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A Reexamination and Reformulation of the Habendum Clause Paying Quantities Standard Under Oil and Gas Leases

Alex Ritchie

University of New Mexico School of Law

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A REEXAMINATION AND REFORMULATION OF THE HABENDUM CLAUSE PAYING QUANTITIES STANDARD UNDER OIL AND GAS LEASES

ALEX RITCHIE*

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* Executive Director, Rocky Mountain Mineral Law Foundation, and Associate Professor of Law, University of New Mexico School of Law. B.S.B.A, 1993, Georgetown University; J.D., 1999, University of Virginia. Alex is grateful once again for the able research assistance provided by Professor Ernesto Longa.

I. Introduction

Most United States gas production remains trapped in North American markets due to transportation constraints.¹ As such, the price of natural gas in the United States is based almost entirely on North American supply and demand. Since 2005, production technologies to efficiently produce natural gas from shale and tight formations have kept natural gas prices very low;² and prices are expected to remain stubbornly low for the foreseeable future.³

Crude oil is another matter. Crude oil can be easily transported, imported and exported. As such, the price of crude oil is based on global supply and demand. The U.S. has nearly doubled production over recent years without a corresponding rise in demand. This excess supply has battered crude oil prices.⁴ The spot price of crude oil in the United States rose to a high of \$145 per barrel in July 2008, quickly and abruptly fell to \$31 per barrel in December 2008 due to the onset of the great recession financial crisis, recovered to \$113 per barrel by 2011, then began a prolonged decline in the third quarter of 2014 until the price reached a low of \$26 a barrel in February 2016.⁵ During this low price environment the Organization of the Petroleum Exporting Countries continued to produce oil at record levels

1. A movement is underway to substantially increase exports of liquefied natural gas. See Jude Clemente, *The U.S. is Transforming the Global Liquefied Natural Gas Market*, FORBES (Apr. 16, 2017, 8:01 PM), <https://www.forbes.com/sites/judeclemente/2017/04/16/the-u-s-is-transforming-the-global-liquefied-natural-gas-market/#731548bb22ef>; see also Michael A. Levi, *The Case for Natural Gas Exports*, N.Y. TIMES, <http://www.nytimes.com/2012/08/16/opinion/the-case-for-natural-gas-exports.html> (last visited Nov. 18, 2017). If substantial enough, this could have the effect of increasing natural gas prices.

2. U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2017, at 54, available at <http://www.eia.gov/outlooks/aeo/> (last visited Mar. 12, 2017). The Henry Hub price of natural gas was \$18.13 in September, 2005 and was \$2.68 per MMBtu in March 2017. The price has ranged between a high of \$6.55 per MMBtu and a low of \$1.60 per MMBtu between August 2009 and the present. MACROTRENDS, NATURAL GAS PRICES-HISTORICAL CHART, <http://www.macrotrends.net/2478/natural-gas-prices-historical-chart> (last visited Mar. 12, 2017).

3. The U.S. Energy Information Administration forecasts Henry Hub natural gas spot prices to average only \$3.03 MMBtu in 2017 and \$3.45 MMBtu in 2017. U.S. ENERGY INFO. ADMIN., SHORT TERM ENERGY OUTLOOK MARCH 2017, at 10, available at http://www.eia.gov/outlooks/steo/report/us_oil.cfm (last visited Mar. 12, 2017) [hereinafter, ENERGY OUTLOOK].

4. Clifford Krauss, *Oil Prices: What's Behind the Volatility? Simple Economics*, N.Y. TIMES (Dec. 12, 2016).

5. Macrotrends, *Crude Oil Prices – 70 Year Historical Chart*, <http://www.macrotrends.net/1369/crude-oil-price-history-chart> (last visited Mar. 12, 2017).

with some analysts believing that Saudi Arabia intended a price war to harm U.S. unconventional producers.⁶ Since the collapse in the crude oil market the price has slowly recovered but is expected to remain relatively low with an average price of between \$55 and \$57 per barrel through 2018.⁷

An unknowable number of leases were executed during the high-price environment but now many of those leases have become unprofitable. Industry's first response to the downturn was to delay drilling programs on producing leases. This led to litigation involving the implied covenant to further develop producing leases already in the secondary term. With a sustained downturn, however, lessors are now turning to the habendum clause of the lease and its requirement for production in paying quantities. Does such a sustained downturn call for flexibility under the clause, or is the clause a bluntly efficient tool? Should the reasonable time period for a well to earn a profit include a period to restore commercial production after a price recovery, or is the time required measured by the lessor's patience?

This paper is only concerned with the situation where a lease has produced in paying quantities before the end of the primary term and into the secondary term. The lessee may have incurred substantial sums during the exploratory term of the lease to conduct seismic testing, obtain core samples, grade and prepare drilling sites, drill one or more test wells, and drill and complete one or more wells that at once produced in paying quantities. After a precipitous fall in prices, a lessee might decide to shut in the well or wells on a now unprofitable lease and wait for prices to improve. In that case, the lessor will complain because she has ceased receiving royalties. Or the lessee might continue to produce notwithstanding the depressed prices. In that case, the lessor will be dissatisfied with the amount of royalties she now receives because her checks have been reduced by half or more. In either case, the lessee faces the prospect of losing its lease.

As occurred in the 1980s,⁸ a price downturn provides motivation to reexamine provisions such as the two prong paying quantities standard in

6. See Heather Long, *It's OPEC vs. Trump on Oil*, CNN MONEY (Nov. 29, 2016, 5:09 PM), <http://money.cnn.com/2016/11/29/news/economy/donald-trump-opec-oil/>.

7. ENERGY OUTLOOK, *supra* note 3, at 3.

8. The other lease provision that has received the most scrutiny by commentators during price downturns is the implied covenant to further develop, which is also based on profitability, albeit a somewhat different test focused on future projections of profitability and that takes into account anticipated drilling and completion costs. See, e.g., Stephen F. Williams, *Implied Covenants in Oil and Gas Leases: Some General Principles*, 29 KAN. L. REV. 153 (1981); Stephen F. Williams, *Implied Covenants for Development and Exploration*

the habendum clause of the oil and gas lease. Part II of this article examines the habendum clause and the evolution of the paying quantities standard which will determine whether a lease continues in effect or terminates automatically. At one time the test was focused on whether the lessee was operating the lease in good faith. The courts subsequently discarded the deferential good faith standard in favor of a reasonably prudent operator standard. Now these past standards have been replaced by a two part test that first asks the accounting question whether a well produces sufficiently to pay a profit to the operator over a reasonable time, and then asks whether a reasonable prudent operator would continue to operate the lease for profit and not for speculation.

Part III of this article seeks to show that courts have placed undue focus on the mathematical first prong of the paying quantities test. The transaction costs and litigation risks associated with unanswered legal questions as to the contours of the mathematical prong and uncertainties as to the time periods involved in the calculations impede private bargaining between the parties and reduce the aggregate economic surplus to the lessor and the lessee. Further, while litigation focuses on past performance, it is the future that ultimately will determine whether the lessee recovers some or all of its drilling costs and operates the lease for a profit.

The “reasonable time” required for a profit under the first prong of the paying quantities test does not contemplate changes in market conditions. As such, vast numbers of leases are subject to changing hands. The law prohibits a lessee from holding a lease for speculation, but an overly technical interpretation of paying quantities incentivizes opportunistic behavior by lessors that could also be labeled “speculation.” During a high price environment, lessors may realize their share of lease benefits in the form of high bonuses, rentals, and royalties flowing from high market prices. But the “paying quantities” requirement will in many cases allow

in Oil and Gas Leases—The Determination of Profitability, 27 KAN. L. REV. 443 (1979); Jacqueline Lang Weaver, *Implied Covenants in Oil and Gas Law under Federal Energy Price Regulation*, 34 VAND. L. REV. 1473 (1981); Patrick H. Martin, *Implied Covenants in Oil and Gas Leases—Past, Present & Future*, 33 WASHBURN L.J. 639 (1993-94); Cyril A. Fox, Jr. & Patrick C. McGinley, *Maintaining Oil and Gas Leases in Depressed Gas Markets*, 8 E. MIN. L. INST. 14-1 (1987); Thomas P. Battle, *Lease Maintenance in the Face of Curtailed/Depressed Markets*, 32 ROCKY MT. MIN. L. INST. 14-1 (1986); David E. Pierce, *Unresolved Implied Covenant to Develop and Paying Quantities Issues; Defining Prudent Operator Obligations and Operations During, Good, and Not-So-Good, Times*, Paper Presented at Eugene Kuntz Conference on Natural Resources Law and Policy (2015) (on file with author).

these same lessors to terminate their leases in the “hope” that a new lessee will better operate or develop the premises.

Due to the shortcomings of the mathematical prong, Part IV of this article proposes that courts reformulate the paying quantities standard by removing the express mathematical prong of the test and by taking the best aspects of the test from both earlier and more recent decisions. The paying quantities test question should focus on what a prudent operator would do and whether the current lessee has and will continue to conduct lease operations in good faith for a profit. Although past performance remains relevant to both the overall profitability of the lease and to the lessee’s good faith efforts, a test that focuses on the future better correlates with the overall purpose of the lease to benefit both the lessor and the lessee by maximizing their cooperative surplus.

II. Paying Quantities

A. The Habendum Clause

Depending on the jurisdiction, an oil and gas lease may be either possessory or nonpossessory, and it may be either real or personal property.⁹ Nevertheless, the grant of an oil and gas lease is the grant of an interest in land and the habendum clause is a limitation on that grant. For historical reasons this grant has been referred to as a “lease,” but in most jurisdictions it is not a lease in the traditional sense. It is more properly characterized as a deed or conveyance of less than all of the fee simple or lesser interest in the oil and gas and other minerals described in the instrument.¹⁰

After experimenting with no term leases or rental paid clauses,¹¹ the oil and gas industry adopted the modern lease form that contains a habendum clause with a relatively short fixed term generally ranging from one to ten years¹² (called the primary term), with a “thereafter” clause that will

9. PATRICK H. MARTIN AND BRUCE M. KRAMER, 1-2 WILLIAMS & MEYERS, OIL AND GAS LAW § 209 (corporeal-incorporeal classification), § 212 (realty-personalty classification) (2016) [hereinafter, WILLIAMS & MEYERS].

10. *Id.* § 207 (criticism of lease-deed distinction).

11. WALTER L. SUMMERS, A TREATISE ON THE LAW OF OIL AND GAS 291 (1927) [hereinafter, SUMMERS].

12. For cases where a shorter six month to one year lease created structural problems with other provisions of the lease such as the “unless” clause and the dry hole clause, see *Rolander v. Sanderson*, 43 P.2d 1061 (Kan. 1935); *J.J. Fagan & Co. v. Burns*, 226 N.W. 653 (Mich. 1929).

continue the lease in effect after the fixed period for “so long as” oil and gas is produced (called the secondary term).¹³

The courts did not allow the lessee to remain completely idle during the fixed primary term, but instead imposed upon the lessee an implied requirement to drill a test well and to explore for oil and gas during the primary term. To avoid this requirement, creative lessees crafted the “drill or pay” clause and then the “unless” form of rental clause allowing the payment of delay rentals to substitute for the implied drilling obligation during the primary term.¹⁴ As such the fixed primary term has become a mere option to drill so long as delay rentals are paid.

During the secondary term, however, production is required to maintain the lease in effect under the habendum clause. This production requirement is two-fold. The lease must be producing oil or gas at the end of the fixed primary term and it must continue to produce thereafter under the “so long as” language.

Most courts construe the “so long as” language as creating a determinable interest and the requirement for production as a special limitation on the grant.¹⁵ In classic property terms, the interest of the mineral owner is referred to by the Middle French term “profit à prendre,” meaning the right to remove something from the land.¹⁶ Although clearly proper, the “thereafter” clause has not always been classified as creating a determinable interest. In particular, Oklahoma courts have seemingly classified the thereafter clause as a condition subsequent such that the lessor retains a right of entry or power of termination.¹⁷ The distinction is important.

A determinable interest may theoretically last forever and yet it will expire automatically when and if the special limitation on the grant is no

13. SUMMERS, *supra* note 11, at 291. A lease might be drafted differently, of course, so that it continues so long as oil and gas is “found,” “discovered,” etc., although a number of cases have interpreted the words “found” or “discovered” as synonymous with “produced.” *Id.* at 293 (citing cases).

14. See SUMMERS, *supra* note 11, at 386; 5-8 WILLIAMS & MEYERS, *supra* note 9, § 812.

15. See 1-13 POWELL ON REAL PROPERTY § 13.05[1] (2017) (an intent to create a fee simple determinable is manifested, *inter alia*, by a limitation that contains the terms “so long as,” “until,” or “during”).

16. 4-34 POWELL ON REAL PROPERTY § 34.01[2] (2017).

17. See *Stewart v. Amerada Hess Corp.*, 604 P.2d 854, 858 (Okla. 1979) (“The occurrence of the limiting event or condition does not automatically effect an end to the right. Rather, the clause is to be regarded as fixing the life of a lease instead of providing a means of terminating it in advance of the time at which it would otherwise expire.”); see also text accompanying 3-6 WILLIAMS & MEYERS, *supra* note 9, § 604 n.1.2.

longer satisfied.¹⁸ When the lessee holds a determinable interest the lessor holds a possibility of reverter.¹⁹ There is no need when a special limitation fails for the lessor to declare a forfeiture.²⁰ In fact there has been no such forfeiture and no termination because the term “produced” simply fixes the term of the lease.²¹ Termination requires an action to cause something to come to an end, but when the special limitation in a determinable interest is no longer satisfied the working interest simply reverts automatically to the mineral owner.

In contrast, if the habendum clause is classified as subject to a condition subsequent, then theoretically the lessor must take some sort of affirmative act such as providing notice to the lessee of termination or commencing a judicial action to cause the termination and forfeiture of the lease.²² Since *Stewart v. Amerada Hess Corporation*,²³ before a reviewing court in Oklahoma will order a forfeiture of an oil and gas lease for breach of a condition subsequent it will examine the equities, because equity abhors a forfeiture.

The Oklahoma Supreme Court had previously stated in *Stewart* that the habendum clause “is to be regarded as fixing the life of a lease instead of providing a means of terminating it in advance of the time at which it would otherwise expire . . . ,”²⁴ an interpretation consistent with an interest subject to a condition subsequent. More recently in *Baytide Petroleum, Inc. v. Continental Resources, Inc.*,²⁵ however, the court walked back that statement holding that “it is the failure to produce in paying quantities during the lease’s secondary term rather than the entrance of a court order which terminates a lease.”²⁶ So although a court order might be required to

18. 1-13 POWELL ON REAL PROPERTY §13.05[1]. The modern oil and gas lease contains other “special limitations” on the grant, such as the requirement to either drill or pay delay rentals during the primary term. The special limitation is created by the use of the word “unless,” namely that the lease will expire “unless” the lessee drills or pays delay rentals. For proposed language to avoid the automatic termination of the delay rental clause, see David E. Pierce, *Incorporating a Century of Oil and Gas Jurisprudence Into the “Modern” Oil and Gas Lease*, 33 WASHBURN L.J. 786, 805-06 (1994).

19. The lessor under an oil and gas lease also reserves the right to a royalty and other payments, such as delay rentals and shut-in royalty.

20. SUMMERS, *supra* note 11, at 299.

21. *Id.* at 311.

22. 3-20 POWELL ON REAL PROPERTY § 20.03[1] (2017).

23. 604 P.2d at 858.

24. *Id.*

25. 231 P.3d 1144 (Okla. 2010).

26. *Id.* at 1149.

adjudicate the rights of the parties under the habendum clause in Oklahoma, the termination date once found will relate back to the date the lease is deemed to have no longer produced in paying quantities.

It should be clear at this point why the “thereafter” clause in the oil and gas lease has been viewed as a guillotine clause. Whether a determinable interest or subject to a condition subsequent, without continuing production sufficient to satisfy the habendum clause a lessee risks a complete loss of its investment in a lease, including any bonuses and rentals paid and any exploration, development, drilling, and operating costs incurred. At one moment the lessee holds a property right. The next the lessee is treated as a good faith trespasser, a holdover tenant, or a tenant-at-will.²⁷

B. The Need for Production or Discovery

So unless a limited exception is applicable,²⁸ the lease will only continue into and during the secondary term so long as it produces oil and gas. The general majority rule is that “production” means actual production.²⁹ The lessee must be actually producing oil and gas at the end of the primary term; discovery alone accompanied by diligent operations to market the product will not suffice. Many commentators have concluded that this is the sound interpretation of the oil and gas lease; to require only discovery and diligence is “an unwarranted interference of a court of equity in the interpretation of a contract of plain meaning.”³⁰

Nevertheless, Oklahoma and a few other states require only discovery of oil and gas *capable* of production in paying quantities followed by a diligent effort to market the production.³¹ Oklahoma reasons that production and marketing are two separate activities. According to this theory, to require “actual production” ignores a distinction between

27. 3-6 WILLIAMS & MEYERS, *supra* note 9, § 604.9.

28. *See infra* Part II.D.

29. *See, e.g.*, Stanolind Oil & Gas Co. v. Barnhill, 107 S.W.2d 746 (Tex. Civ. App.—Amarillo 1937, writ ref’d); Natural Gas Pipeline Co. of Am. v. Pool, 124 S.W.3d 188, 192 (Tex. 2003); Baldwin v. Blue Stem Oil Co., 189 P. 920 (Kan. 1920).

30. *See, e.g.*, SUMMERS, *supra* note 11, at 312 (citing J.W. Simonton, *Extension of Term of Oil Lease Through Discovery of Oil in Less Than Paying Quantities*, 26 W. VA. L. Q. 79, 82 (“The rule that, where the parties have expressly covered a point, there can be no implication ought to apply here as in other cases.”)); *see also* 3-6 WILLIAMS & MEYERS, *supra* note 9, § 604 (interpretation that requires only discovery is contrary to the manifest intent of the parties and not justified by equities, which are irrelevant).

31. Gard v. Kaiser, 582 P.2d 1311, 1314 (Okla. 1978).

production and marketing and the difference between express and implied terms under the lease.³²

C. Production Means Production in Paying Quantities

The word “production,” however, has a more restrictive meaning than is evident on its face. Regardless whether the lease expressly requires “production in paying quantities” or “production” alone, in all jurisdictions the courts hold the meaning is the same and that to extend and continue the lease production must be in “paying quantities.”³³ Courts rationalize the need for “paying quantities” in a lease that by its express terms only requires “production” because a lease is executed for the mutual benefit of both the lessor and the lessee.³⁴ What “paying quantities” actually means has evolved over time, the history of which is discussed in Part II.E below.

D. Exceptions to the Requirement for Production

There are some exceptions that may hold a lease in the absence of sufficient production. For example, under the common law a temporary cessation of production will not terminate the lease,³⁵ and modern oil and gas leases reinforce this exception with temporary cessation of production and dry hole clauses.³⁶ If a lessee is engaged in drilling operations at the end of the primary term, then an express drilling clause will allow the lease to continue into the secondary term if the lessee continues with diligence until production in paying quantities is achieved. Other savings clauses such as the shut-in royalty clause may also save a lease. Although a detailed discussion of these savings clauses is beyond the scope of this paper, these clauses have limited application when a lessee shuts in a well for a better market or continues to produce under a lease that does not produce in paying quantities.

For example, courts may find that the temporary cessation of production doctrine only applies when a lease stops producing because of some mechanical failure,³⁷ lack of a market,³⁸ a fire,³⁹ or maybe even reworking

32. *McVicker v. Horn, Robinson & Nathan*, 322 P.2d 410, 413 (Okla. 1958).

33. SUMMERS, *supra* note 11, at 316.

34. *See, e.g., Benedum-Trees Oil Co. v. Davis*, 107 F.2d 981, 985 (6th Cir. 1939); *accord Garcia v. King*, 164 S.W.2d 509, 512 (Tex. 1942).

35. *See, e.g., Bryan v. Big Two Mile Gas Co.*, 577 S.E.2d 258, 266 (W. Va. 2001).

36. *See* 3-6 WILLIAMS & MEYERS, *supra* note 9, § 615.

37. *See, e.g., Watson v. Rochmill*, 155 S.W.2d 783, 784 (Tex. 1941) (stating that cessation must be “due to a sudden stoppage of the well or some mechanical breakdown of the equipment used in connection therewith, or the like”).

operations,⁴⁰ but not for an unfavorable market. And a modern temporary cessation of production clause will usually only allow a lessee a very short period of time, such as 30, 60, or 90 days, to commence reworking operations or commence the drilling of a new well.⁴¹ The common law allows a lessee a reasonable time to recommence production but this reasonable time may be longer than the express time in the cessation of production clause. And virtually all courts will enforce the lease as written so as to disallow any cessation longer than the agreed upon time period in the lease.⁴²

The shut-in royalty clause presents similar problems. Most shut-in royalty clauses are drafted so that the payment of royalty is a substitute for production in paying quantities. If the “substitute” is not provided then the lease will automatically terminate for failure of a special limitation just as it would under the habendum clause. As such, the general rule is that the clause must be strictly complied with such that shut-in royalty must be paid timely in accordance with the clause, or absent a contractual grace period, immediately upon or before the well is shut-in.⁴³ Further, most shut-in royalty clauses are drafted to apply only to gas, not oil, and a court may determine that the clause only allows shut-in for a complete lack of a market such as a pipeline connection, but not for a bad market.⁴⁴

In the 1980s, deregulation caused some markets for gas to disappear, a situation that better justified application of the shut-in royalty clause or the

38. See, e.g., *Stimson v. Tarrant*, 132 F.2d 363 (9th Cir. 1942).

39. See *Saulsberry v. Siefel*, 252 S.W.2d 834 (Ark. 1952).

40. See, e.g., *Reynolds v. McNeill*, 236 S.W.2d 723 (Ark. 1951).

41. A representative clause might provide, “If after the discovery of oil or gas the production thereof should cease from any cause, this lease shall not be terminated thereby if lessee commences drilling or reworking operations within sixty (60) days thereafter or (if it be within the primary term) commences or resumes the payment or tender of rentals on or before the rental paying date (if any) next ensuing after thirty (30) days following the cessation of production.” 3-6 WILLIAMS & MEYERS, *supra* note 9, § 615.

42. See, e.g., *McCullough Oil, Inc. v. Rezek*, 346 S.E.2d 788 (W. Va. 1986); *Geo-Western Petroleum Dev., Inc. v. Mitchell*, 717 S.W.2d 734 (Tex. App.—Waco 1986); *Hoyt v. Continental Oil Co.*, 606 P.2d 560, 563-64 (Okla. 1980); *Greer v. Salmon*, 479 P.2d 294, 297 (N.M. 1970); *Gulf Oil Corp. v. Reid*, 337 S.W.2d 267 (Tex. 1960).

43. *Id.* at 270.

44. See *Tucker v. Hugoton Energy Corp.*, 855 P.2d 929 (Kan. 1993). For an example of a clause that applies to both oil and gas, attempts to avoid the special limitation language, and sets forth a broader list of events that justify shutting in a well, see *Pierce*, *supra* note 18, at 812 n.105.

extension of the lease on other grounds.⁴⁵ Oil price regulation in the 1970s and into the 1980s also distorted market prices.⁴⁶ In contrast, the current price collapse is due to simple economics of supply and demand.⁴⁷ Purchasers are still willing to purchase gas and oil but the price for some producers is too low to support current profitable operations.

E. Evolution of the Meaning of Paying Quantities

At one time the “paying quantities” requirement was a shield for lessees because a lessee would prefer that an unprofitable lease disappear rather than pay rent to retain the lease.⁴⁸ As the case law indicates, however, it has been used more recently as a sword for a lessor to rid himself of a lessee. Although a lessee might realize a gain by retaining leases for speculation, a lessor only receives the benefit of a lease when the product is produced and

45. See *Barby v. Singer*, 648 P.2d 14, 17 (Okla. 1982) (holding that the lease in dispute extended because price increase reasonably anticipated after deregulation). In the late 1970's and early 1980's, a supply shortage of natural gas sold in interstate markets resulted from Federal Power Commission's regulation of natural gas prices at “just and reasonable” rates under the Natural Gas Act, 15 U.S.C. §§ 717-717w (1982). Because of the shortage, pipeline and utility company purchasers agreed to take-or-pay provisions in gas purchase contracts to entice producers to dedicate their production. In 1978, the Congress enacted the Natural Gas Policy Act, 15 U.S.C. §§ 3301-3432 (1982), to stimulate production and development of gas. The act worked by deregulating prices subject to price ceilings with higher ceilings for “new gas” (as opposed to “old” gas or “difficult to produce gas”) in order to stimulate production of new sources of supply. See Richard J. Pierce, Jr., *Reconsidering the Roles of Regulation and Competition in the Natural Gas Industry*, 97 HARV. L. REV. 345 (1983). The result, however, was a supply glut. When oversupply caused prices to fall, pipeline companies and utilities refused to honor take or pay arrangements and refused to take gas at these higher prices, since gas was widely available at lower prices. See Richard J. Pierce, Jr., *Lessor/Lessee Relations in a Turbulent Gas Market*, 38 INST. OIL & GAS L. & TAX'N 8-1, 8-4 (1987) [hereinafter, *Turbulent Gas Market*]. Under current market conditions, oil and gas purchasers will usually purchase at spot prices. Unfavorable long-term contracts at above-market prices protected some producers for a while but have now virtually disappeared. As such, purchasers are not completely eliminating existing markets by refusing to purchase product.

46. See Energy Policy and Conservation Act of 1975, Pub. L. No. 94-163, §§ 1-552, 89 Stat. 871 (codified in 15, 42, and 50 U.S.C.) (controlling the weighted average price of first sales of domestic crude oil through May 31, 1979); Crude Oil Windfall Profit Tax Act of 1980, I.R.C. §§ 4986-4998 (1980); see also Ligon, *Crude Oil Pricing: Current Regulations and the Shift to Decontrol*, 31 INST. OIL & GAS L. & TAX'N 1, 19-20 (1980); Weaver, *supra* note 8, at 1474-80 (1981).

47. See Part I, *supra*.

48. *Swiss Oil Corp. v. Riggsby*, 67 S.W.2d 30, 31 (Ky. 1993).

marketed from the premises.⁴⁹ As such, the word “produce,” has come to “mean[] something more than mere discovery of a trace of oil or gas, or the discovery thereof in quantities so small as to render operation of the well unprofitable. . . .”⁵⁰

The modern paying quantities formulation seems to have its roots in *Young v. Forest Oil Co.*,⁵¹ an 1899 decision of the Supreme Court of Pennsylvania. The plaintiff lessor claimed *inter alia* that the defendant Forest Oil Company’s lease had expired for lack of production in paying quantities. The court found for the defendant which had drilled five wells, four of which produced oil at a time. The court stated:

If oil has not been found, and the prospects are not such that the lessee is willing to incur the expense of a well (or a second or subsequent well as the case may be), the stipulated condition for the termination of the lease has occurred But if a well, being down, pays a profit, even a small one, over the operating expenses, it is producing in “paying quantities,” though it may never repay its costs, and the operation as a whole may result in a loss *The phrase, “paying quantities,” therefore is to be construed with reference to the operator, and by his judgment when exercised in good faith.*⁵²

This excerpt sets forth only one element for paying quantities with respect to a lease where oil or gas has been found—that the well must pay a profit over operating expenses; but in making that determination, the court is to defer to the good faith subjective judgment of the lessee. This conclusion, that the subjective good faith of the lessee is the focus under *Young*, was bolstered by *Colgan v. Forest Oil Co.*,⁵³ a decision issued by the Pennsylvania Supreme Court on the same day it issued *Young*.⁵⁴

49. *Garcia v. King*, 164 S.W.2d 509, 512 (Tex. 1942) (quoting *Bendum-Trees Oil Co. v. Davis*, 107 F.2d 981, 985 (6th Cir. 1939)).

50. *Gypsy Oil Co. v. Marsh*, 248 P. 329, 333 (Okla. 1926). A contrary holding was reached in Illinois in *Gillespie v. Ohio Oil Co.*, 102 N.E. 1043 (Ill. 1913) and *McGraw Oil & Gas Co. v. Kennedy*, 64 S.E. 1027 (W. Va. 1909), that any production that is capable of division is sufficient to constitute production.

51. 45 A. 121 (Pa. 1899).

52. *Id.* at 122-23 (emphasis added).

53. 45 A. 119 (Pa. 1899).

54. The court in *Colgan* states, “So long as the lessee is acting in good faith on the business judgment, he is not bound to take any other party’s, but may stand on his own. Every man who invests his money and labor in a business does it on the confidence he has in being able to conduct it in his own way. No court has any power to impose a different

This has not, however, been the universal interpretation of the *Young* decision. In the recent case of *T.W. Phillips Gas & Oil Co. v. Jedlicka*,⁵⁵ the Supreme Court of Pennsylvania interpreted *Young* more than 110 years after it was decided. The majority gleaned from *Young* a two-part test: (1) whether the well pays a profit over operating costs, and if not (2) whether the operator exercised in good faith his judgment to continue operations. If either element is satisfied then the lease will be considered to produce in paying quantities. But the court then grafted an objective reasonableness test onto the second element, that whether the operator acted in good faith depends on “the reasonableness of the time period during which the operator continued his operation of the well in an effort to establish the well’s profitability.”⁵⁶ And the court implies that the second element, the operator’s good faith, is more important than the first.⁵⁷ Because the trial court found that the operator acted in good faith, satisfying the second element, there was no need to consider the first.⁵⁸

In dissent, Justice Saylor also argued that *Young* required a substantially similar test, but rather than an either/or test where paying quantities will be found under either prong, his test would require both prongs, *viz.*, the court must find both that the well pays a profit and that the lessee acted in good faith.⁵⁹ Judge Saylor acknowledges, however, that one might rationally dispute whether *Young* requires two elements or only subjective good faith.⁶⁰

Taking a step back, almost 90 years before *T.W. Phillips* was decided, *Young* was cited approvingly in the 1926 Oklahoma case of *Gypsy Oil Co.*

judgment on him, however erroneous it may deem his to be. Its right to interfere does not arise until it has been shown clearly that he is not acting in good faith on his business judgment, but fraudulently, with intent to obtain a dishonest advantage over the other party to the contract.” *Id.* at 121.

55. 42 A.3d 261 (Pa. 2012).

56. *Id.* at 276.

57. *Id.* at 277 (“As explained above, pursuant to *Young*, the operator’s good faith judgment is the principal focus in determining whether a lease has produced in paying quantities.”).

58. *Id.* at 278.

59. *Id.* at 283 (Saylor, J. dissenting).

60. *Id.* at 287 (Saylor, J. dissenting).

v. Marsh.⁶¹ Then in 1942 both *Young* and *Gypsy* were cited by the Texas Supreme Court in *Garcia v. King*.⁶²

In *Gypsy*, the parties both argued as to the equities, but the court thought the “only question to be considered is whether or not the Gypsy Oil Company discovered oil in paying quantities within the life of the lease.”⁶³ Applying the *Young* test, the lessee’s claim that it had discovered oil in paying quantities was not made in good faith where the sole well on the property could only be operated at a loss.⁶⁴ Although the court reviewed the past performance of the well, the court’s statement as to the test was forward-looking: “Will the production of the oil discovered during the life of the lease [primary term] yield the Oil Company a profit, though small, over operating expenses?”⁶⁵

In *Garcia*, the wells were producing in paying quantities from shallow sands when the leases were executed. The lessees thereafter abandoned the shallow producing wells, unsuccessfully explored the deeper sands, and then began to drill shallow wells again. The revenue from the wells was barely sufficient to pay the contract operator for his labor and it was clear that production was not in paying quantities when the primary term expired.⁶⁶ The *Garcia* court quotes from *Gypsy* the same test announced in *Young* that a well must pay a small profit over operating expenses, even though the well may prove unprofitable, and that “[o]rdinarily, the phrase is to be construed with reference to the operator, and by his judgment when exercised in good faith.”⁶⁷ The court then states in conclusion:

It should be noted that we are dealing with a situation in which, *under normal conditions*, all of the producing wells on the lease in question at the time of the termination of the primary period were not producing enough oil or gas to pay a profit over and above the cost of operating the wells So far as the lessees were concerned, the object in providing for a continuation of the lease for an indefinite time after the expiration of the primary period, was to allow the lessees to reap the full fruits of the

61. 248 P. 329, 334 (Okla. 1926) (citing *Lowther Oil Co. v. Miller-Sibley Oil Co.*, 44 S.E. 433 (W. Va. 1903); *Aycock v. Paraffine Oil Co.*, 210 S.W. 851 (Tex. Civ. App.—Beaumont 1919)).

62. 164 S.W.2d 509 (Tex. 1942).

63. *Gypsy*, 248 P. at 334.

64. *Id.*

65. *Id.*

66. *Garcia*, 164 S.W.2d at 510.

67. *Id.* at 511-12.

investments made by them in developing the property. Obviously, if the lease could no longer be operated at a profit, there were no fruits for them to reap. The lessors should not be required to suffer a continuation of the lease after the expiration of the primary period merely for speculation purposes on the part of the lessees.⁶⁸

The conditions under which the lessee in *Garcia* attempted to produce were not abnormal. The meager amount of revenue was all he could expect to earn in the future and this was not enough to sustain the lease. Phrased another way, the lessee was not acting in good faith but attempting to hold the lease for speculation.

The Texas Supreme Court revisited *Garcia* in *Clifton v. Koontz*,⁶⁹ probably the most influential case to date on paying quantities. The petitioners claimed the well at issue operated at a loss between June 1955 and September 1956 but the lessee had begun reworking operations on September 12, 1956 that proved wildly successful. Because the temporary cessation clause allowed the lessee 60 days to commence reworking operations after the cessation of production, the court found that the relevant period should have been through July 12, 1956—60 days before the reworking operations commenced—rather than September 1956.

After analyzing the relevant dates, the court defines “paying quantities,” adopting the test from *Garcia* that if a well pays a profit over operating expenses the well produces in paying quantities. The court, however, completely omits any reference to the good faith of the operator, substituting in its place an objective reasonableness standard. The court states:

In the case of a marginal well, such as we have here, the standard by which paying quantities is determined is whether or not under all the relevant circumstances a reasonably prudent operator would, for the purpose of making a profit and not merely for speculation, continue to operate a well in the manner in which the well in question was operated.⁷⁰

After the court announces this new “reasonably prudent operator” standard, it states that the trial court must take into account “all matter which would influence a reasonable and prudent operator,” then lists

68. *Id.* at 512-13 (emphasis added).

69. 325 S.W.2d 684 (Tex. 1959).

70. *Id.* at 691.

“some” of the factors that may be relevant, including the price for which the lessee may sell his product, also the depletion of the reservoir, a reasonable period of time under the circumstances, and whether the lessee is holding the lease for speculation.⁷¹ Again, the lessee’s net profit is only one of the factors to be considered.⁷² The court then restates the test as “[w]hether there is a reasonable basis for the *expectation* of profitable returns”⁷³

Rather than consider all of these factors, however, the court relies solely on the evidence before the trial court as to profit and loss figures. The court never expressly ties the accounting performance of the well to the reasonably prudent operator standard that it announced, and never discusses the expectations for future profits. Presumably the court must have believed that where past performance indicates a clear profit a reasonably prudent operator would continue to operate the well. Or maybe because the lessee so clearly complied with the express terms of the lease, a complete analysis under the standard was unnecessary.

Further, according to the express holding of the court, the “reasonably prudent operator” standard applies only in the case of a marginal well, which is “[a] well incapable of production except by artificial lift (pumping, gas lift or other means of artificial lift) and when so equipped, capable of producing only a limited amount of oil.”⁷⁴ But what if the facts involve a well or multiple wells on a lease that are capable of producing vast amounts of oil or gas but because of circumstances that are not “normal” to quote *Garcia*, the well is not currently producing at a profit? Although past performance might be indicative of future performance it might not be. In that case, might we still consider the good faith of the operator as seemingly mandated by *Garcia*?

Although the court in *Koontz* never really expands on the prudent operator aspects of the paying quantities test, it has become an element unto itself. In *Pshigoda v. Texaco, Inc.*,⁷⁵ the paying quantities analysis was framed by the Texas appellate courts as a two part test: (1) whether the lease pays a profit after deducting operating and marketing expenses over a reasonable period of time, and (2) if not, whether a reasonably prudent operator would continue to operate the lease for profit and not for speculation. The Texas Supreme Court recently endorsed this approach in

71. *Id.*

72. *Id.*

73. *Id.* (emphasis added).

74. 8-M WILLIAMS & MEYERS, *supra* note 9, M Terms.

75. *Pshigoda v. Texaco, Inc.*, 703 S.W.2d 416, 418 (Tex.App.—Amarillo 1986, writ ref’d n.r.e.).

its 2017 opinion in *BP American Production Company v. Laddex, Ltd.*, stating that *Koontz* required two prongs all along.⁷⁶

Oklahoma has followed a different path since *Gypsy*. Oklahoma omits the prudent operator standard and rather adds to the mathematical first prong whether “compelling equitable considerations” will save a lease from termination even though well operations are unprofitable.⁷⁷ Some of these considerations include the reasonableness of the period of cessation of unprofitable production, the lessee’s diligence as operator, and whether the cessation was voluntary.⁷⁸

Some of the “equitable considerations” that have justified a cessation of production have included the inability to market product without a pipeline,⁷⁹ ceasing to produce while resolving partnership differences,⁸⁰ and waiting for the passage of the Natural Gas Policy Act of 1978⁸¹ which might result in a price increase.⁸² An expected price increase alone, however, is not a sufficient equitable consideration, at least without more evidence than a mere “hope.” In *Smith v. Marshall Oil Corporation*,⁸³ the Oklahoma Supreme Court affirmed the trial court’s conclusion that a dearth of equitable considerations existed in the case where the lessee testified, “I produced them when I felt like producing them. And I turned them off when I felt like turning them off.”⁸⁴ The only justification offered by the lessee was that he hoped oil and gas prices would rise, offering no factual support other than his “hope.”⁸⁵

That said, equitable considerations may apply in Oklahoma based on an anticipated price increase, even though the prospect of the increase may be remote, as long as the lessee can point to a reason to justify its hope.⁸⁶ And if the reason is sound, an operator should satisfy the second prong whether the prong is grounded in equity or the *Koontz* “reasonable prudent operator”

76. 513 S.W.3d 476, 482-83 (Tex. 2017).

77. *Smith v. Marshall Oil Corp.*, 85 P.3d 830, 834 (Okla. 2004); *Barby*, 648 P.2d at 17.

78. *Smith*, 85 P.3d at 834 (citing *Hunter v. Clarkson*, 428 P.2d 210, 212 (Okla. 1967); *Kerr v. Hillenberg*, 373 P.2d 66, 69 (Okla. 1962)).

79. *State ex rel. Comm’r of Land Office v. Carter Oil Co. of W. Va.*, 336 P.2d 1086, 1095-96 (Okla. 1958) (implied covenant case).

80. *Cortner v. Warren*, 330 P.2d 217 (Okla. 1958).

81. Act Nov. 9, 1978, 92 Stat. 157, 15 U.S.C. § 3301 *et seq.*

82. *Barby*, 648 P.2d at 17.

83. 85 P.3d 830 (Okla. 2004).

84. *Id.* at 835.

85. *Id.*

86. *Barby*, 648 P.2d at 17.

standard.⁸⁷ In other words, if a “hope” is based on a reasonable justification supported by evidence, then a court should allow anticipated future revenue to count towards a well’s profitability. However, in the only case in Oklahoma to approve the lessee’s waiting for a price increase as an equitable consideration, the justifiable reason to wait actually occurred. Congress passed the Natural Gas Policy Act and a price increase resulted therefrom.⁸⁸ Because hindsight is 20/20, we have no way of knowing whether the case would have come out differently if the act was not passed or the price did not increase.

In contrast to the above cases, the Kansas Supreme Court in *Reese Enterprises, Inc. v. Lawson*⁸⁹ expressly rejected the idea of a “subjective” second prong in the test, refusing to consider either the good faith of the lessee or what an objectively reasonable prudent operator would do. The Kansas Supreme Court applies an approach that ignores economic principles and considers only the mathematical computation.⁹⁰ The court reasons:

If the lease ceased to be a profitable operation it would appear to be to the interest of the lessee to abandon the project, and it would appear to be unlikely that the lessee would have any interest in continuing to operate at a loss. This conclusion, however, does not take into account the very real factor that the lessee may be interested in preserving his interest for speculative purposes.⁹¹

Alternatively, of course, the lessee may have a sound basis to continue to operate the lease based on a reasonable expectation of future profits. But for the *Reese* court, “speculation” includes not only the lessee’s interest in preserving a marginal operation in the hopes of making discoveries in other formations, but also changes in marketing conditions or the market prices of oil and gas.⁹² As discussed below, changes in market conditions or the price

87. *Id.* (quoting the testimony of a petroleum engineer when asked whether he would have plugged the well or waited, answered, “Yes, I have an opinion. I believe a prudent operator, my recommendation if I were ask would be to [sic] upon the passing of the law see how it would affect the income for this unit or this well. I would continue in operation.” (internal quotations omitted)).

88. *Id.* (“The fact that production income was received retroactively does not convert it into something other than what it is, production income.”).

89. 553 P.2d 885 (Kan. 1976).

90. *Id.* at 897.

91. *Id.*

92. *Id.*

of oil or gas might be speculation or it might not, depending on the diligence and sincerity of the lessee regarding its consideration of changing conditions and how one defines the term “speculation.”⁹³

III. Reexamining the Mathematical Prong

The first prong of the *Koontz* test, which requires the lessor to satisfy its burden of proof that the lease does not pay a profit to the lessee after deducting operating and marketing expenses over a reasonable period of time, suffers from two intractable economic difficulties that will be explored in this Part: (1) the transaction costs arising from the uncertainty of the calculation that impede bargaining, and (2) the backward-looking temporal nature of the test that results in the loss of aggregate profit surpluses for the parties.

A. Transaction Costs and the Mathematic Prong

In the absence of development of the mineral interest there are no profits for either the lessor or the lessee. But when a lessee and a lessor enter into an oil and gas lease their intent is to create a cooperative surplus from the bargain. The lessor stands to earn a surplus in the amount of the discounted present value of its bonus, rentals, and royalties. If we assume a royalty rate of 20%, then the lessee might earn a surplus as well, but only if the discounted present value of its 80% share of the revenues from the lease exceed the discounted cost of its initial investment, its exploration, development and drilling costs, and its operating costs.⁹⁴ In the absence of uncertainty costs and transaction costs, lessees and lessors should be able to handle their paying quantities disputes among themselves. If the influential “Coase Theorem” is applied, then private bargaining will result in an efficient allocation of resources.⁹⁵

Assume, for example, a very clear rule for the paying quantities analysis. Under this rule, a specified quantity of production is required by the end of the primary term and the lessee must show an operating profit for the two year accounting period that begins at the end of the primary term and ends

93. See *supra* notes 148-150 and accompanying text.

94. The discount rate will include a rate for the cost of capital and a rate for the risk. The risk and the attendant discount rate will change over time as the lessee reevaluates the risk of its investment when it obtains new information. See NICK ANTILL & ROBERT ARNOTT, VALUING OIL AND GAS COMPANIES 136 (2000).

95. See Ronald H. Coase, *The Problem of Social Cost*, 3 J. LAW & ECON. 1, 15 (1960) (arguing that rearrangement of legal rights through the market will result, but only assuming costless market transactions).

two years later. Thereafter under the rule the lessee must show an operating profit for each successive two year period. Further suppose that profits and operating costs over any particular two-year period are easy for the lessee to calculate because the parties have specifically negotiated how the amounts are to be calculated. Also assume that bargaining costs between the parties are zero and that other transaction costs, such as the cost of capital, are also zero.

If the lessee obtains the required production by the end of the primary term, but then determines towards the end of any two year accounting period that its operating costs will exceed its revenue for that period, then it has a decision to make. The lessee might decide to abandon the lease, in which case the property will revert to the lessor without litigation. Or the lessee might decide to bargain with the lessor. If the rule is clear and operating profit is easy to calculate, then arguably there is no impediment to bargaining. In that case, the lessee may be willing to pay the lessor for an extension of the lease. The most efficient outcome is achieved.

The problem of course is that the parties do not negotiate clear formulas for paying quantities. Presumably this is because the oil and gas industry has determined that the costs of negotiating a clear paying quantities rule would make the overall leasing process too costly in light of the risk.⁹⁶ Because the parties fail to specify the terms for calculating paying quantities, when a dispute arises the costs of negotiating a resolution are high. Economists would say that when such transaction costs impede bargaining, courts should remove impediments and lubricate bargaining by

96. In other mineral exploitation contexts, where the initial overall risk of the transaction is perceived as being higher, the parties often attempt to negotiate the details of revenue and expense calculations. Standard industry forms have made this process less costly. For joint operations, the oil and gas industry relies heavily on a standard form joint operating agreement. See AM. ASS'N PROF. LANDMEN, FORM 610-2015 JOINT OPERATING AGREEMENT, available at <http://www.landman.org/resources/forms-contracts> (last visited Mar. 22, 2017). The parties typically attach to the joint operating agreement a detailed accounting procedure that has been developed by the Council of Petroleum Accountants Societies. COUNCIL OF PETROLEUM ACCOUNTANTS SOCIETIES, MF-6 2005 ACCOUNTING PROC. JOINT OPERATIONS, available at <http://www.copas.org/index.php/publications/model-form-accounting-procedures-mfs/mf-6-2005-accounting-procedure-joint-operations-from-forms-on-a-disk-detail> (last visited Nov. 18, 2017). For mining joint ventures, the parties may similarly use a standard form that contains detailed accounting procedures. See ROCKY MOUNTAIN MINERAL LAW FOUNDATION, FORM 5 LLC: EXPLORATION, DEVELOPMENT AND MINING LIMITED LIABILITY COMPANY (2015), available at <http://www.rmmlf.org/publications/forms-and-agreements/form-5-llc-single-license> (last visited Mar. 22, 2017).

adopting a rule that will tend to lower transaction costs and provide more certainty.⁹⁷ The courts have not done this with paying quantities.

In particular, the mathematical first prong of the *Koontz* paying quantities analysis is inherently elusive. Commentators and courts often label this first prong as the “objective” prong and wrongly label the second *Koontz* prong as the subjective prong,⁹⁸ but the mathematical prong arguably is the more unpredictable and subjective prong.

Disputes generally only arise as to the secondary term when the lease is marginal. But when the lease is marginal the lessor will not have an effective way to evaluate paying quantities until after it files suit because he is not in possession of the relevant data.⁹⁹ Unfortunately, the lessee too will lack an effective means to ascertain before the end of litigation whether the lease satisfies the mathematical prong. Consider just a few of the intractable difficulties: the accounting period, lifting costs and depreciation, and overhead.

1. Accounting Period

The accounting period applied varies significantly from case to case and is almost impossible to predict. The court in *Barby v. Singer*¹⁰⁰ stated that “the appropriate time period is not measured in days, weeks, or months, but by a time appropriate under all of the facts and circumstances of each case.”¹⁰¹ Unfortunately, this accounting period is selected by the litigators *ex-post*, rather than by the parties *ex ante*. Although most courts would agree in principal that profitability should be determined over a relatively long period of time,¹⁰² the parties really have no idea how long is long or whether the long period will include only unprofitable periods or both profitable and unprofitable periods where the net result is a profit. Courts

97. The goal of courts to lubricate bargaining might be called the “normative Coase theorem.” ROBERT COOTER & THOMAS ULEN, *LAW & ECONOMICS* 97 (5th ed. 2008).

98. See *T.W. Phillips Gas & Oil Co. v. Jedilicka*, 42 A.3d 261, 284 n.8 (Pa. 2012) (Saylor, J., dissenting) (“Couching the reasonably prudent operator standard [as a subjective standard] . . . is misleading, if not wholly inaccurate, since courts have almost universally viewed that inquiry as an objective one) (citing George A. Bibkos & Jeffrey C. King, *A Primer on Oil and Gas Law in the Marcellus Shale States*, 4 *TEX. J. OIL, GAS, & ENERGY L.* 155, 161-62 (2008-09)).

99. Patrick S. Ottinger, *Production in “Paying Quantities”—A Fresh Look*, 65 *LA. L. REV.* 635, 644-45 (2005).

100. 648 P.2d 14 (Okla. 1982).

101. *Id.* at 16-17.

102. See *Transp. Oil Co. v. Exeter Oil Co.*, 191 P.2d 129, 134 (Cal. Dist. Ct. App. 1948).

have examined evidence and entertained claims for one month,¹⁰³ fifteen unprofitable months,¹⁰⁴ one unprofitable year out of more than fifty years,¹⁰⁵ two unprofitable months out of fifteen,¹⁰⁶ two years,¹⁰⁷ and even profits realized after the commencement of litigation.¹⁰⁸

While courts eschew any specific accounting period as a matter of law, someone ultimately picks an accounting period, be it a judge or a jury, because that is what the test requires. For example, in the recent Texas Supreme Court opinion issued in *BP American Production Company v. Laddex, Ltd.*,¹⁰⁹ the court rejected the plaintiff's contention that the trial court properly instructed the jury to consider only a fifteen-month slowdown period and also rejected the defendant's argument that as a matter of law the jury should have been instructed to consider several months before and after the slowdown.¹¹⁰ The court agreed with the court of appeals (and Professors Smith and Weaver) that the jury must be allowed to evaluate the cessation of paying production with no limit as to time taken into consideration.¹¹¹ The court says that "[n]arrowing the question on paying production to any particular time period is necessarily 'arbitrary.'"¹¹² So rather than the court pick an arbitrary period, that task is given to the jury. With no limit, there is no standard, meaning efficient bargaining is virtually impossible.

2. Lifting Costs and Depreciation

Only lifting expenses (i.e. the operating costs to "lift" oil and gas to the surface) and marketing expenses are considered in the calculation; drilling and completion costs are not lifting expenses and thus are excluded.¹¹³ The

103. *See id.*

104. *See* BP Am. Prod. Co. v. Laddex, Ltd., 513 S.W.3d 476 (Tex. 2017) (rejecting 15 month period as arbitrary).

105. T.W. Phillips Gas & Oil Co. v. Jedlicka, 964 A.2d 13 (Pa. Super. Ct. 2008) (concerning a claim based on one unprofitable year more than fifty years earlier rejected).

106. Clifton v. Koontz, 325 S.W.2d 684 (Tex. 1959) (holding that well was unprofitable over 15 months but profitable over 13 months excluding months during reworking operations).

107. Ross Expls., Inc. v. Freedom Energy, Inc., 8 S.W.3d 511 (Ark. 2000) (holding 24 month period reasonable).

108. Duerson v. Mills, 648 P.2d 1276 (Okla. Civ. App. 1982).

109. 513 S.W.3d 476 (Tex. 2017).

110. *Id.* at 484-85.

111. *Id.* at 485-86 (citing 1 ERNEST E. SMITH & JACQUELINE LANG WEAVER, TEXAS LAW OF OIL & GAS § 4.4[a][2][b], at 4-40 (2009)).

112. *Id.* at 485 (internal citations omitted).

113. 3-6 WILLIAMS & MEYERS, *supra* note 9, § 604.6(b).

rationale for this rule is often stated that the lessee should be allowed to operate a well to recover its drilling and completion costs. This dichotomy makes economic sense. A lessee will continue to operate a lease as a prudent operator for the benefit of both parties if it projects that its marginal revenue will exceed its marginal costs. The costs of drilling and completion are sunk costs and therefore do not enter into the lessee's economic decision to continue to operate after production is obtained.

Whether a cost is deducted, however, may depend on whether the court views it as a recurring expense or a nonrecurring capital cost, which can be an elusive distinction. The court in *Pshigoda v. Texaco, Inc.* held that reworking expenses are not to be deducted because they are "analogous" to drilling expenses in that they are one-time costs that the lessee ought to have the opportunity to recover.¹¹⁴ Another court held that the recurring costs of hauling saltwater away should be deducted, but the replacement costs of converting an existing well to a saltwater disposal well should not.¹¹⁵ The economic question, however, should not be whether a cost is recurring or nonrecurring, but whether it would affect the decision of a prudent operator in its decision to continue to operate the well.

As to depreciation, courts and commentators seem to agree that depreciation of drilling and completion costs should be ignored,¹¹⁶ but disagree how to handle depreciation of equipment used in "lifting" operations. For example, in 1979, the Oklahoma Supreme Court adopted the prevailing view that the original investment in the drilling of a well should not be depreciated, but that depreciating equipment used in lifting operations was proper because "production-related equipment does have value that is being reduced through its continued operation."¹¹⁷ But how does one distinguish between original equipment and production-related equipment?¹¹⁸ Casing, tubing, and Christmas trees are integral for lifting

114. 703 S.W.2d 418-19.

115. *Lege v. Lea Expl., Inc.*, 631 So. 2d 716, 719 (La. Ct. App. 3d Cir. 1993).

116. *See, e.g., Clifton v. Koontz*, 325 S.W.2d 684, 692 (Tex. 1959).

117. *Stewart v. Amerada Hess Corp.*, 604 P.2d 854, 857 (Okla. 1979). For a case that confuses the treatment of depreciation, see *Texaco, Inc. v. Fox*, 618 P.2d 844, 849 (Kan. 1980), where the court expressly rejects the rationale of *Stewart*, then seemingly adopts its rule that the direct costs of the initial cost of drilling and equipping the well and the depreciation thereon are excluded.

118. To deal with equipment that is used in both drilling or completion operations and production operations, Kuntz proposes first identifying drilling and completion costs and then eliminating those costs from consideration in determining paying quantities. 2-26 EUGENE KUNTZ, A TREATISE ON THE LAW OF OIL & GAS § 26.7[1] (2016) [hereinafter, KUNTZ].

product to the surface, and yet the Oklahoma Supreme Court concluded these costs should not be depreciated.¹¹⁹ If reworking operations are excluded as nonrecurring capital costs, should such costs not be depreciated? The rationale in *Pshigoda* that the lessee ought to be able to recover these nonrecurring costs would seem to argue against depreciating nonrecurring costs, but there seems to be no economic reason to distinguish between equipment costs and other nonrecurring expenses where depreciation is concerned. Both are capital costs and both may or may not affect the decision whether a reasonable prudent operator would continue to operate the well.

Further, once depreciation is held to apply, in what manner is it determined? Some have applied accounting¹²⁰ or tax depreciation,¹²¹ while the prevailing view seems to endorse “actual” depreciation.¹²² No method, however, has been accepted for calculating actual depreciation. To the detriment of certainty, the courts seem reluctant to endorse any particular method at all, although courts sometimes note the arduous burden of the lessor to show actual depreciation.¹²³ Using actual depreciation would seem to require an appraisal of the value of the equipment at the beginning and end of the undefined accounting period to determine the loss in the value of

119. *Mason v. Ladd Petroleum Corp.*, 630 P.2d 1283, 1286 (Okla. 1981).

120. In *Stewart v. Amerada Hess Corp.*, 604 P.2d 854 (Okla. 1979), the court stated, “The base and the period of depreciation should be determined by reference to currently prevailing accounting standards.” *Id.* at 858-59.

121. *See, e.g., Underwood v. Texaco, Inc.*, 590 F. Supp. 289, 289 (W.D. Okla. 1981) (mem. op.).

122. *See Bales v. Delhi-Taylor Oil Corp.*, 362 S.W. 388, 392 (Tex. Civ. App.—San Antonio 1962, writ denied) (appellants failed to establish depreciation as a matter of law because testimony related to bookkeeping entry rather than actual depreciation); Edwin M. Cage, *Production in Paying Quantities: Technical Problems Involved*, 10 INST. OIL & GAS L. & TAX’N 61, 90 (1959) (“[T]he bookkeeping entry of depreciation is in no sense an ‘out-of-pocket’ lifting expense and it should never be included as an item to be deducted from revenue to determine whether a lease is still producing in paying quantities.”).

123. “There is a possibility, however, that the lessor in a carefully prepared case could establish ‘actual depreciation’ (as distinguished from the bookkeeping entry) as a legitimate charge to lifting expense. For example, in a pumping well the lessee may be using some equipment which has been ‘written off’ completely and on which lessee is no longer taking any depreciation. Still that piece of equipment may have a current salvage value. To some extent continued operations are wearing out that equipment and reducing its salvage value. The proof may be difficult and the reduction in value may be slight, but the fact remains that there is ‘physical depreciation’ which is properly chargeable to lifting expense.” *Evans v. Gulf Oil Corp.*, 840 S.W.2d 500, 505 (Tex. App.—Corpus Christi 1992, writ denied).

the equipment.¹²⁴ Alternatively, actual depreciation might be calculated as the fair rental value of the equipment attributable to the lease while used in lifting operations.¹²⁵ Because there is no way to know in advance the accounting period, however, there is no way to conduct *ex ante* such an appraisal or to calculate the fair rental value. Accounting or “book” depreciation would certainly be easier to calculate, but bears little relation to the actual cost of operations.

3. Overhead

Overhead is equally precarious. Arguably, the portion of overhead that is attributable to lifting and marketing production is an applicable operating cost and should be allocated to the lease.¹²⁶ In fact, a few courts and commentators postulate that the lessee has less of a case for excluding overhead than it does for excluding depreciation.¹²⁷ While courts and commentators seem to agree that overhead that is remotely related to the operation should not be allocated or considered,¹²⁸ they do not agree as to the categories of overhead that should be deducted or explain just how remote overhead must be to exclude it. Some have asserted that an overhead allocation paid to a third party operator should be deducted, but costs incurred by the lessee itself should not.¹²⁹ But is not a cost a cost?

The Oklahoma Supreme Court has ruled that indirect expenses, such as “the cost of accounting, interest, postage, office supplies, telephone, depreciation of office equipment, and all the other indirect expenses of the

124. This approach would be consistent with the damages available when chattels are harmed in tort where there has not been a complete destruction in value. See RESTATEMENT (SECOND) OF TORTS § 928 (Am. Law Inst. 1979).

125. Similarly, in tort the “rental value of property is the exchange value of the use of the property.” *Id.* § 911(2).

126. See Richard D. Kolijack, Jr., *Determination of Paying Quantities: An Accounting Perspective*, 18 TULSA L.J. 475, 485 (1983).

127. See *Skelly Oil Co. v. Archer*, 356 S.W.2d 774, 781 (Tex. 1961) (citing *Cage*, *supra* note 122 (omitting references)). The court actually misapplies Mr. Cage’s analysis. Mr. Cage does state that overhead is more difficult to “explain away” than depreciation, *Cage*, *supra* note 122, at 91, but also argues that only “items which can be traced to direct lifting expense, even though carried on the books as overhead, are legitimate charges.” *Id.* at 94. In *Skelly*, the court states that only “those items of overhead charges which can be traceable to the actual expense of production . . . should be considered in determining whether or not the well is producing in paying quantities,” but then allows the allocation of district expenses on a per well basis. 356 S.W.2d at 781.

128. See, e.g., *Mason*, 630 P.2d at 1285.

129. *Menoah Petroleum, Inc. v. McKinney*, 545 So. 2d 1216, 1221 (La. App. Ct. 1989).

oil company” should be excluded.¹³⁰ The same court also held that district expenses, *i.e.*, the costs of a district office, should be excluded as simply a “corporate convenience or necessity” and that to include such expenses would “lead to the absurdity of determining a well to be a non-producer in the hands of a corporate giant, yet a producer in the hands of a single leaseholder owner-operator who is unfettered by such attendant complexities.”¹³¹ Professor Kuntz, in contrast, would allow district and camp expenses.¹³² He and others, however, would exclude an overhead cost that would still be incurred in the absence of the lease.¹³³

If the objective mathematical calculation is to be faithfully applied, it is not clear why a large corporation with high district office costs should be allowed to avoid overhead allocations simply because their offices are a convenience. Similarly, the distinction between a cost billed by a third party operator and a cost incurred directly by the lessee itself are without an economic difference. From an economic perspective, the lessee should be charged with overhead to the extent it is required to increase or maintain production. In other words, overhead that is a marginal cost of one additional unit of production should be deducted because those are the costs that the lessee will consider when it decides whether to continue to operate the lease. If the lessee must hire an additional accountant or marketing executive to continue to operate a specific lease, then that is a marginal cost. I realize this test will exclude most overhead allocations, including most district office costs, but the mathematic prong, if applied at all (which I argue in Part IV should not be applied), should examine whether a lessee would continue to operate a lease, not whether a lessee would continue to operate an oil company.

B. Backward-Looking or Forward-Looking

In my example in Part III.A of the hypothetical habendum clause that clearly defines the parties’ rights, whether the lessee will negotiate for an extension of the lease and how much it is willing to pay will be based entirely on future expectations, not past results. This is not to say past results will be irrelevant to the lessee, but only to the extent those past

130. *Mason*, 630 P.2d at 1286.

131. *Id.*

132. 2-26 KUNTZ, *supra* note 118, § 26.7[m].

133. *Id.*; *see also* Ladd Petroleum Corp. v. Eagle Oil & Gas Co., 695 S.W.2d 99, 108 (Tex. App.—Fort Worth 1985, writ ref’d n.r.e.).

results provide information about future projections.¹³⁴ The lessee's anticipating drilling and completion costs informed the lease decision when it was made, but not when a decision is made whether to seek an extension because those costs are already sunk. Rather the lessee would examine the present value of its projected future revenue stream less the present value of its projected future operating costs.¹³⁵ If the amount is positive and provides a reasonable return to the lessee, then the difference is the maximum value the lessee should be willing to pay for a lease extension. If the lessor's internal value of the lease extension is less than the maximum the lessee is willing to pay, then a bargain will be struck. If not, then the lease should expire.

C. The Costs of Uncertainty

Of all of the risks in the calculation previously discussed, perhaps the most troubling when the market turns south is the lack of a set accounting period. Without a predictable period, a lessee cannot analyze if it should or should not hold on to a lease that begins to operate at a loss after a price drop. Bargaining becomes extremely risky for the lessee when it has no assurance that a judge or jury will view the appropriate accounting period as the lessee sees the period. In comparison, it is not particularly risky for the lessor to attempt to extract additional rents from the lessee by seeking to cancel a lease, particularly if a new lessee or top lessee is willing to finance the litigation. In this sense, the lessee may be deserving of some protection for its investment.

Economists have postulated a corollary to the Coase Theorem,¹³⁶ that when transaction costs are high, the allocation of property rights under law should determine the most efficient use of resources. As Coase stated:

Of course, if market transactions were costless, all that matters (questions of equity apart) is that the rights of the various parties should be well-defined and the result of legal actions easy to forecast. But as we have seen, the situation is quite different when market transactions are so costly as to make it difficult to change the arrangement of rights established by the law. In such

134. ANTILL & ARNOTT, *supra* note 94, at 83 ("Moreover, for an economist, once a sum of money has been spent, it becomes irrelevant, except to the extent to which it may impact on the future. Evaluation is solely concerned with the future. (This is not to suggest that history does not influence expectations of the future; clearly, it does.)").

135. COOTER & ULEN, *supra* note 97, at 42 (theory of asset value pricing).

136. *See supra* note 95 and accompanying text.

cases, the courts directly influence economic activity. It would therefore seem desirable that the courts should understand the economic consequences of their decisions and should, insofar as this is possible without creating too much uncertainty about the legal position itself, take these consequences into account when making their decisions. Even when it is possible to change the legal delimitation of rights through market transactions, it is obviously desirable to reduce the need for such transactions and thus reduce the employment of resources in carrying them out.¹³⁷

Replacing or renegotiating the standard habendum clause is the type of market transaction where the costs are high and courts strongly influence economic activity. While courts should no doubt consider the economic implications of their paying quantities analyses on the lessor, who should not be denied royalties for an unreasonable time period, should they not also consider the implications of their decisions on the cooperative surplus and on the U.S. oil and gas market more broadly?

What may have been a reasonable time during a boom market will not necessarily be a reasonable time during a prolonged market downturn. Although the parties could have negotiated *ex ante* for longer periods of time to take into account the potential for market downturns, this assumes perfect information. If the courts adhere to shorter accounting periods more appropriate for better markets, then they are allocating the transaction costs associated with the lack of perfect information to the lessee. Although the lessee clearly has superior information about drilling prospects, their own capabilities and risk tolerances, and even the price of oil during periods of relative stability,¹³⁸ there is little reason to believe lessees can predict dramatic changes in prices that result from rebalancing supply and demand after a disruption to the market.¹³⁹

137. Coase, *supra* note 95, at 19.

138. Oil companies have developed a number of tools to evaluate price scenarios which can identify trends over time. See ANTILL & ARNOTT, *supra* note 94, at 28-31. And yet the market can still be highly volatile and unpredictable.

139. See U.S. Energy Info. Admin., *What Drives Crude Oil Prices?*, EIA, http://www.eia.gov/finance/markets/crudeoil/spot_prices.php (last visited Sept. 10, 2017) (“Both crude oil and petroleum product prices can be affected by events that have the potential to disrupt the flow of oil and products to market, including geopolitical and weather-related developments. These types of events may lead to actual disruptions or create uncertainty about future supply or demand, which can lead to higher volatility in prices. . . . Under such conditions, a large price change can be necessary to re-balance physical supply and demand following a shock to the system.”).

The predictable result of this allocation of information costs is that a large number of leases will change hands. During a downturn, lessors and lessees that negotiate new leases would be expected to agree to lower lease consideration than in a high price market because the expected present value of the revenue stream will be lower.¹⁴⁰ This lower consideration might be in the form of lower bonuses and rentals, but it might also be in the form of longer periods of time in which to produce or maintain production in paying quantities. In either case, there will always be market participants willing to pay depressed prices for top leases or new leases.

During boom times, lessors earn their contractual royalties under existing leases. When the market falls, however, under the backwards-looking mathematical paying quantities test some lessors will be allowed to cancel their leases. These lessors might either re-lease when the market recovers or they might negotiate for a lower bonus with a new lessee under continuing poor conditions. Either way, if the first bonus paid by the original lessee under good market conditions was \$1,000 per acre, and the second bonus paid by the new lessee under current poor conditions is \$200 per acre, the lessor has been paid \$200 more than it would have received if the original lease was allowed to continue. Or the former lessor that now once again holds the fee interest might decide to operate the lease herself so that she receives 100% of the production. In this respect, the speculators are not the lessees whose leases have been cancelled; they are the lessors. The market as a whole has suffered a loss of \$200 that it would not have suffered if the original lease were allowed to remain in effect.

Although the lessor in this scenario will receive what might be characterized as a windfall, lease cancellations cost the industry and the larger society and, in the long run, lessors will likely be worse off.

Commentators have variously argued for and against broader public policy considerations when courts interpret leases.¹⁴¹ Those considerations

140. An exception is a market that provides short-term profits despite the lower price projections. To expand and grow, or to survive, oil producers have flocked to the Permian Basin because of its low cost to produce. As a result, the market for leases in the Permian has arguably improved during the downturn because it is one of the few U.S. formations that can still be produced with acceptable margins.

141. See, e.g., Weaver, *supra* note 8, at 1491-92 (“Given the importance of oil and gas to the maintenance of our daily lives, the temptation to rely on public policy in making decisions may be virtually irresistible. If so, a clear danger exists that the law of implied covenants will become as unpredictable and irreconcilable as the energy policy that it mirrors.”). Professor Weaver criticizes Williams & Meyers for their argument that public policy supports exploration and development under implied covenants, see 5-8 WILLIAMS & MEYERS, *supra* note 9, § 847, and Professor Patrick Martin for his argument that public

are outside the scope of this article. When I refer to the economic implications on the broader society, I simply argue that, in general terms, allowing an existing lessee to hold a lease during an economic downturn benefits lessors in the long run and society in general so long as the lessee is acting as a reasonable prudent operator—regardless of the outcome of any mechanical accounting calculation.

The existing lessee may have incurred significant costs for air, water, and waste permits, drilling and spacing orders, exploration, site development, drilling, casing, cementing, completion, tanks, heater-treaters, gathering equipment and arrangements, transportation arrangements, surface use arrangements, treating and processing arrangements, and other marketing arrangements. When the lease is in effect, these are assets in the hands of the lessee. But when a lease is cancelled, the value of these assets is reduced to whatever amount the lessee can salvage.

The new lessee or mineral owner must raise capital, reapply for permits and orders, conduct at least some new exploration and planning, drill and complete new wells, and negotiate its own arrangements for transportation, processing, and marketing. Some of these costs may be lower for the new lessee or mineral owner because they will be allowed to free ride off of some of the work of the original lessee. But many of these costs will be duplicative.

Duplicative costs, including the duplicative payments to lessors, raise the overall cost of production. They may seem insignificant in an individual case, but they multiply when applied across the industry. Any large increase in the cost to produce will cause the domestic production of oil to fall. If demand remains unchanged, consumers will simply switch to foreign sources of supply, which harms not only the U.S. oil and gas industry but the economy generally.

Similarly, although natural gas prices largely are determined by North American supply and demand, natural gas competes with coal and renewables, which are substitutes. If the cost to produce natural gas rises, supply will decrease and the price will rise, causing electricity providers to switch to coal and renewables. In either case, the domestic industry will produce less, decreasing the wealth of both U.S. producers and U.S. lessors.

In the absence of transaction costs, the lessor would be better off by sticking with the original lessee. As discussed in our previous example, the

policy in favor of conservation may support slower development. See Patrick H. Martin, *A Modern Look at Implied Covenants to Explore, Develop, and Market Under Mineral Leases*, 27 INST. OIL & GAS L. & TAX'N 177 (1976); Weaver, *supra* note 8, at 1488-89.

existing lessee would pay for an extension if the difference between the present value of its expected future revenue would exceed the present value of its expected future operating costs. In contrast, a new lessee must cover the present value of its drilling, completion, and operating costs for its investment to be profitable. As such, the existing lessee should be willing to pay more for an extension than a new lessee would be willing to pay for a new lease. A new lessee may also be unlikely to drill for as long as possible under the primary term of its new lease while it waits out the down market.

IV. Reformulating Paying Quantities

As discussed above, for property law purposes, the habendum clause requires actual production (or in Oklahoma the capability of production) before the expiration of the primary term.¹⁴² It is clear, therefore, that a commercial discovery needs to have been made or the lease needs to be producing something to save the lease. But once this requirement has been satisfied, economics argues for a different paying quantities analysis. As discussed above, the mathematic prong of the paying quantities analysis is complex and uncertain, creates unnecessary economic costs, and does not properly account for the mutual interests of the lessor and the lessee in light of their property rights, particularly during a down market. As such, I propose its elimination.

The only relevant question for the determination of paying quantities should be whether the lessee continues to hold the lease for the purpose of making a profit and not merely for speculation. In Oklahoma, this test would be a test in equity, and would essentially ask whether it is equitable or not to cause a forfeiture of the lease taking into account the facts and circumstances. The two-part test would thus collapse into a test focused exclusively on the second *Koontz* prong (or the equitable prong in Oklahoma) that should be applied during any market, with considerable discretion afforded to the lessee as to whether the lease is being held for a profit.

Recall that the *Koontz* test and the good faith test recently adopted in Pennsylvania are couched as either/or tests. If the prudent operator would continue to hold the lease for the purpose of making a profit and not for speculation, the lessee will be allowed to hold the lease even though the lease was unprofitable during a past period. Thomas Battle argued that “if a lessee would reasonably believe in periods of low takes and depressed

142. *See supra* notes 29-32 and accompanying text.

prices that demand will likely increase and prices will likely rise to the point that the lease will be profitable, the [second part of the *Koontz* test] would be passed.”¹⁴³ Similarly, *Williams and Meyers* argues that if a lease would pay a profit under normal conditions, then so long as the lessee acts in good faith as to whether he can better himself financially by holding the lease during a period of depressed prices, then the court should essentially defer to the lessee and allow the lessee to continue to hold the lease.¹⁴⁴ Good faith alone, however, is not sufficient to protect the interests of the lessor.¹⁴⁵

In fact, the second prong of the *Koontz* test itself contains two parts. Although part of a single prong, reasonable operation and speculation are conjunctive. Both are required and they are certainly not correlative pairs. To give meaning to these two clauses, my proposed single-pronged test would have two components. It would ask both (1) whether a reasonable prudent operator would continue to operate the lease, and (2) whether the lessee at issue continues to hold the lease to operate for profit in good faith. Although *Williams and Meyers* argued for consideration of good faith in the

143. Thomas P. Battle, *Lease Maintenance in the Face of Curtailed/Depressed Markets*, 32 ROCKY MTN. MIN. L. INST. 14-1 (1986).

144. “The lessee has a fairly strong argument for holding the lease by nonpaying production during a period when temporary depression prevents paying production. Clearly the lessee is not holding the land merely for speculative purposes, since under normal conditions the lease is presently producing in paying quantities. If the lessor is receiving a financial benefit from production, and if present production under normal conditions would be in paying quantities, and if the lessee in good faith decides that he can better himself financially in the long run from production at the present rate, the better rule would seem to be to allow the lessee to continue to hold the lease, despite a current loss due to depressed market conditions. Such a rule would not only avoid conflict with the policy against holding leases for purely speculative purposes, but in periods of sharp depression in the oil and gas industry, it would provide essential relief to all operators.” 3-6 WILLIAMS & MEYERS, *supra* note 9, § 604.

145. Part of the difficulty with the standard of good faith rests with its definition. If it is defined as only refraining from fraudulent conduct, then it will not be sufficient to meet the objectives under the lease of mutual cooperation. 5-8 WILLIAMS & MEYERS § 806 (deficiencies of good faith standard in context of implied covenants). But the Restatement of Contracts defines the concept more broadly to emphasize “faithfulness to an agreed common purpose and consistency with the justified expectations of the other party” RESTATEMENT (SECOND) OF CONTRACTS § 205 cmt. A (Am. Law Inst. 1979). In addition to fraud and unconscionability, Black’s Law Dictionary also requires “(1) honesty in belief or purpose, (2) faithfulness to one’s duty or obligation, [and] (3) observance of reasonable commercial standards of fair dealing in a given trade or business” *Good Faith*, BLACK’S LAW DICTIONARY (10th ed. 2014).

context of a down market,¹⁴⁶ there is no reason to consider subjective good faith only during down markets or to adopt a rule that would not be equally applicable in both good and bad markets.

The word “speculation” in the second prong of the *Koontz* test connotes a measure of subjective good faith even if not so stated. Has the lessee carefully examined market conditions, the cost structure, and other projected future events, to determine whether to shut in or operate the lease at a loss? Or is the lessee continuing to hold the lease without any basis? As Professor David Pierce has noted, “facts relevant to determining whether the lessee owning the lease is improperly holding it for speculative purposes is a much more individualized inquiry”¹⁴⁷ than what the hypothetical risk taker might do.

But a standard dictionary definition of speculation arguably is too broad. Consider Professor Richard Pierce’s examination of the word “speculation” in the context of the habendum clause. He argued that courts seem to sanction many activities that are speculation under a dictionary definition, which might include “the faculty, art, process or production of intellectual examination or search.”¹⁴⁸ Presumably, as he argues, courts have in mind a more pejorative definition of speculation, such as “conjecture” or “guesswork.”¹⁴⁹ He concludes that courts have recognized the need for lessee decisions about expected future events which is admirable behavior and should not be considered speculation under the test. He states:

When a lessee is able to show a reasoned basis for an expectation of production in paying quantities in the foreseeable future because of expected changes in regulatory or market conditions, a court should hold that the lease is capable of producing in paying quantities.¹⁵⁰

146. *See supra* note 144 and accompanying text.

147. David E. Pierce, *Unresolved Implied Covenant to Develop and Paying Quantities Issues: Defining Prudent Operator Obligations and Options During Good, and Not-So-Good, Times*, Paper Presented at Eugene Kuntz Conference on Natural Resources Law and Policy, at 13 (2015) (on file with author).

148. *Turbulent Gas Market*, *supra* note 45, at 8-13.

149. *Id.*

150. *Id.* at 8-14; *see also* Weaver, *supra* note 8, at 1500 (arguing in the context of statutory price schedules and market shortages that a lessee who waits to drill may be speculating, but that a prudent operator might do the same thing).

Based on this argument, a distinction should be drawn between permissible and impermissible speculation in the context of paying quantities.¹⁵¹

Yet on the other side, a rule that does not consider subjective good faith would allow the hypothetical prudent lessee to hold a lease indefinitely even though the *actual* lessee involved in the case is incapable of operating the lease for a profit when the market recovers, either because of the lessee's lack of expertise or precarious financial position, or because the lessee is actually holding the lease based on a hope or guesswork. Such activity does not mutually benefit the lessor and the lessee, which is the overall purpose of the lease.¹⁵²

Nevertheless, the two parts (reasonable prudent operator and good faith) of my one prong test are necessarily inextricable. This is so because the lessee should be allowed a degree of deference in determining whether a reasonable prudent operator would continue to operate the lease. As between the parties, the lessee is in a much better position to evaluate what a prudent operator would or would not do.

The test may be an objective inquiry in the sense that it relates to what the prudent operator would do, but what is "prudent" should to a great extent depend on the lessee's particular circumstances. When a lessee makes business decisions as to a lease it will usually have a good sense or the means to determine whether its operations are reasonable and prudent under industry standards taking into account all of the applicable facts and circumstances.

As Professor David Pierce has argued in the context of the implied covenant to develop, courts rely on the profitability evidence submitted by the lessee.¹⁵³

This reflects an individualized focus on what a particular lessee's "sound economic judgment" yields given all the facts and

151. *But see* Gary B. Conine, *Speculation, Prudent Operations, and the Economics of Oil and Gas Law*, 33 WASHBURN L.J. 670, 720 (1993-94) (arguing that the broad economic definition of speculation, including delay until prices have made anticipated changes in response to market factors, is part of the conduct targeted by the prudent operator standard). Professor Conine, however, then proceeds to propose a modified test for the prudent operator standard in the context of implied covenants that would require both an extensive delay and an excessive aversion to risk. *Id.* at 742.

152. 2-26 KUNTZ, *supra* note 118, § 26.5 ("The view expressed is that the basic purpose of the lease is to secure development of the property for the mutual benefit of the lessor and lessee, and that the lessee should not be permitted to hold the lease for speculation.").

153. Pierce, *supra* note 147, at 14.

circumstances. Competing evidence presented by the lessor will either be designed to establish what a prudent operator would do on the riskier outer limits of “sound economic judgment” or, more appropriately, to try and establish a baseline or range from which the lessee’s economic requirements can be measured.”¹⁵⁴

In other words, a lessor tends to have a higher risk tolerance with the lessee’s money than the lessee does.¹⁵⁵ Professor Pierce further argues that this disparity might be handled by looking at a range of reasonable alternative projections. He explains that this range of acceptable cost estimates can be analogized to the deferential standards that have been articulated by the United States Supreme Court in public utility ratemaking cases.¹⁵⁶ Under these standards, the Supreme Court focuses on the “end result” for the utility, recognizing that just and reasonable rates might fall within a range that it terms the “zone of reasonableness.”¹⁵⁷

Under this approach, a lessee that puts forth evidence that it continues to hold the lease in good faith based on its profitability projections should prevail so long as those projections fall within a reasonable range of alternatives, even if that range is large. A lessee that takes the stand and testifies, “I think prices will turn around,” without any other basis for holding the lease is engaging in impermissible speculation. But a lessee who has a good faith business reason to continue to hold the lease for development should be entitled to a presumption that a reasonable prudent operator would do the same so long as the lessee’s judgment is within the zone of what a reasonable operator might do given the circumstances.

Courts are not oil and gas development experts and should not interfere with the transactional structure created under the oil and gas lease that allows the lessee to make development decisions. Because the lessee has access to much better information as to the economic viability of a well and to future markets, and because development decisions are within the business judgment of the lessee, there should be a presumption that

154. *Id.* at 15.

155. *See id.* at 14 n.50 and accompanying text (quoting *Apache Tribe v. Supron Energy Corp.*, 479 F. Supp. 536, 546 (D.N.M. 1979) (“While the criteria established by defendants concerning the economics of any particular individual well are admittedly conservative, the speculative nature of the oil and gas business may in fact require that conservatism temper and inform sound business decisions.”)).

156. *Id.* at 21.

157. *Id.* (citing *Fed. Power Comm’n v. Hope Nat. Gas Co.*, 320 U.S. 591 (1944); *Permian Basin Area Rate Cases*, 390 U.S. 747, 797 (1968)).

evidence put forth by the lessee as to the future economics of a lease are valid absent strong evidence to the contrary.¹⁵⁸

In a sense this is a business judgment rule standard akin to the corporate law standard. The business judgment rule is both a rule of abstention and a rule of non-liability, whereby a court refuses to second-guess the business judgment of corporate directors in the absence of a showing of gross negligence.¹⁵⁹ The business judgment rule does not, however, protect a decision that the plaintiff can show was uninformed,¹⁶⁰ or if the plaintiff can show that a board fails to make a decision altogether when a decision is warranted.¹⁶¹

Admittedly, the corporate business judgment rule is not a perfect analogy because it is a standard relating to liability, not the arrangement of property rights. As such, a prudent operator standard, rather than a gross negligence standard, is a more appropriate standard. For many of the same reasons justifying the business judgment rule, however, a deferential standard should apply to the prudent operator inquiry. As described above, the prudent operator standard is a business judgment standard that takes into account the lessee's particular circumstances and the circumstances of the market. When a court considers the lessee's business judgment as to its future plans and the market, the court should allow the lessee an extended period of time, particularly during a down market, in which to recover its investment.

Further, courts should avoid asking whether another particular lessee might earn a higher profit than the current lessee or earn a profit more quickly. In the corporate context, consideration of what another particular

158. This is not to say that the interests of the lessor and the lessee necessarily coincide. On the contrary, their interests will often conflict. The lessee will naturally be more risk averse because it bears no portion of the costs of development. 5-54 KUNTZ, *supra* note 118, § 54.2. But this article is not concerned with implied covenants to prevent drainage, further develop, or explore where the disparity in risk aversion is great. The question at issue is whether a prudent operator would continue to operate the well. That question is one of business judgment that is not so severely tainted by the inherent conflict of interest between the lessor and the lessee because the lessee has already incurred the sunk capital costs of exploration and development and obtained production.

159. *See Omnicare, Inc. v. NCS Healthcare, Inc.*, 818 A.2d 914 (Del. 2003); 3A FLETCHER CYC. CORP. § 1036 (2016).

160. *See Smith v. Van Gorkom*, 488 A.2d 858 (Del. 1985) (overruled on other grounds); *Gantler v. Stephens*, 965 A.2d 698 (Del. 2009); *Hanson Tr. PLC v. ML SCM Acquisition, Inc.*, 781 F.2d 264, 274 (2d Cir. 1986) (holding that duty of care requires reasonable diligence in gathering and considering material information).

161. *See Aronson v. Lewis*, 473 A.2d 805, 813 (Del. 1984).

director might have done would be antithetical to board discretion. Similarly, witness testimony presented by a lessor that a specific operator, maybe one with a lower cost structure, would produce during a down market or produce more profitably has little relevance, without more, to whether the hypothetical prudent operator would continue to hold the lease for a profit.

Finally, even though the mathematical prong should be eliminated, past performance might still be relevant as tending to show the presence or absence of good faith on the part of the lessee. A lessee who has failed to operate the lease to produce a profit for a particular period during a good market might be unwilling or unable to operate a lease after a downturn for a profit or even to survive a downturn. “Fluctuations in the price of oil might justify the lessees in ceasing operations for a reasonable time, but” where “there has been no operation and no pumping of the wells to demonstrate what the product of the wells might be[,]”¹⁶² then the lessee undoubtedly is not entitled to hold the lease.

In many cases, however, the failure to operate at a profit for a period of time will not establish bad faith or establish that a reasonable prudent operator would not continue to hold the lease for a profit. For example, reworking operations might be required to increase production to profitable levels, and the lessee may have the necessary expertise and financing to conduct those operations. In fact, the lessee may have considered conducting the operations, but the operations may not be justified during the current price environment.¹⁶³ If the lessee makes such a determination in good faith and a prudent operator would make the same determination, there is no reason to strip the lessee of its lease.

V. Conclusion

The *Koontz* standard as originally stated by the Texas Supreme Court has lost its way. It has evolved into a two-prong test that wrongly focuses on past performance based on arbitrary and uncertain accounting calculations rather than future projections. The paying quantities analysis will better reflect the economics of oil and gas operating decisions and encourage more efficient bargaining if the test is refocused on what a reasonable

162. *Collins v. Mt. Pleasant Oil & Gas Co.*, 118 P. 54 (Kan. 1911).

163. *See Weaver*, *supra* note 8, at 1506 (stating in the context of implied covenants to further develop and explore during the low price environment of the 1980s, that “a delay in drilling for purposes of speculation in the new pricing context may no longer reflect the lessee’s idle management of resources”).

prudent operator would do and whether the operator is acting in good faith.¹⁶⁴

Lessees might initially react to the test proposed in this article by complaining that the proposed test is less favorable to the lessee than the current two-pronged approach. Under the current test the lessee theoretically has two chances to save its lease—either because it has operated at a profit in the past or because a prudent operator would continue to operate for a future profit. This might theoretically be true, but by putting the focus where it belongs, on future prospects rather than past results, a prudent lessee who acts in good faith is more likely to avoid lease cancellation during a prolonged period of unprofitable operations. And yet there is no reason to allow a lessee to continue to hold a lease simply because it has made a profit in the past over some arbitrary accounting period. As articulated above, the relevant question is not what has occurred in the past, but the prospects for the future.

164. Coase recognized that when courts use the word “reasonable” they often take into account economic considerations. Coase, *supra* note 95, at 22 (“The courts do not always refer very clearly to the economic problems posed by the cases brought before them but it seems probable that in the interpretation of words and phrases like ‘reasonable’ . . . there is some recognition, perhaps largely unconscious and certainly not very explicit, of the economic aspects of the questions at issue.”).