. logic.

Problem. You get this offset in early years, when is less needed. Later, get into hi rates & incentive problems.

Time to switch. After cap. recovery, landlord moves in & has new lease sale.

Ideas, Alaska

1. Royalty bidding not same as hi royalty tax rate.

But, rate varies from one mine to another.

Disaggregate is key. We could have complex bidding with high rate on high grade portions. Hi grade pools have low grade margins.

With hard rock, you could test the grade as you go along, and adjust rate.

With oil, could lower rate as you go deeper.

2. To keep input. rate as low as possible

- allow dedn. of all vble. costs

- let capt. be deducted as a vble. cost, like deple. allowance.

3. Property. tax yields steady rev.

But as a steady cost, imposes more risk on lessee?
Only some kinds of risks. Is a filter.

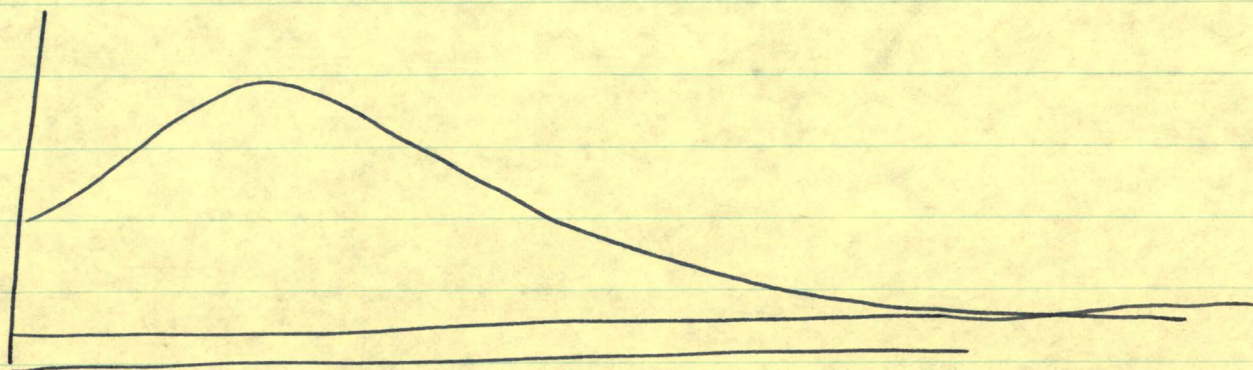
4. Get Mead's report on pipeline.
Why not ships?

5. Royalty-bidding could lead straight into the
Sale Johnson problem. Bidder can add land w/o limit, subse. land
for everything else.

So there must be a limit.

a. A time limit. Otherwise, lessee can wait
long time before producing.

Lessee recovers K by keeping $x\%$ of each barrel. This lowers impact of royalty.



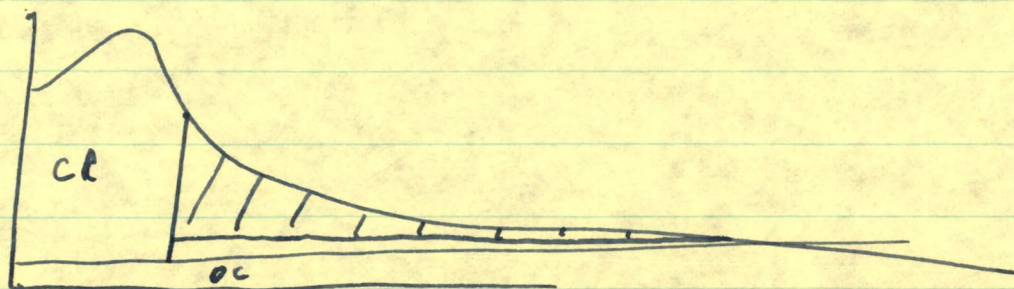
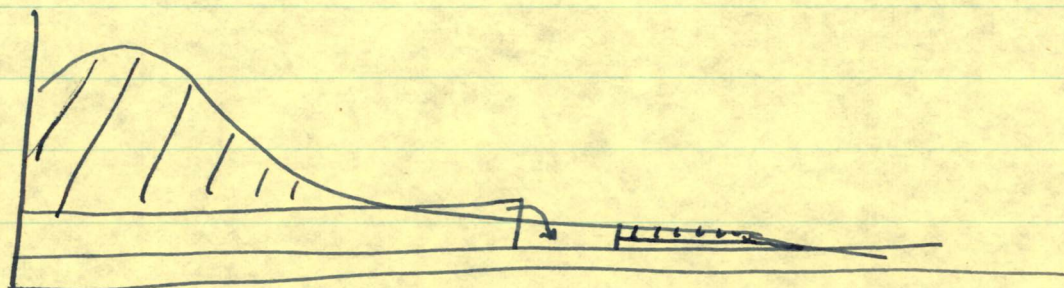
If $x \approx 100\%$ he recovers very quickly, and will bid a hi % for stage 2. That wd. create incentive & padding problems? No padding unless he deducts c , as he shd.

But he still has to get ret. on K , so he bids below 100% of c .

It is desirable to keep this rate low. To accomplish, slow down rate of K recovery. Let the royalty be hi in early stage, when it has no disincenting effect.

[Might be Fed. tax advantage obtainable by calling the early payments K recovery. This wd. let firms write off faster. But not if ded. bcs. they can expense anyway]

Thus, horiz., slow recovery is better than vertical, fast recovery.



As much as possible,
 Payments to lessor shd. be time-^{based} ~~related~~
 Deductions of lessee " " prodn.-based

For lean firms, fast capl. recovery is more valuable. To this end they will bid higher shares on post-recovery years.

For fat firms, guaranteed return is more valuable. $\therefore$ state shd. prefer fast recovery, $x = 100\%$.

The bid vble. then is % of c.f. after cap. recov.

A. Allow cap. recov. but no i , $i = 0$.

Bids are lower; lessee shares more risk. This is tailored for the firm preferring risk, but lean. It minimizes their risk of death. It returns their stake quickly, for reuse. It avoids goldplating.

Needed: a profile of ~~the~~ ^{ingul.} firms & their needs. Then tailor leases for them.

B. Allow cap. rec. + $i = 7.5\% = \text{bond yield}$.
This attracts utility-type firms, fat firms w. much K they want to place safely.

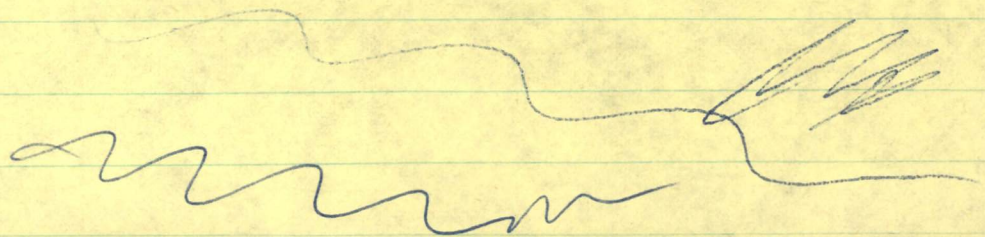
To this end they will bid very hi royalty, or in this case c.f. share. But:

- 1, Too much K
- 2, at 98% of share, padding problem

There is ^{min.} ~~no~~ risk-sharing. They ^{do} take risk of no comm. prodn. When that risk is very hi, wildcat areas, you could use B, to reduce lessee's total risk. But when he hits a big one you are vulnerable to rent dissipation.

In a bonus bid system, cap. recovery is self-defeating
bes. it raises bonus.

In a royalty system, cap. recov. raises the royalty



MEMORANDUM

State of Alaska

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

TO: Guy R. Martin
Commissioner, DNR

DATE: June 3, 1976

FILE NO:

TELEPHONE NO:

FROM: Patrick L. Dobe
Chief Petroleum Geologist

SUBJECT: A Discussion of the Federal
OCS Leasing Program

Excellent ideas

The leasing or sale of a major resource such as petroleum by government should be on the basis of a comprehensive cost and benefit analysis. The stock holders of the government "oil company" are numerous but not very demanding; they have not in the past required an accounting from "management." The present move in the U.S. House of Representatives for amendment to the OCS Lands Act of 1953 indicates the public is now demanding such an accounting.

The problem as seen by Congress is that current governmental leasing programs reflect an earlier period when the United States was independent of foreign oil and industry thinking dominated the oil leasing process. Changes in the last six years have dramatically created a need for an overhaul of the governmental petroleum leasing process. The rising price of oil, rising costs of exploration and drilling, greater environmental risks, a reliance on OCS resources, and a change from private to public ownership of the remaining petroleum reserves all demand new and innovative leasing procedures for maximizing public benefits.

✓ In the past, federal and state petroleum leasing has followed the historical precedent set by large oil companies when they were leasing land from small land owners. Since the companies were willing and able to bear the risks involved, the small land owner often leased for a front end payment or "bonus" and a small "royalty" or interest of the production. The oil company "discounted" the undiscovered potential oil for net present value, and a fair rate of return, then discounted the value again for risk. This process revolves upon an optimum risk, net present value dollar rate of return for industry, and a relatively "risk free" dollar bonus and future nominal "risk dollar royalty" income for the public.

✓ This dollar only, risk-free procedure by the public sector needs to be replaced with a maximization of social values approach that shifts the risk to the seller of the resource. As the lessor, the government can bear risk more easily than potential lessees and stands in a different position since its risks are involved with the question of whether the resource is present in economic quantities only, it does not bear a risk with respect to ownership. A potential lessee in the present leasing situation is forced to bear the economic burden of exploration and management with a risk of competitive ownership failure (i.e. unsuccessful bidding) and a risk of uneconomic resource discovery if it is a successful bidder. Now that it is realized that the public sector is qualified and better able to take a more active risk position in petroleum leasing, a new leasing policy is demanded that attempts to satisfy maximum public benefit through more active participation in the public sector.

"Maximization of public benefit" must be defined before new leasing policies can be realized. The public sector, when dealing in the real world, is required to consider not only the normal factors considered by the business community, but strange and exotic nonbusiness factors as well. Since enlightened government will need to consider the taxpayers of today and the future world of their children, it must try to realize the net present social value of petroleum resources and equally attempt to safeguard the future social needs of the next generation of citizens. This creates a governmental concern for more than net present dollar value. Future benefits and future income also must be given careful consideration.

A report prepared by the Congressional Research Service, Library of Congress, at the Request of the Committee on Interior and Insular Affairs, U.S. Senate, suggests that the present leasing system has not met the goal of maximizing the net social value of our OCS petroleum resources. This study considers alternative leasing methods for sales and the possibility of forming a Federal Oil and Gas Corporation (FOGC). The conclusions of the report are that the present system should be modified by taking the best features of as many new alternatives as possible as long as they are compatible with the objectives of encouraging exploration and development, reducing environmental hazards and improving competition. The recommendations of the committee report still falls short of the goals necessary for a maximization of social benefit. Revising leasing procedures covers only the "how to lease" problem. Where, when and how much to lease still remain? Petroleum resource leasing must be based on a comprehensive analysis that answers all three of these factors in such a manner that the following are given consideration:

1. Present and future economic benefits (public and private)
2. Present and future national energy and petroleum needs
3. Minimum environmental and social impact associated with petroleum exploration and development

✓ The announcement of a proposed lease sale should consist of the results of a "long range analysis" indicating the reasons that the proposed lease sale will "maximize public social benefit". The analysis would indicate that the lease sale is part of a "development policy"; that the resources will be of a size and type to fit a long range overall energy use and conservation plan; that industrial technology will be adequately and timely developed; that sale timing is optimum for utilization of material, economic, and manpower resources; that environmental and social impacts are minimized by the size, location, timing and method of this sale and many others.

It would be nice if the federal OCS lease schedule were subjected to such an analysis and that leasing on the Alaskan Continental Shelf be adjusted to fit the results of the analysis.

MEMORANDUM

State of Alaska

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

DATE: July 29, 1976

TO: Guy Martin
Commissioner

FILE NO:

THRU: O.K. Gilbreth, Jr. *OKS*
Director

TELEPHONE NO:

FROM: Patrick L. Dobey *PLD*
Chief Petroleum Geologist

SUBJECT: Delay of the Beaufort Sea
Sale Till Mid 1977

Current events indicate that the State should not have a Beaufort Sea Sale in 1976. A date of July 1977 will result in a coordinated State-Federal approach, allow time for the completion of a comprehensive sale analysis program, and provide other benefits to the State that an earlier sale would not. Discussed below are some of the main factors that require a 1977 sale date.

1. Need to Coordinate the Sale with the Federal Government.

Industry and governmental officials both agree on the desirability of leasing both state and federal acreage in the Beaufort Sea, Prudhoe Bay, near shore area since possible oil bearing structures appear to overlap both state and federal acreage.

The best approach is to include a State-Federal Joint Sale in the Beaufort Sea that is integrated into the Federal OCS Leasing Program. A recent Beaufort Sea Petroleum Technology scenario by an engineering firm in Fairbanks indicates three distinct zones of operation exist, (1) Shore fast ice, (2) Shear, and (3) Pack Ice. The proposed Beaufort Sea Sale lies in the shore fast ice zone where present Technology is known and proven. Holding a Joint State-Federal Sale in the shear shore zone will allow time for adequate development and testing of the technology in the Shear and Pack Ice conditions before leasing. It is more than logical to move slowly outward toward the difficult operational areas allowing problems to take small increases in magnitude rather than have a disaster result from an inadequate field tested technology.

2. Need for Optimum Economic Sale Conditions.

The State does not have a short term need for income from the Sale and will derive a much greater ultimate value from the petroleum if the sale is designed on the basis of a technical-economic analysis that includes optimum royalty-taxation conditions. The new Division of Minerals and Energy Management will have an analysis of past state lease sales, other agency and governmental sales procedures and suggested new techniques by the end of 1976. This analysis will then be used with a review of petroleum taxation to recommend an optimum long range income producing lease sale-petroleum tax package. Public hearings, industrial comments, reviews, and legislative action on petroleum tax revision will require that the sale be scheduled no sooner than mid 1977. The new division will also undertake a geologic analysis of the risk value of the potential oil in place so that approximate minimum bids can be established. The results of this study will not be available until mid 1977 since the division will not have the personnel needed until late 1976.

Key concept

3. Completion of a Comprehensive Technical Analysis for the Sale Plan.

It is essential that the Beaufort Sale and all future sales of Alaska's energy resources be on the basis of sound economic analysis, that they be technically well planned, and that they are integrated into an over-all State development program. The State is now setting up the mechanism to accomplish their aims and the Beaufort Sale will be the first state sale under the new system.

The geologic analysis mentioned in 2 above, along with the computer risk analysis studies for optimum leasing procedures will be undertaken by a team of petroleum engineers, economists and other specialists that will not be hired or assembled until late 1976. When formed this team will begin its analytical research and establish procedures for sale analysis with the Beaufort Sale being the prototype. Mid 1977 will be a crash date to accomplish the job but it is felt that it can be done by then.

It is essential that the disposition of multimillion dollar non-renewable state resources be planned and administered by top quality technical experts and the new division of Energy and Mineral Management will have this capability.

4. Need for Sufficient "Lead" Time after Sale Announcement.

The federal government needs 19 months to prepare a sale in a frontier area. It is anticipated that this time will be less in the Beaufort case but a "firm" mid 1977 sale date would still give less than 12 months preparatory procedures.

Industry will also gain one more winter exploratory season and have time to interpret the results before a mid 1977 sale.

5. Effects of Permanent Fund Referendum.

Leasing methods, timing and other factors will be affected by the results of the Permanent Fund Referendum this fall. The philosophy and practice of allocating present non-renewable resource revenues for the use of future generations will need to be integrated into the sale plan if the public indicates a desire in this direction at the polls.

6. Completion of Environmental and Social Stipulation and Guidelines.

The Environmental Task Force has assembled a comprehensive list of Environmental needs with respect to the proposed sale. Creating workable stipulations and guidelines for the sale from this list and integrating their effects into the other sale factors will take the remainder of 1976.

7. Coordination with the Borough Government.

Discussion between officials of the North Slope Borough and the Department of Natural Resources concerning the sale should result in a coordinated State-Borough approach to the sale plan. Integrating the Borough into the sale plan and allowing for increased Borough participation in the planning process will take additional planning time, of course, it must be realized delay as outlined above carries certain risks of being accused of acting in bad faith as outlined in Gilbreth's confidential memo to you on this subject dated June 28, 1976. We should not delay beyond August 12, 1977 which is two years after the Governor's announcement that a sale would be held in 1976. Confidential data released after that date would indicate bad faith. Tenneco got caught in this type of work several years ago and moved out of Alaska. Hopefully we won't do it again.

- 1 Gas is further in future than oil, ties up it longer.
Hence is more subsidized by a royalty system.
- 2 Royalty ed. vary w. several indices which are measurable.
 - a. Prodn.
 - b. Price
 - c. Depth
 - d. Pressure
 - e. "Recovery factor modifier", to acct. for other costs
 - f. Penalty factor for hi Gas/oil or water/oil
- 3 Marginal mines yield considerable "profit", if this includes return on capital
- 4 Re minerals, handbooks, size of reserves is geometrically as grade declines arithmetically.
i.e. there is always plenty at a higher price.
Re petrol; this may not hold? ~~at~~ ^{at} Norway and ~~the~~ ^{the} Dokey are saying a few big deposits have 80% of oil.
The others than are missing? What is low grade oil? Less concd., further away, etc.



1. Where there is a common pool, a royalty or severance tax cd. be optimal. a charge to reflect social & cost of dipping into common pool. It cd. obviate unitizn. And raise rev.
 2. The argument that the indy. will not tolerate a certain tax bcs. it can be raised later is phony. Bcs. the state can impose tax later in any event. No present lg. can bind future lg.
If they act as tho you may raise taxes, you might as well.
 3. Ak. is different politically from other states bcs. there are few pct. landowners w. oil, to fight A taxes.
 4. Re expln., I am gives concessions, sold to oil cos. by negotiation. They take back $\frac{1}{4}$ after 5 yrs, $\frac{1}{2}$ after 10. After 12, all those areas not producing. Cos. pay ca. \$3/acre, and must spend ca. \$1.15/4.
- I shd. have section on how to handle pre-leasing.

Re well depth & royalties etc.

My criticism of Alta. related to prorates. They allowed higher prorates to deeper wells, shutting in higher, lower-cost wells.

Royalties are a bit different. They shd. be based on well-foot value, to skim rent from low-cost wells.

But this brings out a great weakness of royalties. They act a bit like the old Alta. prorate. Hi. rate on low-cost wells makes them like hi-cost wells, tends to shut them in or slow them down.

Royalties that vary w. produ. take no acct. of well depth. They stop search for deep elephants. That is bad, too. Stress that there are several cost factors, no simple solution.

~~Peake, Hoyle, etc.~~

~~Need info on well density & produ.~~

Easy G. is just like F.S. - wants to use good res. slowly, and low-grade the res.

Precarious Tenures get priority.

What Tenures are precarious in Ak. today?

Native overselections.

Borders subject to drainage
are explored but not yet leased

Could be major supported native claims, ~~to~~ + thinking they
cd. deal easier w. natives; or play off one vs. another.

Write Easy for backup on statement they can do Prudhoe in
5 years, flat out. Nail it down. Send it Sat, Dec. 19 (?)

Progressive royalty - applied to what?

If to well, avoid by drilling more wells.

If to lease, " " " fewer " , go slow.

Progression based on profitability wd. be good. If costs are
const., volume is good index to profitability. Costs indep. of
volume. But on a lease, volume & costs.

Well costs are const, but you can avoid hi rate by stretching,
out. i.e., you Δ cost per unit volume.

So progression is avoidable, and avoidance causes waste.

Royalties Δ risk of "loss", meaning loss of your stake.
"Break-even" has a psych. influence greater than a math. fr.

Defining risk as prob. of not recovering yr. stake, P ,
royalty adds to risk, in addition to lowering mean expn.
It not only lowers it, it lowers it below "critical
level" (or may).

But this is double-edged. If the damping effect is
concd. around the critical level, then a royalty cd. be
OK if it left us above critical level.

Gains above high levels are not incentives bcs. the $\% \Delta$ is
so small.

Losses below certain levels are not disincentives bcs. the
amts involved are so small.

As you approach normal rates of return, values are
more critical.

So skim the big ones, hi rates of return; and
don't fool w. covering small losses.

Note how small units compensate for not internalizing externalities.
Motive to explore is "too small" bcs finder doesn't get it all

But:

- 1. ~~Everyone~~ tract must have a well. You may get more this way.
- 2. There are more boundaries, $\therefore$ more boundary drilling

State bears cost of MER, in lower bids.

Even on Prudhoe, they cd. recoup this loss.

Allow faster produ., which allows renegotiating lease.
Shut off new leases. Couple this w. a drainage treaty w.
Feds. (& natives, pass a law including them)

Fill the pipeline from Prudhoe, for a while, while
you can. Recover that K. Use it to force new lands,
rather than pull in new K - which must be paid.

Easy posits there is a problem of filling pipeline. Ind. Indy.
will take that line to force new lease sales.

I'm letting K come back faster in 2 ways:

- 1, Deferred royalty - rental
- 2, Faster produ.

Define C7 carefully. Easy has funny ideas re.

I wd. make it gross of taxes. Net opg. profits before tax.

We don't know what taxes will be, nor how to allocate them.

Res. asser. shd. have full access to all co. records.

Leasing by one owner along a boundary triggers leasing on the other side, les of a) Drainage b) Knowledge.

Crownland

Under drhdg., what protect Crown vs. drainage?

Drainage creates urgency
Free riding " revenue, wait for others.

The state pays for waste of duplicn. in lower bids, if & bes. the cos. then target hi rates of return on leases. & bid low accordingly.

Their seismic work must have a payoff. Payoff is to identify & buy in bargains.

The fact that duplicate g & s work goes on betrays that there are bargains (did Mead count g & s as cost in his study? Ask!)

They could set target of 7.5% when bidding where g & s already done. Maybe they do.

To get their ^{20%} ~~7.5%~~ on leasing they must:

- a) Bid low
- b) Avoid full devent.

Anyway, $(20\% - 7.5\%)$ measures the cost to state of this form of survey. That is a very hi cost.

H.H. says "drilling costs" are only 10%. The big ones are "base mntce." (what an outlet for goldplating)

Showing that he construes terms very narrowly. Supporting the drillers is a drilling cost. Infrastructure & support & back up & supply shd. be allocated to the function, whenever possible.

Gary says they are working hard to persuade FEA that Prod. is new oil. — by emphasizing hi costs.

Cook Inlet fields. They have sustained output by going to 2dry recovery, injections, etc. So dropoff is very low.

A progressive royalty rate invites slowdown, in most obvious way.

Deferred royalty invites them to hi-grade, then shut down. They might bid 95%; recover K; and quit. That is why you must not let them recover at hi i.

Emphyseus -- wasn't that same idea?

Erickson, 1968

(Revive Weld's WSG clipping re Alta. scheme of fixed charges)

Arguments re oil indy. making jobs are weak, bec. it's spending goes mainly out of state, & payroll is minor cost.

1951-66, 20% of oil indy. gross inc. in Ak. went to govt., 63% to expln., 17% to devt. (Erickson, '68, p. 2) [Govt's share less than for U.S., 1910-74, from API source.]

ak. getting 193 bbls. reserves per foot drilled.

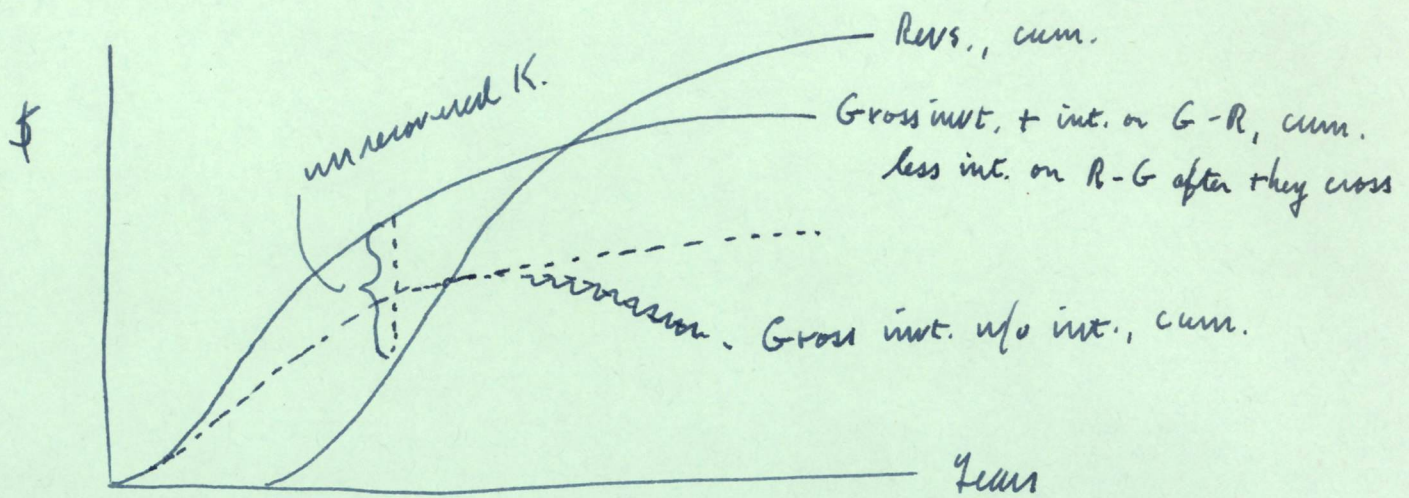
all U.S., 17.5 , or 9.1% as much.

ak. gets 11 times more oil per foot. (This is before Prudhoe, I think.)

	<u>ak.</u>	<u>U.S.</u>	<u>ak./U.S.</u>	<u>Canada</u>	<u>ak./Canada</u>
Reserves - bbls/ft.	193	17.5	11	60.7	3.18
Prodn - bbls/day, producing wells	1605	14	114.6	56	28.7

p. 4 (bbls/ft isn't whole story. Cost/ft Δ s sharply w. depth, and ak. wells are deeper. All Cook Inlet discoveries are below 5,000'. The most prolific, e.g. Swanson R., are 10,000-11,000' underground. In U.S., ave. depth all wells = 4200'.

Offshore expl. drilling costs are $\frac{1}{3}$ higher per foot than waters of similar depth off Cal & La. But 3-4 times higher than onshore, in same areas.



Graph to accompany cash flow analysis. Work out bugs, use to show something.

Cook Inlet crude is sweet, hence valued by Japan b/c of pollution consciousness.

Rentals fixed at \$1/acre. Thus they cannot be the bid value.

Before expl. drilling, a firm wants a leased block big enough to insure that anything found will be mostly on its property.

cf. patents — you find a natural principle, it is good anywhere.

Land acqu. prior land acqu. is what marks expl. as different, builds up front end needs.

Savannah R. field has complex faulting. 5 separate pools along a 6-mile length. There were discovered after intensive drilling, 8 wells per mi.² (= 80 acres per well).

Factors affecting cost per bl. -- better, cost per \$ of rev.

Volume per well & life of well

Depth; & material to drill thru.

~~Life of well~~

Surface -- offshore or on

Distance from wht. -- cost of transport, inputs & output

Finding cost --- (reefs & strat. traps harder per bl. than anticlines)

Impurities in crude

Cost of pressure maintenance. Permeability of petrofer.

Size of field or structure -- more is cheaper

Fed. price policies

Associated gas

~~Also~~

Status of region on learning curve. (On this basis, old oil

shd. get more than new)

Support facilities required: housing, tugs, helicopters,

Length of season

Access to a base, & cost of base (e.g. Gabutut & Kodiale
are bargaining re base costs)

One drill ~~ing~~ ~~can~~ platform in Cook Inlet can drill 32 wells, but only one or two at a time. Completes 5-6 per year

Horizontal reach is 11,000 ft.

Bias to prematurity is inherent in monumental production of electorate. Big pipelines have to be filled.

E.g., There is a Cook Inlet pipeline, 42 mi. down w. coast to deep water terminal at Drift R. [Call it the Drift R. line] 20" line. \$45 m. Consortium co. In '67, was granted exemption from State Inc. Tax & bus. license tax, under Ak. Industrial Incentive Act. ~~It~~ For 7 years.

~~Capacity = 3x prodn. at the time.~~

Excess capacity suggested, line capacity 3x prodn. Is this premature in part?

p. 6 Swanson R. wellhead price.

1961 \$1.50 / bl

1968 3.06

(1977, \$10-13. if new)

$\frac{\$12/\text{bl}}{1.50/\text{bl}} = 8 \text{ fold } \Delta \text{ in } 1976-1961 = 15 \text{ yrs. Annual rate of return is } 15\%$

If you can get 2dry recov. exempted from "old oil" low price,
you cd. have parallel royalty scheme. Where hi new costs are demonstrable,
call it new oil, lower royalty.

But this is a very blunt instrument. Oldest oil has highest
opx costs in general. Better to just let them deduct costs.

Leasing must be coord-d, in areas w/o support or lines.
Sequencing is impt. You set priorities, based on ripeness.

Concessions -

Lease to expl. firms subject to rising
annual rent, per acre. Lessee can abandon
area he selects at any time.

Selling land fee, can tax value.

Exploring raises value of some, lowers others.
Thus there is no net deterrent to explore.

Why State shd. assume some risk.

- a) Help smaller, learner
 - b) Help all, raise State's share
 - c) Avoid claim for hi risk premia
 - i) Legit
 - ii) Bluffs
-

Why is goldplating a major problem? Bes.
most unprop. Does not cause hi profits, but slack, laxness,
& waste. Frills, hobby shops, etc.

[To avoid padding rate base, one might limit base
to amt unrecovered for inc. tax (!) This wd. show
up tax law, but otherwise be unfeasible, I fear.]

Plan

Let lessee recover K @ 8%, early yrs.
Then State has in effect bought his K. Now State
appraises & makes offer. If refused, auction.
Lease terminates when K is recovered (plus a
grace pd.)

~~cutting~~ Dividing the cash flow. Order of priority.

1. 20% of bonus goes to lessor, for 8 years only.
2. Lessor gets remainder, until he recovers certified "well costs" (drilling & equipping, ~~drilling~~ etc.) with int. @ 4% (is same as a prop. t of $(r - .04)$)
3. Then lessor gets 80%.

Is really no good way, other than asset. —
which is why it's needed.

~~Key~~

"Petrologic"

Idea: Mining Engineering people at

Harvey Mudd

Cal Tech.

Stanford

Do they have Depts. of Mineral Econ.?

Sat. Dec. 18

Underlifting -- what shd. lease say

Boundary problems. No agreement.

USGS develops info. & keeps it secret.

{ Some firms spend 35% of total on expln.

{ A P I Rpt. 1974, says 67%.

→ Looking at A P I rpt., this turns out to be wildly inaccurate.
Look out for G.K. Gilbreth

Minerals may be the place for use of self-assmt.

Enclosure

U D I P T U Formula for allocn.
of corp. inc. tax among states.
Simple case of payroll, property & sales
w. in the state.

Prop-valued at acq'n.

Alaska

Re size of expln. unit.

In citis, "Allegory of the Incrementally Raisable ~~to~~ Bldgs." says 2 small owners put in as much effort as one large, who captures spillovers.

So why. explorers shld. do same. Works of each one adds value, ~~then~~ to other -- & $\therefore$ adds ~~more~~ intinsic margin.

AK

Leaseholds are depreciable.

I surmise that no deprec. is in lieu of deprec. leasehold,
however.