C. Elements of Learning

C Elements of Leasing

1 Prior claim or possession or discovery. (Pro: some little local sooners may get in)

Give more space to work-comm. - where used, etc.

2 Bonus bid. (Signature bonus; discovery bonus; ~~(& contingent bonus~~; recoverable bonus; ~~earnest money~~ advance bonus;) (Installment bonus)

3 Rental. Level; rising; ad valorem; (with demand of land - under 4a)

Pose this as the best in theory, a standard for others

4 Royalty

a. Fixed rate

b. Contingent & ~~variable~~ progressive rates: step royalty, sliding-scale royalty, declining royalty, etc. Cash-flow share, deduct op.g costs.

c. Marketing Board & field price control. Pipeline taxn.

d. Export surcharge or limit, as B.C. tried. (Alt. proposal is diff., to waste royalty gas)

~~5 Profit-share~~

5 Term; & work commitment; size of holding (parcel by parcel, and cumulative acres) & Env. protn. Require price based on cheapest xpt. to best mkt.

Underlifting Transportability.

6 Profit-share. a, Simple; b, Combine w. min. inv. commitment.

c. Fast write-off. (Can be done also by equity participation, which also allows control over mktg.)

7 Rent-share. a. Expensing K vs. bonus. b. Recover at i%. c. Ad valorem - require from (3), & give e.g., table.

8 Direct control & regulation (spacing, unitizn., MER)

acreage-share. Land taxn. Progressive withdrawal of acreage.

9 ~~Work Base~~ Reserved acreage, interstitial and adjoining. Size of lease or concession.

10 Undivided interests. (Long Beach: Phillips)

11 Information generation, disclosure, and control, dissemination. Contract or agency or State corp. survey, prelearning.

~~12 Timing sales. (Whose initiative; regularity & even flow; notice; drainage)~~

12 ~~15~~ Reservation of all above stated quantity. Sale of specified amount; reservation of remainder. Sale of oil, reserv. of gas.

13 ~~14~~ Good offices of State. Guarantee equal access to pipe line (cite Tamont warnings)

Choice of a bid variable.

c' Summary on the sharing of risk

Recommendations in order of preference. Putting it all together.

Limiting no. of alternatives.

Conditions favoring one or another.

Second is a list of alternative methods of leasing or other disposition of state lands. This, too, began as a list of ten but will grow.

1. Bonus bidding with fixed royalty.

a. Bonus paid as lump sum with or without advance bonus.
b. Bonus paid off on the instalment plan, i.e. as an annuity over several years, independent of production.

2. Royalty bidding with fixed bonus and other terms.

3. Profit-share bidding. Lessee may deduct his current O & M costs. He also deducts his front money capital outlay, but must depreciate it over X years (X to be determined.) He may not deduct interest, whether paid or imputed on equity capital.

A variant here, which I did not list before, would be "Cash-flow share bidding," where the lessee could not deduct his capital outlays at all. This is a step between royalty bidding and profit-share bidding.

4. Rent-share bidding. Lessee may deduct current O & M costs. He capitalizes front money outlays and deducts them plus interest on the unrecovered balance each year. Thus he is guaranteed a fixed rate of return (if there is enough production) before there is any state participation. Presumably the rates bid beyond that would be extremely high.

The guaranteed interest rate could be low or high. If low, this system becomes a compromise between #3, profit-share bidding, and pure rent-share bidding. If high, this system becomes vulnerable to "Averch-Johnson effect," with lessees padding their capital budgets. Even a high rate, however, does not guarantee against loss where there is inadequate revenue.

An alternative is to allow expensing of capital outlays. They would have to expensed against something, of course, and that would be the bonus, up to the value of the bonus.

5. Land-share bidding. This presupposes a checkerboard system. The bid variable could be the percentage of land in defined tracts which the lessee would receive.

6. Separate stage bidding. There would be a three-stage sequence. First, the right to conduct g & g exploration. The findings would be publicized and the firm would receive a share of the next sale. Second, the right to conduct exploratory drilling would be auctioned, and again the firm would receive a share of the next and last sale. Third, production rights would be auctioned.

There might be a fourth stage as well, for secondary recovery rights.

7. Work-commitment bidding. With other terms fixed, lessees bid on how much of their own capital and other resources they will apply to the land.

8. Fixed quantity bidding. Lessees bid for the right to produce a predetermined volume. After they have secured the volume, the lease lapses.

9. Contract exploration. The state as landowner simply hires specialists to survey its lands and advise it what is there. The contractor is paid his costs, or a fixed fee. As incentive he might receive a finding bonus such as a 5% override on findings. A state employee might work with each such contractor, all such state agents meeting regularly to pool information, develop and publish a state data bank. With this information the state Geological Survey might be in the best position to nominate tracts for further study. Initiative would move from the industry to the state landlord.

10. Outright sale of fee simple title. The state might simply divest itself of title to its lands, by competitive bidding. The lands would be subject to property taxation. The state might reserve a right to explore for the purpose of appraising and assessing the lands for the property tax.

The business of leasing and production would no longer be a state function. It would relate to the lands in the future as a sovereign collecting taxes.

- * - * - * - * - * - * - *

Yet more leasing systems have been suggested and/or are practised. I will certainly look at the Phillips Oil Company plan, for example. I would be more than grateful for any suggestions you have, either for additional systems to survey, or for improvements on those outlined above.

I am sending a copy of this to Dick Norgaard, and of course Guy Martin.

Sincerely,

Myron

Outline

The problems with bonus bidding

Proposed improvement: higher royalties, or royalty bidding.
Arguments in favor

Problems w. royalty bidding

Proposed improvement: cost deduction
Expenses, opg
" & workovers

C.1 Claim staking, capture

Large areas still in non comp. leasing. Unfinished business to clean up.

Xfrability — works out badly here, but worse w/o it.

Has been rejected, & faults described by others, pass over lightly.

Prior use remains a lease factor. Use or lose, 5 yrs.
Problems: token use, to hold claim
premature beginning

Pressure for early nomination remains a factor.

Precarious tenure remains a factor; overselections; borders. desirable.

Right of conversion from expl. title to prodn. title, inherent in Australian & Canadian systems.

Con Gives away state property w/o payment.
Premium on jumping the gun.
Xfr occurs when value = 0. Holder, rather than state gets increase pd. of rapid growth of value from holding - pd. ground floor holds during
when return on holding is very high (from base = 0).

C, 2 Bonus bid, pro & con.

a) con Hi concn. ~~Norgaard data.~~
~~Have Gang A.~~ process Pedro's data.

~~b.~~ pro Max. commitment by lessee

~~a~~ c) con Cash crunch, lessee has less for wells etc.

d) con Time pref. ruled by internal rates, allocn. is not MP. but coll. sec. highly vble. & based on collateral. Too much time pressure for some, too little for others.
One will depend on very rapid use
Another, w. surplus funds, may speculate even.

e) con Sell off barren land, hi price. Caveat emptor, fraud on buyer, immoral.
con General infln.

e) con Outcomes not closely related to prices pd.
P.M. on Prudhoe by Dobey
Very hi variance of outcomes due to distribn. in nature, not merits of lucky buyer. (Oil under pressure, lifts itself during flush pd., the very type of uncanned inc. Effect of individ. diffs. of producers is small next to diffs. in nature)

f)
Unequal distn. of wealth results.
Max.: the lottery ~~elem~~ factor, plunging into unknown.

C, 2

g) con Lends self to preemptive, preclusive buying by fatter firms. Esp. if sales are too early, they can tie up $ longer. Beware early capture by consuming area, followed by FOC regn.

j) con BLM requires 20% advance bonus, accompanying bid. An aggravation of cash crunch problem.

h) con Once it is leased, & discovery made, is hard & costly to deny produn., if env. damage is li. You need to know how much oil is there to know if it is worth the damage.

pro But you cd. build this into lease — no produn. unless > 200 b/d for 8 yrs., e.g. This forces EIS before any need known, so it depends on which is cheaper.

e Pro Obviates need for state control over transfer of profit thru underpricing. Other lease elements ~~must~~ based on ~~value~~ field price or wellhead value. Price is riggable. E.g. a utility (Pac. Ltg.) might ~~want~~ be heavily committed to LNG, use tankers in pref. to pipeline, xfr. profit to its fleet. Ships w. flags of convenience may be used, etc. In a vert. integ. indy, ~~other~~ use of the field price base entails either careful surveillance, or being shorted.

e) con Lessee assumes passive risk as well as active. Lessee is mgr, on the spot & shd. assume active risk. Passive risk (price, geology, the unknown & unmeasurable & unpredictable & uncontrollable) belongs to lessor. Is inherent in land.

i) Bonus bid is de facto land sale — but w/o tax liability in same mtge (unless we go after possessory interest)
Ark. reserves less in bundle of rts. than if it sold title.
(like license to divert wtr.)

More info. needed

Pro Can have sequential bonuses, contingent on finding something, and related to, an Sg fn. of its net value.

Events: a) Closing (level determinable instalments)
b) Discovery of payrock
c) 1st producing well, & capac.
d) Each succeeding well
e) Appraisal of entire structure, when can.

(d) reduces no. of wells; (e) Δs them, countervailing.

(L & Lucern call this 'staggered bonus')

b, c, d, L e can be $f(V)$; or defined payments of orig. bid.
$f(V)$ can be $k \cdot V$; or more complex fns., w. bidding being on first term, or on x, where $V = x + \frac{1}{2}x^2 - C$, or other function as complex as you please.

C.2 Bonus

~~Ho~~ Pro — Majors are loaded. Gulf of M. p.m. by Mead says 7½% return (their borrowing rate).

b) C — Alc. can borrow even cheaper, doesn't need front money at 7½%.

~~Pro~~ C — Pac. Ltg., etc., may advance cheap money to raid down reserves. But these become captive, subject to partial expropn. by FPC field price control; & Ca. PUC control. This cuts into royalty, but Alc.'s bonus is not expropr. this way. Is more a royalty problem.

C — State now requires 20% advance bonus, like Feds. (Lipton, p. ?)

e) Con — State might sell $10b of oil for $6m, as it did at the P.B. catastrophe. early sale (1964, 65?) This is a chicken. also cite 700% Δ in bonus bids, Jas study: & hi '74 gross ofd. to '70 costs.

~~Pro~~ Pro — Low iit of majors. 7% experience in G of M. Cheap m. advanced by utilities. Is argued that cos. have hi iit & require 20%, but I reject this argument.

Pro — Advocates: Lipton, Mead p. 30, some DNR staff

j) Con — K screen made even tighter when lease sales are large, & there is no slide bidding.

~~Argument vs.~~ bonus bidding:

b) Con — Current cap. tightness

- in general
- in oil cos. owing to Fed. crash program.

Oil co. tightness is somewhat belied by their diversifica. out of oil, plus their underuse of their credit (if this is still so)

But if they require $9 5 5 billion over 10 yrs. that is a lot.

b) Pro — No mgmt. discine.

k) — If prices regd., bonus not treated as cost, not rolled in

Kinds of rentals

a. Pay bonus on instalments

b. Delay rental, Terminates

d. Rental, level, for term of lease

ed. Rental at specified % of bonus bid

fg. Ad val. rent (AVR)

gf. Unilaterally renegotiable.

Combos & transitions

C ? dictated up to end of pro.
after con, indicate ? will describe alt. rentals separately: fixed, rising, advol.

C, 3 Delay rentals.

Smallest of 3, but

a) In Alta., is quite large. Thompson. p. 85 n. 23.

b) Antecedes royalties.

~~a)~~ P Defers payment. Not as much as royalty, but this can be corrected by continuing & Ag it after prodn. begins.

~~b)~~ P Fixed w.r.t. prodn. No drag on prodn, no bias. Applies leverage, like a reserves tax.

~~c)~~ P Expensable — not all bonuses are (but is it? Check)

P Cd. be the bid vble — Lindahl & Uhrem cite, p. 37

b C Not traditionally very bi, bes. indy. objects

a C Early shutdown. But can let it drop over time as pressure drops. Or limit it to delay rental: or to first 10 years.

Flow from a well involves some volition. Pressure is more passive, & is measurable. (but pressure metric involves volition & cost)

b C Not acceptable — beliefs in Alta.

~~c)~~ P Push is on to extend leases. To prevent abuse, greater role for delay rentals is needed.

C, 3 Delay Rentals

Rental should not be easily terminable. Now, Ak. may let proving a well suffice to hold lease, You can then shut it in on grounds xpt. not available. (Indeed, Prudhoe Bay leases were sold when - 1968?, or 9 years ago)

d) Ak. has millions of acres out under lease. It cd. all be returning $ ea. yr. — or be given back.

g) Delay rental cd. be convertible to ad val. In P.B. case, same as reserve tax, 1965 - 77.

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d) On Noncompet. leases, Feds raised rents, from 1960 (Lipton, p. 20). State can probly do same, clean them out.
Ak. rates: $1/a. Erickson, 1968) Are they higher now?
Fed. rates:

Onshore comp. leases, $2/a-y
" non-comp. " , .60/a-y basic
" " " " $2/a-y if on known structure
-Lip., pp. A-2 & 3

OCS, $3/a-y used in practice (Lip. A-5-7) except on drainage & dev. tracts, 5 & $10/a-y.
These are low cfd. to bonuses. 1954-69 bonus ave. = $523/a. (Lip., p. A-8) So rentals cd. go a lot higher.

Intro Shrinking acreage is also ~~part of~~ form of delay rental.

a } Fixed charge & mine abandonment.

Fixed ad val. charge on l.v. leaves value of wells, pipes, pads, housing etc. untaxed.

e) Falloff is rapid anyway. You ed. however deplete faster from the start. But:
- other capl. pays prop. tax, so you still use i + t.

a If other K is exempted, then mine K prevents early abandoning at end of life, on marg. basis. There wd. be a speed-up from the start, however.

Effect of gen'l. corp. inc. tax. After-tax (AT) r. of r. on K is lower. One uses $i(1-t) \equiv h$ to discount, & ∴ to plan flow rates. Then a the same tax on oil & gas income ~~has some royalty-like qualities~~ does not lower r. of r. to defering, slowing prodn. The unit of oil that rises i% in value adds i% to AT income, rather than just h%. Why? Govt. takes t% at any price, pvt. party's share is (1-t)%.

I can probly show that taxes raises h on holding oil in situ. Use TYPIS

c Fed. tax favors delays? To be confirmed

If minerals taxn. were neutral. & you invest in Δ well to speed flow, resulting Δ income is taxed.

If p is rising, & you invest (forego) flow today for flow ~~from~~ 10 yrs. from now, taxn. is neutral. (or retardant, even).

Net result: slow use of discoveries: premium on new exploring.

C.4

Royalty ~~Bidding~~, Pro & Con
(Or high royalty)

~~a.~~ P Defers payment -- eases entry, conserves front money for actual work. As entry & compn. & small business.

~~b.~~ P Makes payment contingent on lessee's finding something, and in proportion to volume (and value?) of what he finds.
Thus, substitutes for prior knowledge of what is there.

~~c.~~ P Removes lessee's risk of paying for something not present, or paying for more than is there.

C (Risks re ~~c~~ high costs remain w. lessee; & if he finds low-cost deposit he makes out.)

a) C No commitment. Lessee ties up land at no cost, waits for free ride on neighbor. [Time limit wd. mitigate] [Rising delay rental wd. mitigate]
Open door to freaky bidders [Min. bonus wd. mitigate]

b) C Mgnl. is made submgnl. Spurious mgnl. cost
- Entire deposits
- Hi-cost fringes of low-cost units. Hi.-grading.
- Extra wells & capac. to give better control of timing
- Early yrs -- entire schedule set back
- Late yrs -- early shut-down, physical waste.
- Hunting for mgnl deposits
- Idly recovery
- Hi-cost seasons

Spurious MC is mitigated by depln. allowance; many subsidies to primary products. This is from social view, national. From lessor's view, that is less important.

c) C Rent of low-cost deposits escapes. Leakage Not a total loss, bcs. this raises bids on all. But the hi bids on hi-cost, low value deps. are uncollectible bcs. they block prodn.

d) C Motive to defer prodn. is exaggerated. Future shift

This cd. take form of excess well spacing, small wells, too-slow drainage. The lesser wellage lowers costs. The extreme is token prodn. to hold lease.

P MC effects mitigated by letting lessee keep royalty up to value of earlier payments (bonus, rental, reserves tax, and even capital outlays under a profit-share system!) But then royalty hits after credits recovered, at high rate, disincenting.

To 5 C Prodn. in 5 yrs. will be required to hold lease, bcs. there is no money paid. Encourages token prodn. to hold lease. Begin prodn. too soon, to preempt res.; & continue too long.

P Not same as hi tax rate bcs. can vary, charge less for bad land (but how, in lease contract?, before drilling?)

Landlord can require work-comm.-- a necessary accompaniment, as Cheung showed.

e) e) Rev. deferred until state. Deferred even more by future shift. Rev. deferred after discovery serves no fn., bec. owner can cash out. Inc. tax law misses unrealized cap. gain. Unpreempted (over)

P Can mitigate mgnl effects, or some of them, by sliding scale. Hi rate on hi-grade, low rate on low. Since it's a pool, low grade is identifiable as what comes later, after pressure drops: that is the low-grade fringe of hi-grade deposit.

C But this gets complicated!

~~d~~ P State may have lower i than pvt., (esply. after taxes – how relevant?)

But median voter is poorer than md. shareholder — & corps. are controlled by larger shareholders anyway. So govt. may have much higher i.

The substantial argument is that govt. is tax free. One liable for taxes requires assets to yield i + t.

✓ This is why a State dealing w. pvt. indy. shd. be assumed to ~~have higher i~~ have lower discount.

However this is not a good idea. State shd. apply shadow tax on its investments, to equate rates.

So argument for defend has to be other – namely, extends credit to smaller, weaker-fused firms, & removes a spurious advantage from fatter ones. ("Leaner" vs. "plumper" firms)

E.g. if Ak. can't invest its surplus to yield comput. i + t, it shd. turn it back to taxpayers who can.

Again, we must consider that some firms are also largely tax-exempt. And bonuses are deductible. etc. And ~~the~~ p mgns. are internalizing profits.

rev. there for state, royalty missed it,

S.t. rev. timing out of control of state

~~for~~ Unproven revs. Lessee's motive to stop & start is exagg. in response to small ΔP.

~~f.~~ P By slowing prodn. may subst. for direct controls on spacing & rates.

P May be counteracted by opt. reserves tax

~~do~~ P Counteracts depln. allowance. (& takes advantage of it for State)

P May be valued at well foot, become net proceeds levy.

P Offsets prodn. bonus in letting opr. have free gas to use in his opns. 8% of gas used to reinject it each time. (is this why gas pressure drops so drastically finally?) (Of course it's the opr's gas he is ~~also~~ using, or (1-t)% of it is his, so this effect is small)

b) C Dampens expln. rifled at deposits whose value is royalty-sensitive

Reduces in-filling, tapping marg. non-communicating pools in fractured rese. The low-grade fringes of hi-grade deposits.

Reduces pressure-maint. in coming rese.

d) Defers expln., devmt -- everything. But deferral is greater the nearer to payoff, so stretches out lead time.

(Fed. policy of ~~do~~ 2-prices ~~tends~~, counteracts trend of royalties to be lower on old oil than new oil.)

In this regard, current enthusiasm for taking royalty gas in state is a trap. Value will be low, supporting low values for royalty share.

Other hand, this avoids FPC control, and capture by duty to serve some pipeline.

Pro — Early abandonment is no problem
a) Negligible losses caused
b) Preventable by cutting rate of royalty
c) If lessee abandons, can re-lease. (just don't require him to shut down, i.e. to invert K in shutdown)

Con — Lessee can take depln. allowance on his share; State gets none on its. Bonuses & rentals are deductible, & lessee still gets depln. Rentals look esply. good — expensible, (how are producing bonuses treated?)

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f — Pro — Subs. for unitizing common pool.

h) Con — Not a good surrogate for effluent charge, bec. merely stretches out damage (but slows up side when on boundary)

✓ The high-cost fringes of low-cost deposits get ignored bcs. they are a gn. of speed, in part. There is a rising MC of producing faster. Part of this is a drop in future produ. ∴ people ignore it. Yet rents deferred are rents denied.

d)

If produ. today of X reduces end by 1.05 x, then we have an index to how unimportant it is

It may be even less imptnt. You can produce it early at some extra cost. d. Producing it later may take 2 yrs or more, & yield little surplus.

User cost is not the loss of future gross values, but net. There is a long tail of mgnl. produ. from old wells. If you shift this non-profit produ. forward, there is no user cost.

To 8 ✓

Deductible costs are K spent on mine, on the site. This is In Rem. No acct. of outside debt.

This penalizes over exploring.

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d) IRS deducts explm. as expense -- tho it is furthest of all from consumer. This, & exempt from prop. tax, means U.S. is overpushing it, State needs it.

I.e. State shd. preempt revs. where Fed. is too easy.

unless by discovery bonus

g) When you buy a lease and score, it appreciates and is cashed. Apart from taxes, lessee doesn't share this appreciation w. lessor. ~~#~~ Lessee's real wealth rises, but it is years before lessor gets anything for this. Any cash, i.e. (Lessor's real wealth also rises - work that out)

Lessee's wealth rises to PV. Then he continues to earn int. on PV. E.g. if depln. is ~~very slow~~ 0 he earns it in perp.; otherwise, on unrec. balance, U.B.

So? ~~to~~ go to ad val. rent.

d) Con Royalty makes hi-grade deposit be treated like low grade. Imposes an artificial cost.

~~#~~ i) Con There are many more little finds than big ones. Royalty screens out the little ones. Reduces greatly ∴ the ~~no. of~~ success ratio, where success means a commercial find; w/o getting all the rent on big ones. Reduces the no. of viable firms.

d) A ~~yield~~ royalty may have same property as a yield tax -- bias vs. workovers of early payoff.
Stretch out. Tie up K longer.
This also means bias vs. infilling on well density, bes. fn. of last well is to advance recovery.

Apply Tree model. But modify it to fit oil patterns. TYPIS. Write program on TI, demonstrate it.

Spend $100 today to get $110(1-r) next year. If r>0, wipes out workover.
But 100 today to get $200(1-r) after 7 yrs, allows higher r.
The well that speeds recovery, is ~~is~~ biased vs.
The single well to tap a new field yields a flow of longer life. Wider spacing, longer life. Its payoff also includes learning, to lower cost of future wells.

Exploratory wells, longer payoff. The lower the success ratio, the longer the wait. Hence the bias is greatest vs ~~the~~ in favor of the riskier ties.

G & g, longest payoff. Is already great duplicn., this waste shd. be cut down. Payoff here comes by getting lease below true value. A royalty won't remove any of

of this gain, bcs. it lowers true value. It is only post-lease costs whose returns are lowered.

Hi royalty has big excess burden or dead loss. ~~Case~~ Say royalty is fixed, this is measurable in lower bonus bids.

d) So royalty is heavily biased vs. fast recovery of capl. Is ∴ biased vs. lean firms -- the kind it is supposed to help.

C, 4

Royalty

~~Farmin, Hbg. doesn't as deal w. Time lag between~~ ~~spud & Outcome.~~

Re underlifting, etc.

If royalty price isn't clear, lease can stipulate $/bbl., or price in some objective mkt. (cf. Tenzer re L.A. price)

Vs. royalty

d) Fields may be mgnl. by virtue of prematurity, too. Royalty defers date of prodn.

To 5 { Combo of royalty & work-commitment can lead to token or slow prodn. to keep lease (or stop delay rental)
Lease terms require expl. drilling; but discourage prodn. by royalty.
Bias results. "Rapid step-out, slow infilling."

~~Decline~~ of fed. depln. allowance ~~to~~ reduces big offset to royalty.

a) Asymmetry. Overbidder can't produce at all: but lucky underbidder collects imputed rent.

Owner may decide not to produce — as Sohio now may.

f) In vertically intd. indy., absence of crude mkt., price base of royalty gets ~~sticky~~, vague. Can there be a higher price for Arco than Sohio? Not wise.

d) Royalty at hi rate minzes pressure on Sohio to solve problem. They time at their convenience, up. revs. are a by-product.

C Adjusted royalties. Tendency to describe cost characteristics in great sweeping simplicities. Costs actually are the sum of many parts & vbles. No one is smart enough to foresee or sum them up in a few simple strokes. No surrogate will do — must use costs themselves.

c If new 2dry rec. transmutes old oil into new, result is overstimulation of 2dry recovery

Likewise, 2-royalty system cd. have same effect, w. lower one for new oil

p & c Can ~~not~~ defend vs. worst abuses by putting a min. on what lessee contributes (work comm.) & max on what State contributes (size of leasehold). But there are cubbitary blunt instruments.

b) c Biases search vs. hi-cost deposits. Small traps; tighter sands; remote locations; deep deposits; fractured structures; water-drives (?); etc.

Remote location is only partly covered by lower well-head value. There is also higher cost of getting inputs there.

f) p & c Lessee vulnerable to shorting by underpricing. Must guard vs. this.

This is a sensitive area. Indy. spokesmen in U.S. Cong. object w. special emphasis to govt. selling royalty oil direct, & using bids to establish mkt. price. (Jackson Rpt.)

A state agency or corp. needs to sell price by mktg. some royalty oil in small lots to hi bidders. Probly oil is worth more to refiners short of crude, in open mkt. Probly majors feed their owned refineries first. Yet proper price is the small lot price, just as in land mkt.

C, 4 Royalties

a) Flat rate

Major P&C discussion here.

b) Step & sliding rates

i) Based on prodn. per well. (Alta. royalty is prog. (over)

Simple (avoidable by adding wells)

Adjusted for other factors: reserves; depth; thickness; viscosity etc.; location; spacing; price; pressure; gas/oil ratio; water/oil ratio.

(over) There are indirect ways of allowing cost deduction. Each is a blunt instrument, & vulnerable to single-factor thinking, so use of cost is better.

Rate sliding w. prodn/well is biased vs. deeper deposits, e.g. and remote areas, & lower price. Biased vs. pressure matrix. Hurt As prodn/well.

Declining over time -- solves minor problem of early shut-off, but not major problems. Worsens problem of delaying prodn.

ii) Cash flow royalty deduct op. costs. Solves minor problem only. Major problem is K costs.

iii) Mktg Bd.; price control; pipeline taxes.

iv) Rebate for in-state use. (Probly unconstl. but the disposition is here. in proposal to waste royalty gas.)

v) Lower royalty on 2dry oil. Blunt instr., wd. overstimulate 2dry recovery at some threshold. Alta. does this.

but only up to 40 b/d. Ave well is 80 b/d, so applic. limited. (Crommelin. But Lipton, p. 32, has diff. figs.)

Fed. onshore, certain leases carry progressive step royalty, 10 steps from 12½%, <110 b/d, to 25%, >400 b/d. (Lip. p. 32)

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material to drill thru; bearing qualities of surface; onshore or off; depth of water; waves, storms; length of work season; distance from support base; need for base facilities on site; quality of crude -- impurities; cost of pressure maint., affected by permeability of petrolific rock; associated gas; stage of region on learning curve.

c, 4

Royalties

vi) Royalty rate as bid vble., slides inherently. Hi-cost mgnl. tracts, low rates. Problems that remain are: a) Future shift: b) Low-grade fringes of hi grade tracts c) Workover etc. Disaggregating is the key, but becomes complex.

c & b

Sliding rates; & mkt'g. bd. or field price control.

Give lessee a fixed price. Thus Govt. assumes price risk, leaving lessee free to control flow, & costs.

Lease gives lessee $5 per bbl. Price above that goes to Govt.

[Might treat costs same way, & when profit sharing.]

Con

Problems of shutting in mgnl. oil, remain.

Lessee fails to respond properly to ΔP -- e.g. he doesn't hold back waiting for higher price. This ~~compensates~~ counteracts basic tendency of royalty to slow produn., but is blunt instr.

Pro

This is not making uniform field price w/o regard to cost as mkt'g. bd. wd., bes. rate. can also slide w. cost factors. But gets complex & dubious, as vs. subtr'g costs directly. On other hand, this is like subtracting putative or standard costs, thus avoiding cost-plus or padding problem.

Con

Violates principle of countervailing pressures, or whipsaw principle.

Pro

Future shift can be blocked by shortening term of lease. (But leads to other problems)

b)

Con

Not passed on to consumer. Some write as tho they wd. be, Not normally — unless affects price control formula.

Terms in lease

C, 5 Facts re size of lease

Cook Inlet. Large tracts, > 5,000 a.

9 mi^2 = 5760 acres. This is OCS tract max.

Size of lease used to compensate for well ~~dist~~ depth in Alta. Area of lease ds w. depth. ~~If~~ (& Lasts 21 yrs - p. 21 (of Comm P & S 1 summ re))

Blunt instr. — probly incents too much deep explr?

State has interest in building up no. of competitors. i.e. it might not want to accept highest bid, always, if that wd. lower future & other bids by destroying a bidder.

Rather than a fixed upper limit, might ~~require~~ subtract points from a bid in prop. to (or other fg fn of) acreage already leased.

Might require approval from A.G. of winning bid, wd. not tend substantially to lessen comptn.

To 10 Undivided interest in structure, Phillips approach, removes risk assoc. w. small tracts. Greatly reduces risk, by pooling (like Kaweah R.

Pooling also saves in other ways. Unpooled, one well might run for only 5 yrs, another for 30.

C, 5

Keeping tracts small lets the small firms bid. But there must be a better way, just as there is better way of dividing the Kenweath R., an IO that rationalizes, & delivers to ea. small owner.

With unitized explo., resr. opn., pipeline, what's left for small firms? Expl. drilling: bidding for shares in ~~big~~ unit opn. & helping manage it.

Env. protn. If lease is in sensitive area, & damage likely, then write in that a) ~~No~~ No wells allowed under W b/d.

b) Payments to compensate for damages will be required. 1st lien on lease.

c) Damages will be assessed by a Commission. I suggest Comm. have budget to hire appraisers (ests.) who specialize in this kind of appraisal

d) Windfalls for wipeouts. If owners are to be comp. for damage, shd. be assessed for gains.

e) Standing. If only prop. owners are compensable, only they shd. be assessable. Symmetry.

Time limit. Couple w. progressive royalty, tax him in. Hi royalty on flush prodn. hi flows. To avoid future shifts, put short term on lease. To prevent extra well drilling, put space limit on wells. (There will still be loopholes & ext. burdens)

C, 5 ~~B.~~ Work-commitment bidding.

Shares of profit ~~are~~ are already determined. Lessees bid on how much they will put up to get a known share of gross, or of p.f.

C, 13 ~~b.~~ Volume bidding

Applicants bid on a given volume -- probably over a given time, so it is a given rate of flow, over 15 years.
Then if they hit a big one, state can sell off the rest of it.

Tract size - Alk. may have a min. = 4 mi.^{2} = 2560 a.

~~C. Contract exploring~~

D. Sell free

Liability for env. damage is 1st lien on lease. Any damage in Alk — including tanker spills. Lessee agrees in advance to submit to arbitration by ~~the~~ some Comm. or 3d party, not contest findings.

If oil is commingled liability based on %.

Insurance is better, for smaller lessees, clean interlapses. Compulsory ins. fund. Tankers must be insured, and ~~the~~ insuring agency can rate them & refuse ins — on objective grounds.

Jackson Rpt., pp. 15 ff., recommended this too.

~~C-1~~

C, 5 Work Commitment & Size of holding

Cheung JPE 1969

JLE 1973
JLE 74

Let lessee's K = value of land. Then if shares are =, lessee's choice of produ. may be opt. for State?

In mines, landlord can stipulate rate of produ. This requires more K & labor. He might also limit size of holding, thus forcing lessee to improve to a certain level, to avoid diseccs. of small scale.

Landlords have played this game backwards in the past, leasing in large blocs and requiring slow allowables.

MG.

Assume that means to perform, there is an upper limit on what he will bid.

But no limit on how much he will bid for; and how long he will defer performance.

You can limit a "family", and you know they have to eat. Corpns. are different.

You must put a time factor into offer
a. Time of start
b. Time of end.
b - a = term,
after term, put up remainder for bonus bid, to clean up.

The high level of bids will themselves limit what corp. of limited size will bid for.

Lessor can control acres around ea. well. This prevents lessee's applying more land to ea. well. The well, (rather than the "family") is the discrete integral unit, DIU, for contracting.

Ak. lease form requires prodn. in 5 years. So why can't they ~~coop~~ cancel PB leases dating from 1965?

Pro small leases:
a) Ea. one must have at least one well — even tho you don't get whole structure
b) Max. boundary effect.

C, 5

A consideration in leasing shd. be an ~~Market~~ Industrial Organ Impact Statement, or Market Power I.S., etc.

Instead of automatically choosing hi bidder, consider impact on competitiveness of future bidding.

This is a last resort. Has dangers. — e.g. will be used to favor someone's hobby horses, like coops.

Cd. prohibit joint bidding, on grounds it lessens no. of bidders. (Phillips system does this automatically, or at least makes it easier to justify). Of course the jt. bidder saves funds to join other joint bids, but they may be elsewhere, outside Ak.

For ~~large~~ majors, esply. there is no K constraint.

Transferability. OK, but put limit on overrides. Fed. puts 5% limit on cum. value of overrides. Lip., p. 36.

Fed. max. acreage in any state but Ak. is 246,080 acres. In Ak., 600,000 a., w. 300,000 max in ea. of 2 sections, n. & s. — Lip., p. A-4

Ak. state max. seems to be higher?

Con. Time limit makes terms precarious, a ft. of use, may cause premature use.

APL says each lease shd. be bigger, bcs. costs are so hi.

There it is, same as timber. Indy. wants to nail down max. acreage for min. outlay.
Landlord of course has reverse interest.

They want big sales. (So each one can get more land ÷ his input.) And doubling of time allowed to begin prodn.

Recommendation. Rather than 5 yrs., let delay rental double yearly.
(There is still the fuzzy qu. of when to stop this)
KS

Gov. shd. set hi reserv. price & freq. by reject all bids — but publicize them (w/o giving any names). This circulates info.

5 Specific

Terms (other than ~~as~~ field prodn. regs.)

~~Contingent Rates~~

Min. use bes. arbitrary, discretionary, discrete blocks & volume.

To comp. for royalty problem.

Work comm.

a) Term in years (complex. prog. royalty). Term before beginning. Term after ..

b) Limit size

Parcels - forces unitizn.

lower entry fee, As compn.

Cum. total. Absolute limit. Limit per region.

Point system, subtract pts. in prog. cum. curves.

A.G. approval

Transferability

Opp. to recoup past errors, require approval. Undesirable.

Put limit on overrides.

Price. Appraisal needed.

Small mktg agency desirable. to test water.

Study Saudi experience.

Undivided int. pools risk

d) Compulsory unitizn. i) Under state body

ii) Instead of unitizn, divide fm. into 2 parts, shift many ones to a District, modeled on WCB. The term is that membership is compulsory.

Terms 2

e) Env. prot.: ins., liability, 1st lien

c) Jt. bidding

ABI argues for:
Large parcels
Big sales
Long terms
No rem. price
Landlord has revenue int.

Outline

6 Profit share.

To overcome royalty weakness, deduct cost - & raise rate.

But this doesn't deduct cost of K - (give e.g. if 100% debt fncd.) Nor of o'head, is on site. Nor Taxes.

Is in rem, like net proceeds tax, not in personam.

Is > 0 on mgnl. resource, still not neutral, & this is cap-int. indep

Is more than deduct'g C.T.; less than deduct'g int.

Lessee recovers K (w/o int.) on some pattern. Like inc. tax depren.

~~Off~~ Or per bl., like ~~cost~~ depln. (bin by cost)

Con per yr.

Pro per bl.

Per bl. is ~~to~~ superior, ~~only treat it.~~ but has problems too — on flank wells they recover much faster, than exagg. the diff., bias vs. mgnl. wells.

Pro

a. Overcomes main royalty problems.
Binds lessor & lessee in more common int.
i) Preserves incentives at margin, lowers deadwt. loss
ii) Higher rate differs in on stream producers

c. Sustains union over long time, as lessee recovers slowly

b, Precludes complex surrogates, sliding scales, etc.

~~c. Dept. allowance affects distinctive of bi rate.~~

d. O'hd. prop. to outside costs, so no big distortions from disallowing.

e. Prog.

Con
a) Large residuum of royalty problems
b) Admin. problems.

C, 6 Profit share. Profit is return on land + K. Hence > 0 on margls.

~~Pro~~ Is like progressive royalty, progression based on profitability

P Ways of recovering K

[Up front, per bl. This doesn't really share profit, is rent-sharing.]

Per year → Per year, over life. (S.L. depren., too slow at first, too fast later)

Per bl → { Per bl. fixed amt.
{ Per bl. after 70% produced, of proven reserves.

→ With decline in value, the "proper" way. The accurate way.

Con There also. pose trade off, between incentives, & helping lean firms. Deferring recovery ↓s incentives, but ties up firm's K.

This is what pushes us towards ad val. rent.

Pro ... In wildcat areas, you could let lessee have his K recovery (plus int. at mkt., or above mkt.) on successes. Success ratio is so low, plating not a big problem. It is for in personam rights, but not for in rem.

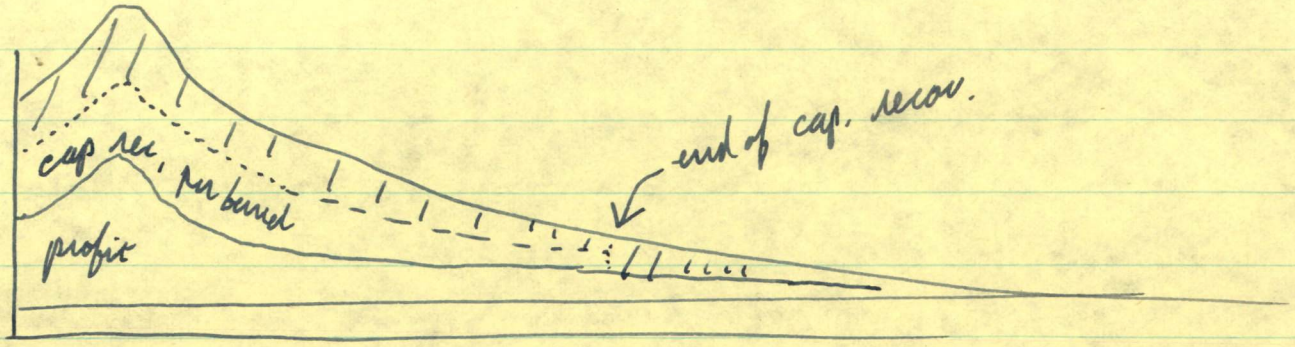
Volume approp. use at end

On drainage tracts, guaranteed return causes plating, as in Wilmington. ∴ profit-sharing is more approp. there than "utility ~~use~~ deal". Profit-sharing still has problems, and you need guarantee min. K by lessee.

Also, once a wildcat proves out, plating is a problem.

Con Con. Still drives out margl. tracts. Differs from royalty in allowing K recov. But int. on K not recovered. If 20 yrs elapse, ~~int.~~ cum. int > K. So is a halfway step.

Con No infln. adj., really recover less than K



This method lets them recover capl. at 25% of value per bl, Bid vble. is % of cf. They have incentive to start fast.

Con The bump at end of cap. recov. is a problem. Creates inter temporal

The problem with $x = 100\%$ on cap. recov. is this. Lessee wants fastest recovery. He has little interest in later prodn. So he ~~has~~ has motive to waste future reserves to produce faster today.

To avoid, a system shd. give him equal interest in all $ years -- a constant % of cf throout.

[Alt.ly, any system can work if admins. are aware of biases and offset them by direct control. This calls for awareness, correct analysis, & explicit directives. It is viable, but emphasize need for correct analysis and awareness]

→ bias in lessee. There is little return to the bookkeeping problems re capl. costs. Might as well have straight % of bid

Desirable attributes of lease

C.6 Profit-share

1. Max. compn. among bidders
~~a. Small units~~
~~b. Min. up front~~
To #11 c. Disintegrate vertically
d. Invite foreign firms in.
~~Pro~~ Keep lessee in & interested a long time, with low mgnl. charge.

a. Pro Ob. Identify interests of lessor & lessee. Lowers deadwt. loss. ~~No excess burden.~~

~~a. Split costs & revs. in same %.~~
~~(couple w. fixed rental)~~
~~(Disallow o'head - this is a kind of rental)~~

~~per bbl.~~
Pro ~~fixed~~ Fixed charge is good. So fixed deductions are bad. This argues for degress. (amt) per bbl. produced, thus lowering royalty effect.
Only don't go to other extreme & allow depln. allowance in excess of royalty, an excess premium on prodn.

Pro. Disallowing o'head wd. cause no distortion if o'head & onsite K for all firms. They all shade bids to allow. It only hurts those w. excessive o'head. Might bias vs. o'head in gen., but that's probly good.

To D 3. Hold back fields then produce rapidly.
Thus min. K tied up.

~~4. Profit before Fed. Taxes. They don't deduct taxes.~~

Con Fixed offset is bad for incentives

C, 6 Profit-sharing.

A 3rd way at end

Equity partic. may also do this. Like Panarctic Oils; & Gt. Canadian Tar Sands, Ltd.

But

a) Int. wd. be deductible; you might get into other jurisdictions, etc.

b) Govt. wd. only get return on its K; nothing for L, the Land resource.

Cd. let them write off K & B over this way.

a) 10% a year, no carryover. A hostile factor.

b) On a per bl. basis. A depln. allowance. Progressive, so they get nothing on the first 100 b/d, & then more & more — up to 10% max., which prevents their going too fast.
net royalty = 0.
Thus you can both motivate & constrain — but w. an arbitrary element.

c) Cd. allow K write-off only after they've produced 70% of proven reserves. They'll have to hurry to produce -- motive is there all along, w/o giving anything away.

4th variant

Bonus recovery also an option. (Phillips)
Not so good. Is either a net cost to State; or else raises bonus higher, ~~than current incentive recovery~~.

C, 7

Argument pro <u>prop. tax</u>.

Other K pays it. Uniformity calls for applying here, too.

Re risk & i.

Once deposit is found & producing, there is little risk.
∴ a lower i can be used
- a, for scheduling recovery
- b, for prop. tax <u>cap. rate</u>, or other valuation.

avc

C, 1 ~~Rent. share~~

C, 2 ~~Bonus.~~

A way to expense K is vs. bonus. (This is part of Phillips plan, L&L p. 39)

There is no need for lessee to pay both bonus & K.

Bonus recovery

The bonus cd, even be due in instalments; & the K expensed vs. them, i.e. expended in lieu of them.

---

after that, you also let them recover K $ vs. royalties.

You cd. do it on per bbl. basis. Est. no. of bbls., then let them recover so much per bbl. This imposes risk of incomplete recovery if they run out first.

You cd. do it per year. Same risk.

You cd. reduce risk by accelerating.

You cd. accel. to max. where they recover first, all — and then State gets big cut by imposing a 20% or more ad val. tax, (or a 75% of cash flow share)

Is important to take most after 8 yrs or so produc. That's what lean firms can't bid much for, and later gas.

Their borrowing handicap is greater re long loans than short ones.

9

avc Variable rate mortgages are accepted by mkt.

So variable ~~rents~~ rents on leases wd. work.
Vary w: wellhead value
vol. of reserves
Index of op. costs
Cap. rate.

avc Can keep changing cap rate, & leave t.r. fixed, and thus keep changing state's share. That makes sense in a way. As i. falls, cap. is worth less, & i. gets less. And v.v.

Value of this is, it's a way of shaving one kind of risk.

This beats more analysis. May be very valuable.

Con AVC — Removes explr. incentive? No more than bonus. Is subst. for royalty. Set at low rate, leave bid-vble-bonus. Post-leasing explr. is greater problem. ~~also~~ Li effic. at collecting rent creates the problem. Use gas figs. for perspective.

C, 1 — Rent share.

Allow return on K. Problem of x-subsidy, goldplating.

a, b Con — Net proceeds, in situ approach removes some of this. But there is still a lease x-subsidy, too. There ~~are~~ is an element on a lease, but also some cats & dogs. They will write off the dogs vs. the elephant

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(AVC)

AVC / n — Pro Advd. charge. Can be raised, if go under FPL regn. Under cost-plus regn. Alk. needs lease charges that pass as costs, and are not legally frn. of price.

Con: AVC requires cap. rate — Alk. uses 18% cap. rate re reserves tax - Huber, p. 47. That is much too high. 7.5% is more like it. See attached data on credit Li.

AVC Con: uncertain unlicensed element — Mkt. accepts vble i mortgage; gnrl. propty. taxn; rents based on county-ave. yields; contracts tied to CPI; indexed things; etc. So it wd. also accept AVC

Cd. cut down plating by allowing write off of producing wells vs. their own produ., at li i -- say 20%. But no write off dry wells

---

C — Base untax, rather than direct drilling costs, is Li's share on n. slope. Uncontrollable outlet for plating.

To E AVC — Self-assmt?

C, 1

Rent-share.

1. ↑

Is automatically progressive wrt. profits (to extent profits are from passive risk)

Expensing is better than guaranteed i bcs. it helps lean firms more.

Guaranteed 8% looks good to a utility.

Fast write-off & recovery is of greater relative value to leaner firm.

Guaranteed 8% also tends to convert lean firm into a utility.

Fast recovery is almost as good as expensing bcs. if you strike oil, flow is normally very hi cfd. to well cost. ~~to~~ so let him recover fast, & i won't make much diff. anyway. After that, impose 25% ad val. ~~rental~~.

~~avc~~

To E, adm. & avc

If he chokes flow to defer tax, he defers recovering his share. " " " " " reduce valuation, he lengthens life & tax.

If he speeds flow to shorten life, he may ↓ valuation.

So ∴ avoidance is boxed in, both sides. Whipsawed.

avc ↑ 8

Requires learning & publishing more re reserves. Reserve data are badly fudged, hurts nat. play. This wd. help play. Thus solicit support, national. (& from consuming states like Ca.)

C, 7 Rent share

avc c. Ad val.

9. Uses familiar practical concepts & techniques.

"Dev. of known oil pools can be calc. w. tolerable accuracy even on the basis of incomplete data." Culeman, '69, p. 26
(C. Rogers Booth)

Risk in devmt. produ. is less than in refining & mktg.
p. 34., ibid.

Adelman's chap. shows methods for appraisal, in quick outline. Shows how you can do a lot w. a little, once you have a feel for basic nos., sense of realism, and a sense of judgement of what is "tolerable accuracy".
Add to Pascherall's testimony.

7 Rent share

The final step in deducting costs.

3 kinds
a. Guarantee i – but max. per year: w/o .. .. w. many fund.
b. Fast recov., max. feasible, front-end recovery. (Excess bonus recovery, 2d option)
a & b, 90% of each bl.
c. CVC

Re all 3

Pro

a) Zero mgrl. disincentive
b) Zero leakage (under perfect admin.)
Other systems leak even if admin. perfectly
Identifies exactly the inc. of State's share
c) Prog. w.r.t. profitability (as profit is prog. w.r.t. gross)
d) Ex post disclosure

Con

a) High rates
b) Pre lease incentives reduced?
~~(ring fence, Canada & Eng., vague)~~

a. Guaranteed int. ~~(used in L.B. ?)~~

Pro

1. Keeps lessee entangled, committed
2. Puts upper limit on what he can get. Reasonable rebt. return, no more.
3. Safety valve in bid /sale.
4. No risk premium needed when int. guaranteed. This lowers int. we need to pay, & thus the risk of not earning it. Note circularity.
   Risk is low - Adelmann. But not on long shot ones
5. Same low rate can be used in scheduling recovery.
6. Will not slow recovery, like royalty. Math. App.

Con

1. Padding & goldplating. Severe enforcement, & monitor; & surveillance & evaluation. Makes firm act & think like reg. utility.
2. Underrecovery on long shot average. Might be justified bec. are many countervailing biases, but dubious
   Ring fence idea.
3. Same i for all. - bias for wealthier firms. Cite data on their lesser use of credit ratings.

6. Front-end recovery

Explain. Fast in & out, min. int.

Pro

1. assures speed. No dawdling just to ~~collect~~ have int. pile up.

2. Reduces goldplating if no int. is allowed. Reduces it least where easiest to spot, i.e. direct prodn. related expenses. Reduces it most re early costs, hard to evaluate.

(But still leaves cumulatives to evaluate)

3. Min. risk

4. Favors leaner firms. Shifts payments into future more than any system

5. Keeps K working in indy. in & out. Small firms depend on lo cap. turnover.

c. ~~1~~ ave, Ad Valorem Charge

~~1. Solves padding problem~~

(n-1). ~~Re~~ Reducer ~~Solves~~ wildcat problem?, re bias. No change.
When one finds oil, is charged.
Some oil is easy to find; some is hard.
If you take most of value, there is no allowance for finding, prelease explg.
So even this hasn't totally succeeded in allowing for all cost.
Further adj. needed ~~(So in hard areas, set lower ave?)~~

There is no bias, intra-class, if you just take same bite from each deposit.?

2 ✓ In gen'l, those harder to find are also harder to produce. So ave will be low, - & superior, ~~to~~ re expln. than e.g. a royalty. Still not perfect

Treated in Sect. II.

Excess expln. is goldplating, - maybe worst kind, & least perceived. Occurs when no rent is collected

Can determine shares by adjust. cap. rate. But that is deceptive. A hi cap. rate makes LVC looks much higher than it really is – just like fractional assmt. of prop.

1. Ad. Shifts payments to future; preserves and enhances incentives to produce; taxes change on ex post disclosures.
Trois d'un comp or 3 birds w. one stone.

1. ~~Solves & Better~~ Cures faults of taxes by shifting to future.
2 Cures faults of rentals by depending on what is there
3 " " royalties by not varying w. prodn., & allowing for hi cost in lower values
4 Cures faults of profit shares by allowing int. on K
5 Cures faults of rent-sharing by ~~etc~~ having no place for predicting
Cinq d'un comp, or 5 birds w. one stone.
Worth a hard look.
long
6. No over-incentive for explr.
7 Prog. w.r.t. rentability
8. ~~=~~ 7 helps planning, lease sales opp'ty.
10 ~~9~~. Res. rsts. help planning
11. Effic. Does feminician practices? Leads to mining side.
9 ~~10~~. ~~Customer, comp~~ Removes risk of changes in what is.

10, (cont.)

If mkt. i rises, cap. rate rises, base falls, so lessee continues to earn mkt. i; (& v.v.) Perfect hedging

Similarly re price risk, & cost risk. All extend or passive risks

AVC. con

1. Not in common use.

Rest involves common practices.
Alts. acceptance.
Variable rate mortgages
Property taxes. Addendum. Passthrough.
City ave. yields
Sales price contingent on 2 appraisals
Loans & credit ratings based on "
Indexed contracts tied to CPI
Appraisal is a profn., in common bus. use.

2. Taxes results of expln. -- (& bas. of exempt; other things, does so at higher rate). Not pre-leasing -- there is still a bid vble.
Not full bed - cuts over expln.. padding
Costly to produce means costly to find. This compensates - & makes it better than royalty.

~~Costs~~

Still needs adjustment. $ 11. Has figs. on order of magnitude. Choice is a) leave some rent for basis; b) Pay for expln. directly.

3 Hi rate, no fudge factors, all decisions more critical.

Same is true when equip workmen w. ~~dozen instead of three~~ computers instead of dull pencils - calls for careful control. probly worth it.

Hi rate easily minimized. It helps to use what cap rate rather than 18%, same as ~~[illegible]~~ fractional assmt. There is small risk — esp. after State assumes so much — so a low, risk less rate can be used.

4 Preproduction payment required
Less future shift than a tb; more than royalties.
But this solves the commitment problem.

C, 8 ~~Direct control~~.

v Field operations
Regulation of

a. Rate of flow

1 Where many tracts, same structure, flow regn. needed. This is true even where ~~of~~ prodn. not rate-sensitive, to obviate excess costs, which are the greater waste.

Unitizn. is needed.

Then, decide rate of flow, to max. DCF.

E.g. from Van P. opt. Fastest rate max's gross DCF. Costs not given, but probly max's net DCF. (To keep it simple, took only oil)

Opt. flow is insensitive to i.r. (That probly means is also insensitive to ΔP -- demonstrate) It may ∴ be planned ~~policy~~ & relied on. (Not insensitive to P, but maybe to ΔP)

~~Rate~~ Is sensitive to P (as vs. ΔP). Higher P calls for faster rate. Time to ∴ should be revised MER, ∴

Slight loss of ult. recov. ~~is~~ minimal consider.

Tradition has elevated it to ~~a~~ maximum almost sole criterion of rate - MER.

May reflect materialistic outlooks. But it is invisible cost, & relegated to limbs of ~~v~~ abstruse speculation by those who don't ~~irrelevant~~ have to pay it.

State pays for costs in pooled lease, lower bids. What gain? On old leases, shd. bargain for payment for wtr. to produce fewer.

b. Unitize.

Now, reg. by State committee.

Large burden, as business grows, exercised by people wh. ~~int~~ interest.

Alt. alt., w. several advantages: ~~Fractional~~, RMD recr. mgmt. district. Retain benefits of small scale prodn – where most costs are incurred — & unify by mgmt. adjustments more than grand scale integ. & rationalize. Cd. also allocate wells inversely among tracts, comp. by cash payments

Drainage agreement w. Feds & Natives needed. RMD approach may help, obviates qu. of what central agency is in charge. Ops. are in charge.

How justify loss of alt. rec? How justify speed, non-consensus.

1. To obviate opening new leases. Fact one doesn't ↓ flow from state, but from proven reserves. Get same flow from fewer wells. Reduce pd. of K tank.

Advantages of dropping MER: & accepting DCF. Removes spurious conflict of govt. & bus., accepts bus. criterion as ok.

c. Spacing

State landlord has little int. in wide spacing. Contrary. Esp. on royalty & profit share, ~~State attitude, if opr. wants~~ needs to hype up opr's incentive to apply IR.

Is mainly same issue as rate of flow. But closer spacing may also Δ ult. recov. Little is published on this.

Recommend ec. study of rate & spacing based on Δ EF. I know of none, published. — Res. public analysis has been premised on min. physical waste & prorating excess capac. to mkt. demand.

While we're at it, also look into

Well standards

Is shot in dark. Whenever "standards" are invoked, raises suspicion someone is going by the book & feeding old formulas rather than observing & analyzing present circumstance in its own terms. If so, may be opp. for great gains, by fresh analysis.

C, 8

Re unitizn.

Rather than joint opn. there cd. be a Petn. Cons. District, modelled on a WCD, to protect correlative rts. of overlying landowners.

Prohibit flaring. Seems arbitrary, but discourages premature prodn. Better, why not charge royalty on gas flared or vented. They flare gas in order to use crude in topping plant. They actually do it now, law is abated.

a

Re MER etc.

Higher oil price justifies faster recovery, bcs. there is a given % of PV from producing faster. At higher p, this is a higher absolute $. And cost of $ wells is the same.

So the higher the price, the greater the need to review MER.

Another (less precise) way of viewing this is maintaining propn. of K & land, as l.v. rise.

Spacing. In one case, Anch. Times reports 1 mi.^{2} per well. 640 acres – that's a lot.

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a

Alk. pays cost of MER on new leases, in lower ~~proceeds~~ bids On old leases, might negotiate $ & in return for higher rate.

---

b

Need drainage treaty w. Feds & ~~Indians~~ Natives

Well density is a big issue.

Well diameter is a smaller one. But there are ecs. in wider diameters. MER thinking probly prevents taking full advantage of them.

Recommendation: an ec. study, de novo, of opt. ~~of~~ prodn. scheduling to max. PV net of costs.

No such study has been done that I know of.

Conventional approach has been taken, based on or derived from conditions no longer prevailing, i.e. prorate to mkt. demand

C, 9

Acreage reservation
Acreage - share.

Results in drainage sales. Alta. has simply carried this function
than others.

Has Alt. had drainage sales in Canada in fact?

All adjacent well logs shd. be public.

Leasing 50% at once seems extravagant. On a structure, sell one small lease, reserve rest, first go-round. One success may valorize a whole structure, but one dry hole won't devalorize.

Alta. now lets orig. lessee get Crown reserves (for higher royalty) - J. Rod.
How high? How determined?

9 Acreage rem. (checkerboarding)

Main advantage, min. burden of judgment & decision; be sure State parties. in finds.

Otherwise, arbitrary & capricious; partly avoidable, as State gets leftovers.

C, 10 Undivided interest

Add fillip to Phillips proposal by making bi bidder the operator. Stimulates higher bids, as in proxy fights.

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA 74004 918 661-6600

EXPLORATION AND PRODUCTION DEPARTMENT

May 8, 1974

S. 3221
Energy Supply Act of 1974

Senator Lee Metcalf
Chairman, Subcommittee on Minerals,
Materials and Fuel
3110 Dirkson Senate Office Building
Washington, D. C. 20510

Dear Sir:

Phillips Petroleum Company supports the overall objectives of the Energy Supply Act of 1974. They are most commendable and vital to the interests of the United States. The current energy problem is well recognized. The necessity for prompt action is vital. The stated purpose of the bill is to increase energy supplies to the people and make oil and natural gas resources in the Outer Continental Shelf available as rapidly as possible.

We are concerned, however, about certain directions in the Energy Supply Act of 1974. Much of the bill authorizes action in areas which are already the responsibility of various government agencies. The National Environmental Policy Act of 1969 is presently handling environmental impact studies. Enforcement of safety regulations and inspections are being handled efficiently by the Department of the Interior and the U.S. Coast Guard. Industry and government is presently conducting extensive research and development of new oil technology. The duplication of authorities provided in this Act, and the mandatory studies and reports required for issuance of a 10-year leasing program will cause a delayed, rather than a stepped up program of OCS leasing. The provision for non-confidentiality of information will be detrimental to increased exploration studies. A schedule providing for more frequent OCS lease sales, and larger acreage sales, can be handled under authorities in the present OCS Act. We do not recommend passage of the proposed Act.

The bill proposes to change the OCS provision for awarding offshore leases. If this is to be considered, there are better alternatives than the net profits proposal contained in this bill. The present OCS Act has led to extremely high bonus bidding. If it is the intent of Congress to provide more energy for the United States, bonus bids should be eliminated, or greatly reduced, so that capital can be directed to an industry exploration effort.

Offered for your consideration is the following leasing procedure: Provide that bids be made for an undivided working interest in a group of blocks which cover an entire geologic feature. In this procedure, the Department of the Interior would call for nominations for groups of blocks which cover individual geologic features. This would be done much in the same manner as they now call for tract nominations. Following the required environmental hearings, groups of blocks would be presented to the industry for leasing. Leases would be awarded to those individuals or companies who bid the highest per 1% working interest. Parties could bid for any amount of working interest, but bids would be on a dollar value per 1% interest. No royalty interest would be retained by the government. The government would retain a carried working interest and provide that the bids would be for the balance of the working interest. For example, consider that in one instance a group of 5 blocks would cover an entire geologic feature. The government would announce it would retain a 30% carried working interest in the tract comprised of the 5 blocks, and would call for bids for the remaining 70% working interest. Assume it received the following bids:

Company	W.I. Desired	Rate $/1%	Total Bid $
A	30%	100,000	3,000,000
B	50%	20,000	1,000,000
C	45%	75,000	3,375,000
D	1%	150,000	150,000

In the above example, undivided working interest in the tract would be awarded as follows:

Company	W.I.	Total Bid
D	1%	$ 150,000
A	30%	3,000,000
C	39%	2,925,000
U.S. Gvmt.	30%	-0-
		$ 6,075,000

In the call for bids, notice would be given that the working interest specified by each of the highest bidders would be awarded provided, however, the interest of the lowest of the high bidders would be reduced ~~to an amount~~ which would balance out to the 100% working interest available to the government and the high bidders. The notice would specify a standard operating

contract that would be issued along with the leases. This operating contract would provide means for an operator to account for monies spent and received. It would also provide a voting procedure to approve or disapprove of operating and exploration plans, and expenditures proposed by the operator. The USGS would select the operator from among the high bidders. Their selection of an operator would be: first, with consideration as to proven ability as a prudent and safe operator, and second, with consideration to that working interest owner who had acquired the largest working interest. The advantage of this procedure would be that it would permit any company, large or small, or any independent, or individual, to bid for a working interest in a tract. Bids could be made singly and not necessarily by bidding groups.

The interest of the government would bear no cost of exploration or development. The money that was received from the high bidders would be placed into an escrow account to draw interest and be made available to the operator for the cost of the exploration and development program. If the property was explored and condemned as dry prior to using all the money placed in the escrow account, the balance would revert to the government. If the exploration and development program required more money than that escrowed into the account from the sale of the working interest, the working interest owners, other than the U.S., would place additional funds into the escrow account in the amount estimated necessary to continue the approved exploration and development program. Payments to the fund would be in proportion to working interest ownerships, excluding the U.S. ownership. The government would have a working interest paid for out of the escrowed funds. It would have a call on its working interest share of the production, which would be subject to normal operating costs.

This limits entry to rich club members, but then returns the money!

If there was insufficient bidding interest to cover the percentage working interest offered for any tract, the government would have the right to reject all offers or to offer additional working interests at the rate specified by the lowest acceptable bidder.

In conclusion, we consider that the Department of the Interior has ably handled leasing of OCS lands under its present authorities. There is no need for the provisions of S. 3221; rather, its adoption could result in confusion and problems that would delay early development of OCS lands. The proposed study for means of financing OCS operations,

and the cost of duplicate authorities would use taxpayers' money that could better be directed to other national problems. More frequent and larger sales should be encouraged and can be held under present OCS laws. If, however, a change in the bidding procedure is to be considered, the one herein described deserves consideration.

Very truly yours,

PHILLIPS PETROLEUM COMPANY

By Jack Tarner
Jack Tarner, Vice President
North America E&P Division

JT:p

11. Final ideas

The only way indy can recoup ~~for~~ cost of preleasing is to buy leases at bargain price. We don't get it free. It's not very effic. — much duplicn.; ~~to~~ too soon; L limited compn.

It's contracted out, in part, & more could be.

Indy. buys the info. to buy cheap, avoid overbidding. State needs info. to avoid underpricing. Same agency ed. advise all, spare cost. & State set holdback price, announce it after sale, so it's like another sealed bid, & DNR on merits. minimize slippings, time or pens. Not preclusive, like P.O.

Big Δ in lead time, where vert. intd. Worst kind of front-end load, worse than bonus, even tho lower, bcs. so far ahead, & so much of return, so large a passive risk (i.e. risk of what is there. If it's not there you won't find it, however skilled your search) a, l

Power of accum. wealth is a max. here, bcs. sooner is as important as better.

Alternatives, pre leasing

g. by g. = — 6 or — 9% ... but triple that bus. of comp. int.

(a.) Open access pre leasing, as now, w. nominations.

Pro. ~~State's part~~.

1. State's part. input, free withdrawal
2. judgmental decisions in hands of highly motivated pvt. indiv. More creative, many concepts
3. No cost to state of its own survey.

Con.

1. Worst kind of frontend filter. Long terms. & unsure. Nothing to mortgage. unfinanceable. Aggravated by Boonerism (ref. Okla. land rush) Large lottery element.
2. Depends on being able to buy below value, get advantage of state. 1965 sale, $6m for 90% of oil in PB. Worsened by declining royalty allowance. (over)
4 3. Duplic. & boonerism. Competitive edge comes only in part from doing it better. Large part from doing it sooner.
5. 4. Secrecy, major concern of invstrs.

6. 5. Vertl. integ., reduces compn.

7. 6. Richest deposits are easiest to find

Rent of rich is drawn off to indecent poor, but not efficiently. Rich, big elephants ahead of time, in pref. to extensions when ripe.

8. 7. X subsidy, mixing good risks & bad

~~9.~~ 8. May lower value of State land — no favor.

10. 9. State gets in spirit of same game, sells bad stuff knowingly.

3. May cause underdevmt.

To justify o'head, must target hi rate like 20%.

Thus neglect intensive infill'g etc., in pref. for buying more leases.

Pattern of over decentralize.

Con

11. ~~10~~. Over nomination is routine, to conceal intent. Secrecy covers at high cost, including confusing planners & investors.

11. Indeps. w/o intd. firms have to sell to majors, may be exploited & undermotivated.

No, looks for better alts.

(b.) Contract explr. Do it once, make public. Reward good finders w. % of what they find (by whatever system is used), but regressively, since elephants are easier to find than possums. (over)

Pro.

1. Unitize, save money. State recoups in higher bids. More compn. Analogies: Wx, earthquake hazard, navigation aids, Townes, (over)

2. Control timing, reduce indy. ~~Secrecy~~ initiative & demand for early norm. State officials have basis for predicting price, & can set their own h.o. price.

3. Use same firms, geo-data indy., now hired by indy.

4. Not preclusive so P.O. analogy doesn't apply.

5. Avoid (caveat emptor) twin faults, underpricing & overpricing.

6. Obviates Public Corps. or Civil Servants doing job.

7. Admits many more firms. Breaks into vert. integ. (one is State, w. h.o. price.) (over).

Learner firms put greater premium on foreknowledge, & are less able to afford it. Creates new intermediate mkt., breaks into a joint in system.

8. State assumes riskiest element

9. Incentive is there. do good job, get reps.

Con. 10. Secrecy dispelled, for planning, env. appraisals.

1. Firms are not used to allowing disclosure

State official works w. ea. firm, State officials pool info.,
meet regularly, report regularly, keep & publish data bank,
advise Comm.

(Present role of Alk. G.S.? Is there one?)

Do best to secure coop. of U.S.G.S & NOAA

(& D.I., which now doesn't even require lessees to disclose - Jackson Rpt., p. 10 D.E. comment, p. 34)

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ag. mkt. reports, ag. ext., public health, public ed., road maps

n. Treat h.o.p. as sealed bid, disclose after sale, let the light in

2. Better incentives. Might become art for art's sake. forget payoff.

Cd. alleviate by giving performance bonuses, based on finds. - but upper limit, to avoid undue conc. on big ones, & ~~undue giveaway,~~ & unwarranted overpayment.

Cd. ↓ no. of concepts by hiring extra ~~one~~ interpreters, or line shooters. &

And don still open to others, if govt. botcher work. Experience shd. soon show if officials are productive. Competition them, too. -- pride of performance is big factor.

Most workers in indy. & geo-data indy. also work on fixed wage.

Variation. Alta., 30% of cost, gets info. after one year. Can (but don't) publish before sale.

→ To ~~g~~ motivate expl. drilling, lease some rent; and impose prior delay rental, % of bonus.

(c.) Exploratory concessions

Erickson & Tussing have proposed.

Firm buys a concession, term of yrs. Receives some fr. of appraised value of findings. State then resells.

Trans progressively taken back % of amount, charges $3/a-y.

Pro. Same as (b). Note only differences, if any

1. Unitizes explo. - or they can bid more than one
2. Judges already exist who do this for indy.

Con.

1. Reward system difficult. Value-added depends on luck. No matter how skillfully you search, you can't find what isn't there. Good jobs may reduce value.
2. Tax due on cap. gain. (Vent. intn. avoids)

(d.) Sale of title, subject to differential lic AVT and State reserves rt. to explore; & delegates right to all others, who receive finders fees.

Or self-assmt., subject to loss when others pay assmt. + 15%.

Or sell in small parcels, give first finder an override on whole structure

Post learning

~~No special problem under non comp. bonus system~~

Delay rental is good solution. Set at hi level. Shift to diff. system after discovery.

all ex post systems lower motive. The better the ex post system, the greater need of delay rental. Delay rental accomplishes same goal as lower ex post charges, & raises m too.

C, II

State holdback price. Announce before sale?

a) Is part of full disclosure policy
b) Forces pre-analysis by state
c) Puts DNR on its mettle. Public exposure of performance.

On other hand, undisclosed resn. is like another sealed bid. (But not quite, bcs. if state wins, it will sell again)

✓ So, announce after sale, along w. contributing analysis.

It shd. be held beneath the dignity of a sovereign govt., vested w. powers & immunities, to gull & cheat & sell shoddy special goods w. intent to defraud.

"Unitize" explm. just like resn.

Others may duplicate & innovate. DNR shd. compensate for known stodginess of govt. by recognizing weakness & try to overcome it — a Director of Innovation,

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To E Krueger (Mead) study shows sealed bidding raises bids.

So require a min. no. of bids.

? Alt. to publishing, state cd. agree to give all its data to winning bidder, and share cost of expl. wells.

C, II

Geo-data firm can bid for rt. to explore a tract, and to sell but not to produce what it finds. Sell to state for appraised value (or to other buyer who offers more.)

Thus they do receive value-added. They will bid on & prospect those tracts where they think v.a. is to be highest. Thus shading things toward better prospects.

Problem: they are biased to shade findings upward. They are both seller & appraiser. Answer: use 3d party appraisers.

Also, give only ~~cut~~input at first, for certain proved reserves; more later for revisions.

They might bid negatively. Is no value to lke. in that, unless taxes > social costs of later produn.

Kalter says the size of oil deposits fits lognormal distn. Find what that means — & translate to PV.

Is argued that DNR benefited from inside info, getting $ for bad land. But it also failed to get $ for good land — got $6m. a) Why? b) Open access wd. have prevented this.

Got $6m in a 1965 or so sale. There were two sales about that time, bringing in 6-10m. 90% of the oil was in them. 1969, on strength of that, they got 900m for the other 10% of the oil. They knew more then — (& some bidders knew less). Cite Norgaard ~~art~~ article, NRJ, ca. 1972, pointing out how much they lost.

So let finder have a declining % of value of find — (or a fixed max.)

C, 11

The bigger the structure, the easier to find. This is a basic illogic in using finding as the incentive to search, the reward for searching. The easiest job gets the biggest reward.

The smaller, grubbier structures are bypassed -- the strat traps & dolomite reefs. & fault-sealed traps.

Prelease survey isn't to add value to land in aggreg. It is to help firms who do it avoid paying for worthless land (avoids social cost of drilling in wrong place, too -- & not drilling in right place).

Since the product is not $ value of land, it's not for landowner to pay for it. Value is to help lessee deal w. landlord.

It only helps bidder if nos. are limited. He needs to get jump. He brings pressure for that.

Better, landlord does it once, avoid dupln.

Ark. pays cost of duplicating g & g work. Incr. of cost is 20% - 8% r. of r. This is too hi a price. So do the work by contract, give away free, obviate costs, sell for higher prices.

✓

Also, avoid caveat emptor. Mfrs. test & guarantee products. Ark. has been selling bad leases — puts Ark. in moral position of selling salted gold mine. Also, running casino.

Contract exploring obviates more ambitious plans for public corpns.

C, 41

In absence of risk-preferring, the more is known, the more you get.

And you get it from leaner firms, w. higher premiums on foreknowledge. Hence more compn.

And more correlation of output & input. "Equity".

Less gambling.

Breaking into stages, or vertically disintegrating, has many advantages.

It is like creating a free market at every joint in the vertical flow. Vert. intn. destroys these important free mkts. which are entry points for intermediate small competitors, interlopers who are stage-specialized. Now, there are many who work for ~~giants~~ majors. Disintn. lets them operate on their own acct.

State creates this free mkt. by buying finds from finders. They can receive a % of resale, or royalty, or whatever means of resale the state uses. (preferably ad val. rental)

State as seller has ~~more~~ more strength to bargain w. monopsonists down the line than small firms do.

State shd. not buy on a per bl. basis of course, but a value basis.

C, II

~~Leasing alternatives~~
~~or disposition~~

~~0. Outright sale~~

1. Bonus a. Lump sum c. W. or w/o advance bonus.
   b. Paid as annuity.
2. Royalty bidding
2½. Step & sliding royalty.
~~3. Profit share bidding. (Deduct all costs but int. on K or front m.)~~
→ 4. Rent share bidding. (" " " including " " plus int.)
5. ~~11.~~ Checkerboard, or other land retention
6. ~~12.~~ Separating stages
~~13.~~ ~~Low~~ High rate on all above cap. recovery (Conwell system)
7. Work commitment bidding
8. Sell ~~rt.~~ to given quantity.

C, II ~~9.~~ Contract exploring. There is a geo-data industry, sells data to indep

You simply hire someone to survey & appraise yr. land. His incentive is to get good repn. future work.

You pay him costs, plus a bonus for finding, say a 5% override on findings.

State employee works with him. All such agents meet regularly & pool info. State keeps data bank, publishes much.

Alaska G. S. works constantly to nominate areas for intensive study.

C, II ~~10.~~ Sell all land, subject to prop. tax. Reserve rt. of State to explore, and impose severe tax

c, 11 ~~Prospecting, break into stages~~

If you hire someone to explore ~~would~~ parcel, payment by value-added makes no sense. But,

(c.) ~~If you license him to roam large area, then~~ you cd. pay him for what he finds — a % of what he finds. This is all +.

You can get a bonus from him for rt. to do this on promising areas. Better, let him bid for what % of appraised value of his findings will be his share? No,

~~But~~ you can't let him tie up ex. land w/o a commitment. If he wins bid by bidding a low %, then he has ~~too~~ too little incentive to explore concession.

So you must set a %; also a min. bonus. Then you cd. convert bonus to work. Procedure move that wd. help is State is billed direct by workers, from bonus fund (which cd. be paid in installments). And discourage 'plating by paying only x % of costs from bonus.

cf. Bill written by Gregg & Carlson. Carlson advocates staging. Ask. breaks into joint of the mkt.

~~Discovery royalty, another approach (How work?)~~

Over nominating is routine, to conceal intent.

c, 11 Prelease survey.

Value-added share contract wd. not work, bcs. the value added by survey is not in the $ value of land. It may reduce value, by establishing absence of oil.

It's value is in guiding surveyor what to bid on, Or owner what to ask.

Bidders pay people fixed salaries, & contractors fixed fees for this. State shd. do same.

Still, to make this more than a museum exercise, and guide it towards positive results, shd. be a higher reward for positive than negative findings. Like a 5% override.

USDI has not required lessees to release info. ~~to~~ (D.I. vs. Jackson rpt., p. 34). Ak. might require bidders to do so, re Fed. lands adjoining Ak. lands on which they want to bid.

Prelease survey includes g&g, shot lines, stratigraphic drilling, gravimetric.

Some indep.s specialize in finding oil, & handling that risk (& selling for K gain?). (p. 42, Jackson Rpt)

C, 11 Info.

Make strong case for publishing pre-leasing info.
See Commercial notes

Feds. shd. coop. more. USGS. There is also NOAA, which took over Coast & Geodetic Survey, maps & charts coastal waters. Bathymetric, geophysical, magnetic & gravity maps. Are coop'g w. D.I. in resource assmt. (but that's not same as publishing).

Ak. shd. use NOAA if can; & if not, do it herself.

Ak. presumably does use NOAA in setting marine boundaries, which NOAA does — provides expertise.

When you buy from geo-data indy., now, they are used to requiring confidentiality. State, however, can change that. If indy. balks, Ak. can make it a condition of access to state land. (Indy. no doubt likes to sell same info to different buyers)

Other cases of publicizing info: Wx. reports; earthquake & flood hazards; navigation aids; title search (Torrens); Ag. Extension & Mktg.; public health; public education.

P.O. analogy not applicable, bec. not preemptive. Others can do it too.

.. C, 11

Re 10,000 acre explm. concession

Gamble by concessionaire is fixed in time. He puts up $ in front. Then may lose all, or gain – in 5 years.

Open range, free prospecting, staying power is a bigger factor, bcs. some firms can get out ahead of others.

Nomination system resembles subdivn. ~~by~~ triggered by landowner

✓ If majors have an edge in xplm. they wd. favor be early in remote places.

Argument: disclosing info. on balance doesn't ↓ revs. W. blind bidding, state sells bad acreage for some price. Pinpointing may reduce sales proceeds. (Hogle)

If we have risk preference, I guess the less is known, the more you get. So?

C, 11 { Discovery royalty approach solves problem of undermotivating finders ~~for~~ by reason of small units.

Also, you could give finder of an ex. producing structure a few years head start, to drain surrounding land. Thus a terrific incentive for all. Many small areas to explore, every one of which could get whole prize, and early. Thus set many minds at work independently.

C, 11 Alta. contracts w. some prelease explorers, picks up 30% of cost, gets info. after one year.

They could publish before sale. In practice they yield to pressure of firm. & lease first. (Mike C.)

Explr. concession. Texaco does this. Allocates by negotiation. Takes basic 1/4 in 5 yrs, 1/2 in 10; all non-producing in 12. Rent $3/a. Work comm. $1.75/a. (Source?)

✓ Big invt. in prelearing biases cos. to buy more tracts rather than develop intensive margins of what they have. To get 20% on lease, they must avoid negat. comms below 20%..

Peg & Jules Tileston. 4180 Cambridge

"Env." concerns

1. Commercial fish. Kachemak Bay
2. Community impact. Too much change
3. Loss of small community. cohesiveness
4. Loss of native cultures
5. Free info. Big value of "freedom of info." policy is to forecast env. impact. Indy. secrecy fosters conspiratorial mentality, provokes public paranoia re indy.

Very little concern for biol damage per se

Reservation of remainder.

C, 12 Sale of specified amt. A bag limit – that doesn't stop hunters.

Buyer pays for stated no. of bbls.

If he can't find them – at his expense – gets back his bonus

If he can find them, gets his cut. Then whole propty. reverts to State, for resale.

Bonuses will be low, entry easy.

Variation: sale of oil, resn. of gas.

Benefits – reduce invt. value of bonus derived from remote future, screen in ~~smaller~~ leaner firms, screen out "flush" firms, (rich, wealthy, moneyed, opulent, cushioned, well off)

Leaner vs. richer firms.

Other ways of reserving

a) Lessee gets rt. to one well, flowing for 15 yrs – if he maintains pressure

b) After lessee produces at 5,000 b/d (from however many wells) he can't take any more – and term is 15 yrs.

c) Lessee can take oil whose field value = 4 × bonus. Or value less K = 4 × bonus. No faster than 1/15 a year.

d) Acreage shrinks as oil comes in.

4

C, 12 Reserve. of remainder

Sell the rt. to a limited amt.

(Or a regressive amt. Same as a finder's fee w. upper limit.)

Royalty works reverse: the bait is the big fish, & as by product you get small ones. Here, the bait is small, & you figure they can't miss big ones, bec. they are easier to find.

State offers certain volume. Payment to state depends on finding it. All info. goes to State. Bid vble is well head value — State bears cost of getting it to well head, by selling the find to new bidder, subject to delivery of X bbls (or their well head value) to finder.

Simpler idea. Finder gets ~~min~~ ~~the~~ first X bbls. free. Everything else belongs to State.

This is a fixed fee for any commercial find.

13 access to info.

C, ~~H~~ ~~Good offices of state~~

If base of state share is field price, state wants to help get hi price. (Equity portion. may allow this.)

Alc. may do well to deal direct w. govt. of consuming state. Cal. ed. price explm, It wants info. on reserves, which cos. hold tight & fudge.

Ad val. rental (AVR) wd. help nation know what its reserves are, pierce veil of secrecy. Help nat. planning. W. this in mind, get nat. support for program.

Price determination. Alc. shd. take some royalty oil, sell in open mket. If price is above major's xfr. price, use this instead.

Is imptnt. to avoid juriscdn. of FPC. State might do so, being sovereign. Calls for intensive study. Might even justify temporary use in Alc, holding back for breaks in FPC.

Beware capture of gas by designated consumers.

cost-sharing, learn about costs

Choice of a bid variable

Things can be fixed as %. Re bonus, there is no base to hitch it to, so it makes a natural vble.

But things can be hitched to bonus: like rental, as % of bonus.

Bonus being the natural vble., it tends to rise over time. To combat this, tie it to rental.

Royalty bid – is what F.S. does, & you bid a price per unit removed (scaled). BLM you bid on a lump basis. Logging.

Unitary bid is handy, but some things are combinable at specified rate of exch.

La. takes bids w. both bonus & royalty varied -- then decides which to take.

Variable royalty is good – lower on mgnl. tracts. But it's ex ante, may be way off.

Bid vble

Needed to soak up leftovers.

Royalty. Arg. for, sliding scale needed & this makes it slide.

Trouble is, slides on ex ante, not ex post. If sliding royalties are chosen, base them on objective ex post conditions.

Same for profit share.

Rent share, no need to slide. Also, novel ideas, wd, shy away from uncertainty.

Bonus, hard to set any other way. Not a % of anything. Same for rental. Both cd. be based on appraisals. L fixed; but a weak basis.

Problem. Whatever is vble. tends to rise over time. To avoid letting bonus climb, tie to rental. 20%, 33%, 100%.

Rent has most good qualities of bonus, few of its failings.

If AVC is to be hi, use same rate, transmit from bonus as valuation base to assess. Might x for title, classify for higher rate.

Otherwise, let rent continue – find cut off point later than beginning prodn. Arbitrary, but so is "beginning prodn."

Conditions favoring one or another

Raw acreage, unknown. Participate, contingent basis.
They aren't looking for small unpd. stuff anyway.

Bonus is ~~the value~~ at its best where means of deposit has been taken.

Recommendations.

Offered ~~timidly & softly~~, tentatively, reserving right to change mind, subject to new info. Since 1st is complex mat'l field, we all have a lot to learn.

A. ~~A V C~~ One of the ex post systems

Ex ante good in forestry, bec. there are fewer surprises

Ex post needed here.

In all systems, take some in kind & auct. to find highest price, charge that.

1. AVC.

Requires prior delay rental ~~or~~ as kick off. (Somewhat resembles a rental fb. by prodn. bound.) (where prodn. bound based on appraisal).

Contract expln., pre learning.

Obviates reserving acreage for drainage sales - get it anyway.

2. Profit share, w/o int. or ~~fee~~ front-end recovery.

Compromise among principles. Royalty is too much dividend.

Rent systems are too paddable.

Profit share is less paddable, hence w. ~~heavy~~ revenue policing is workable. Bias is mostly vs. early K, & there is too much of that, is hardest to police -- invisible cost of imputed int. is underappreciated by most. Payroll padding is more visible.

Make it progressive not w. volume but w. rate of profit per ~~bundt~~ barrel.

3. Variable royalty, rate based on objective criteria.

A point system.

Based on putative ~~not bec~~ costs rather than incurred costs, is closer to #1.

Is like hair's leg. be the ass. If are few enough vbles. maybe.

4. Front-end recovery, better than guaranteed int.

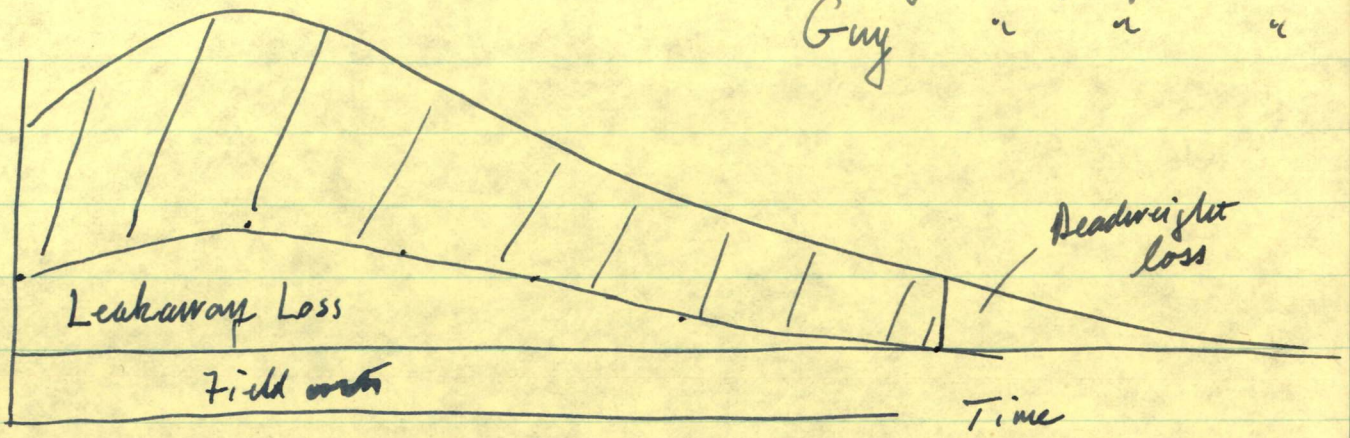
5. State invest substantial sum in contract explr., ~~on wildcat~~ preleasing, release info. before sales.

Avoid temptation to trumpet successes as political football. Creates bias to shade findings. Work shd. be sober, objective, & non political. There will be temptation to play up successes defensively, bec. will evoke heavy attacks, ~~emotional &~~ highly publicized c w. an unfair emotional fringe.

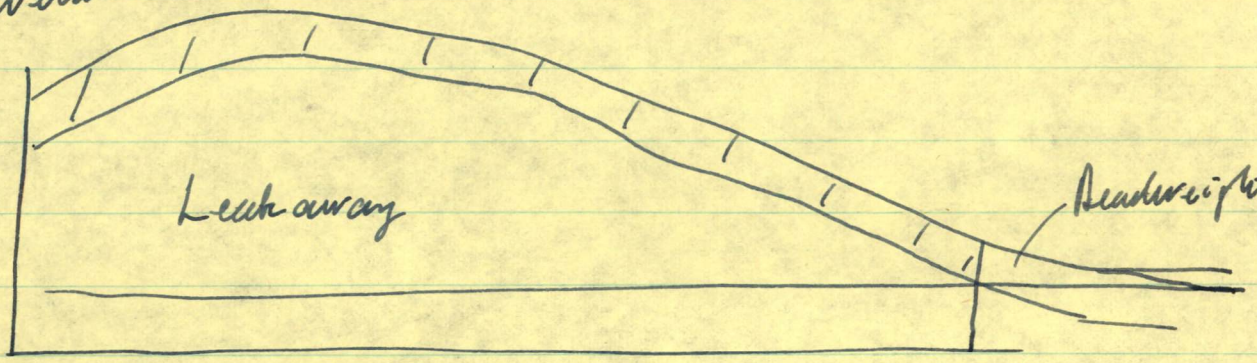
Avoid replying in kind. Is an effort to conduct bus. affairs of state in more ec. way.

A. 50% royalty
short run

Sign up drafts person.
Gary can prepare tables
Guy " " "



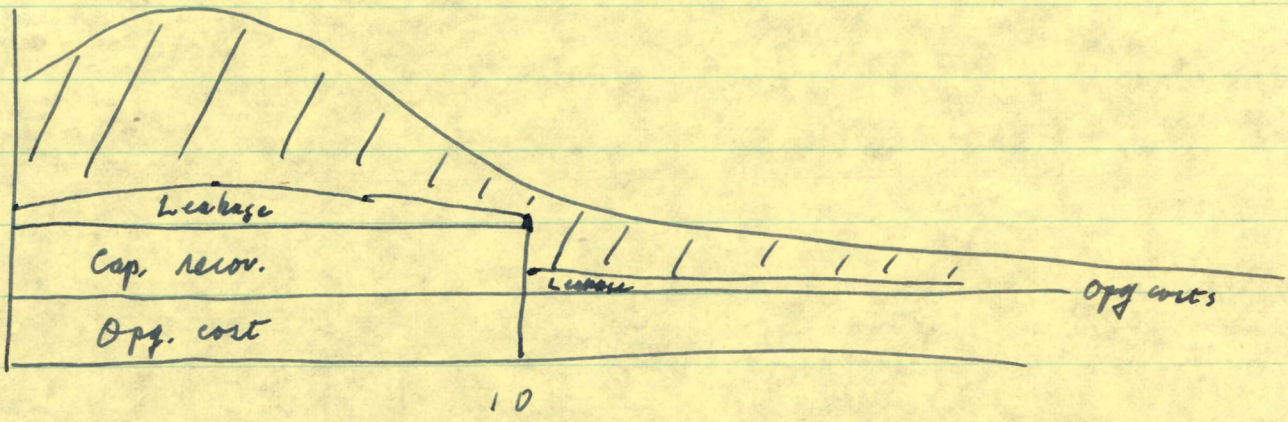
X B. Severance Tax



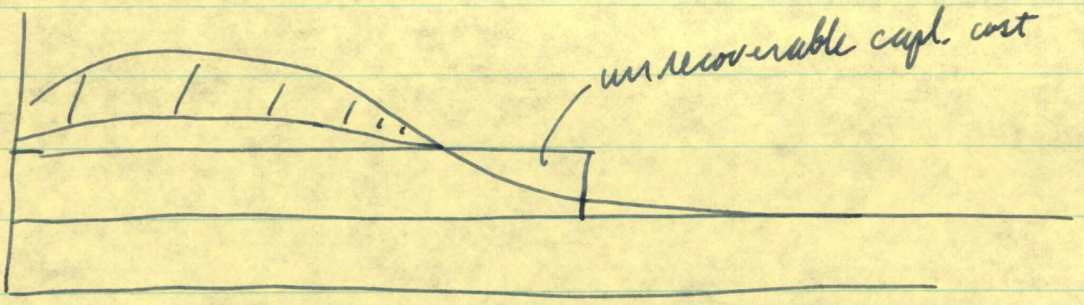
C. Cash flow share, ~~90~~ 80%



D Profit share, ~~depreciation~~ amortn allowed, S.L., 10 yrs.

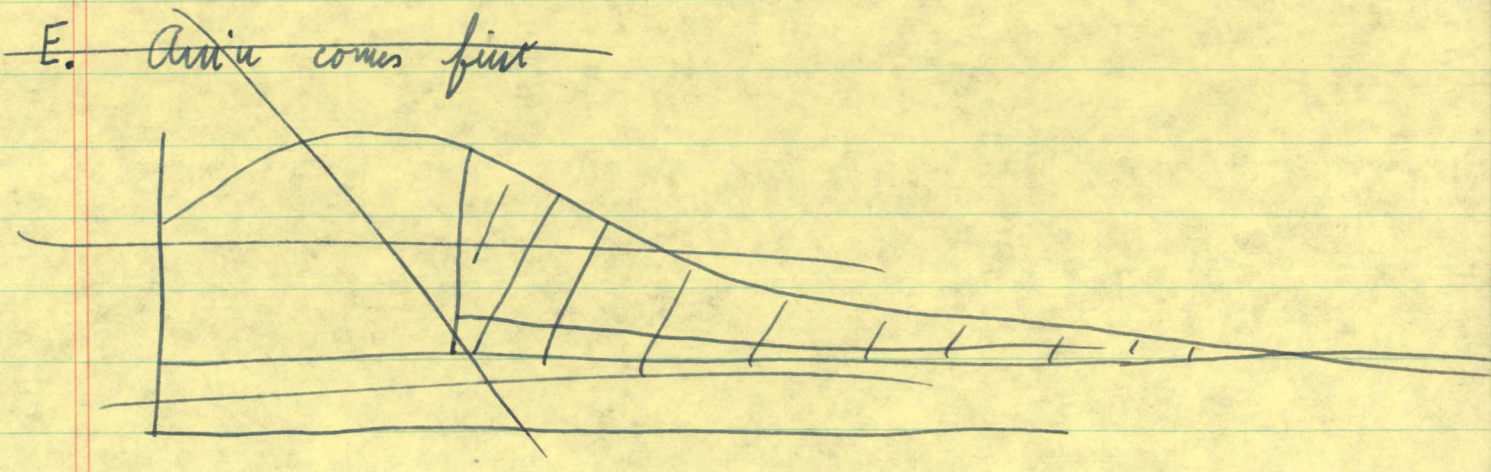


Possible problem here, if Op Cost + Cap Rec. > yield

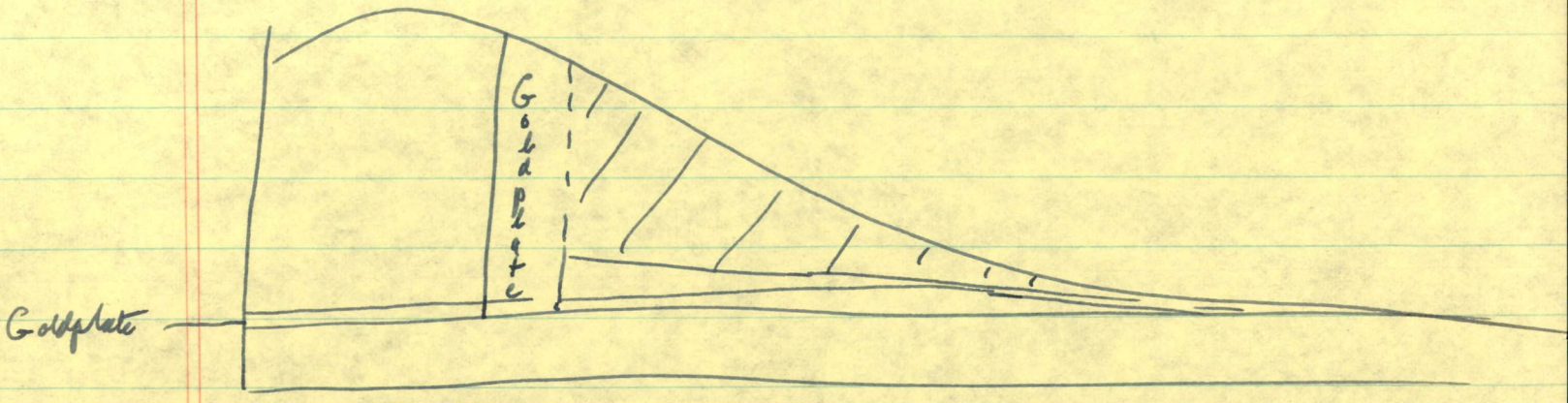


But that is a risk the lessee can agree to assume.
Alt'ly, can let him recover all first; or carry fwd.

~~E. Rent comes first~~



E ~~Price~~ Fast Amin, then 80% to govt



This compromises between expensing, and slow write off. This is fast write-off. (like ddb or syd)

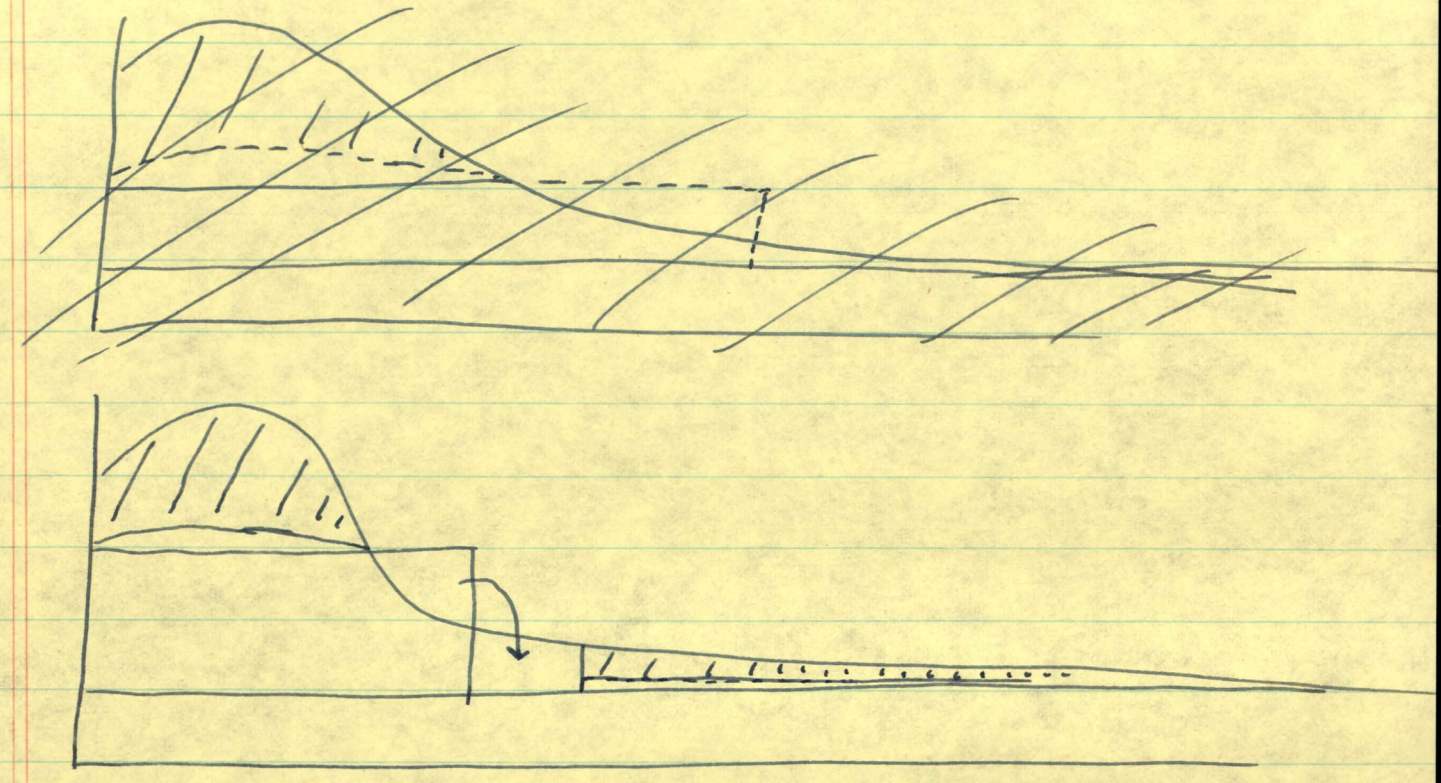
~~F Comp~~

This solves the problem of having something against which to expense, and is ∴ much better for lean firms

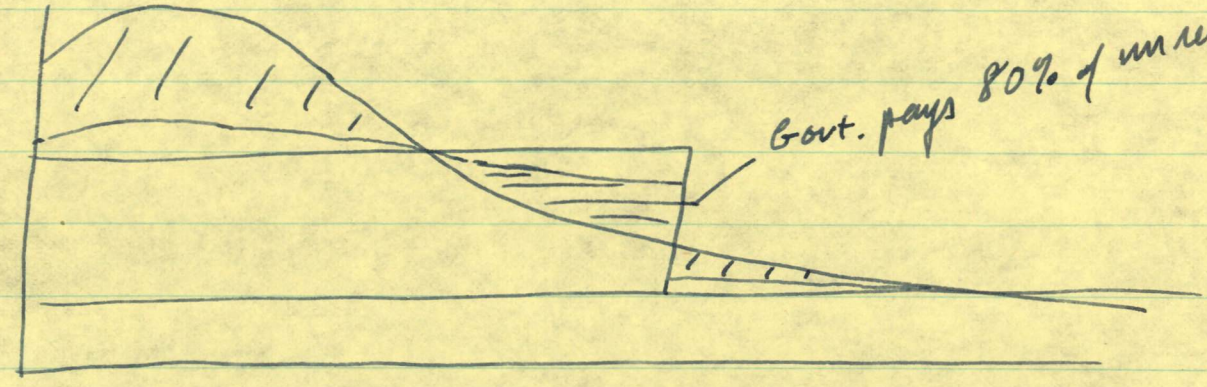
[Goldplate – show this ~~worse~~ larger for capl. costs than opg costs. Re opg. costs, goldbricking, featherbedding, ~~cash~~ or padding should be used.]

Could show how ~~much more~~ different patterns affect pv. of co., or rate of return, etc.

F Carry Forward



G Partnership, losses are shared



Problems: 1) Lessee sees collection problems ahead
2) Invites overrun.

H Since this is leasing, not taxn., firm must get return on capl., too.

Problems

1) We can't just guarantee that w/o distorting incentives

2) If we don't guarantee it, firm assumes risk & we must allow positive risks, too.

Per barrel basis



Lessee puts up K.

He shd. pay State first, then get his chance to recover outlays. On incentive grounds.

But he can pay State so much per year — then recover part of his money each year.

This is better than letting him get it all back first. Bec. then you run out of incentive.

Also, State loses claim on later produc., isn't taking any risk.

How est. life of wells? By est. future flows, as by Vern P. rpt. — also needed for appraisal.

By allowing only so much K rec./yr. you avoid too-fast producing. If well runs dry, they can't recover.

