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The Third Age of Oil and Gas Law

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History's biggest oil boom is happening right now, in the United States, ushering in the third age of oil and gas law. The first age of oil and gas law also began in the United States a century ago when landowners and oil companies developed the oil and gas lease. The lease made the modern oil and gas industry possible and soon spread as the model for development around the world. In the second age of oil and gas law, landowners and nations across the globe developed new legal agreements that improved upon the lease and won these resource owners a larger share of the benefits of oil and gas production. The third age of oil and gas law, which is now beginning, will be defined by three forces. First, fracking is transforming the common law doctrines that underlie oil and gas law and policy. Second, both private and public landowners are perfecting agreements that can win them a greater share of the oil and gas under their land. Third, public landowners are beginning to seek ways to balance their efforts to extract maximum value from their oil with their efforts to limit climate change.

This Article is the first to identify these ages of oil and gas law, which have been central to the development of law, the global economy, and the modern world. It also reveals the legal and economic logic of agreements between oil and gas companies and public and private landowners, and how they have evolved over the past century. And it describes how landowners could ensure maximum benefit from the unprecedented oil boom now transforming global oil production.

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INTRODUCTION

Oil is the lifeblood of the global economy.[1] The internal combustion engine forever changed global transport, trade, and war—rendering every car, ship, armored vehicle, and plane dependent on oil supplies.[2] For the last century, the price of oil has determined whether the world economy boomed or stagnated, and oil reserves have often determined how the world's wealth is distributed.[3] Over these same years, access to oil has been the cause of conflicts and often determined these conflicts' fates.[4] The history of oil tells much of the history of the modern world: the rise of the United States as a global superpower, the defeat of the Axis powers in World War

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1. Donald H. Ford, *Controlling the Production of Oil*, 30 MICH. L. REV. 1170, 1170 n.1 (1932) ("Save the products of agriculture, the products of oil are the most essential to the processes and requirements of our present civilization.").

2. John C. Jacobs, *Unit Operation of Oil and Gas Fields*, 57 YALE L.J. 1207, 1207 (1948) (quoting Hail v. Reed, 54 Ky. (15 B. Mon.) 479, 490 (Ky. 1854)) ("In less than a century, petroleum has changed from 'a peculiar liquid not necessary nor indeed suitable for the common use of man' to a substance indispensable to the military security and economic prosperity of a modern nation.").

3. Rex G. Baker & Erwin N. Griswold, *Percentage Depletion – A Correspondence*, 64 HARV. L. REV. 361, 362 (1951) ("Both in peace and in war the country must have and is very dependent upon oil and gas. Our civilian economy and the national safety would be jeopardized if we failed to maintain adequate reserves of petroleum."); James D. Hamilton, *Historical Oil Shocks* 26 (Nat'l Bureau of Econ. Research, Working Paper No. 16790, 2011) (since World War II all but one U.S. recession was preceded by a spike in oil prices).

4. *See* Wm. E. Colby, *The Law of Oil and Gas: With Special Reference to the Public Domain and Conservation*, 30 CALIF. L. REV. 245, 245 (1942) ("Without petroleum modern warfare would be impotent and hence we have the life and death struggles which are now going on in the world to reach and control the sources of supply.").

II, the wave of multinational investment in the developing world followed by nationalizations, and the birth of an increasingly multi-polar world order.[5]

Likewise, this Article shows that the history of oil and gas law tells much of the story of legal development over the past century: the foundational role of the common law, and property law in particular, increasingly supplemented and supplanted by statutes and regulations, and a growing judicial willingness to enforce sophisticated contracts and defer to regulations written by expert agencies. Oil and gas law has also been a crucible for key trends in international law: new emphasis on choice of law, growing reliance on arbitration to settle disputes with sovereigns, and increasingly complex and finely articulated contracts and treaties to set out the duties between companies and sovereign nations. This Article unearths these histories and defines these two ages of oil and gas law that have built the modern legal world. It shows that we are now entering a third age of oil and gas law, which will be defined by the legal challenges posed by fracking and climate change. And it shows how landowners can ensure that they receive the full benefit of this decade's oil boom—the biggest that the world has ever seen.

Part I describes the first age of oil and gas law, which was born in the United States at the dawn of the twentieth century. It was driven by new oil supply in Texas and new demand for oil from motor vehicles around the world. The three key legal developments of the first age of oil and gas law were the rule of capture, the lease, and the leases' analogue for nations—the concession. All three were designed to encourage rapid oil extraction. The rule of capture is the principle that a landowner owns all the oil that can be extracted from her land, even if it comes from a reservoir shared with a neighbor. The lease is the way that landowners benefit from these resources: rather than selling their land outright, landowners trust an oil and gas company to develop it in return for a share of oil and gas production. In these early days, developing nations often gave oil companies concessions for oil development that mirrored the early leases signed by private landowners in the United States. In fact, in the first half of the century, savvy U.S. landowners often leased under better terms than the sovereigns that gave oil companies concessions covering vast tracts of land in the Middle East that are now synonymous with oil production.

Part II describes the second age of oil and gas law, which began when the global powers realized that oil was both finite and key to their future economic and military might. It saw a transition from the United States as the uncontested center of world oil production to a new center of power in the Middle East. It shifted focus from rapid oil production to maximizing the long-term value of production. States placed increasing limits on the rule of capture—limiting how many wells could be drilled and how fast oil could be pumped, and pushing owners to develop oil and gas reservoirs efficiently, with maximum production at minimum cost. And public landowners in the developing world, increasingly independent from the old Western powers, renegotiated or nationalized their old concessions, catching up with and then surpassing private landowners in the sophistication of their contractual arrangements with oil and gas companies.

Part III describes the third age of oil and gas law, which is just beginning. Directional drilling and hydraulic fracturing, or "fracking," has unlocked the largest

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5. *See infra* Parts II, III.

oil boom the world has ever seen. It quickly made the United States the world's largest producer of petroleum. Then, as the boom accelerated in 2018, the United States increased its oil production faster than any country has ever done. As a result, for the first time, countries around the world are realizing that climate regulation may limit oil consumption long before dwindling oil supply does. This new age of oil and gas law will be defined by fracking; increased climate regulation; and sophisticated private, public, and institutional landowners. Fracking has in some ways limited the traditional problems of production from common reservoirs while simultaneously creating new complications for the rule of capture. At the same time, public landowners are learning how to balance the traditional imperative of encouraging production with new efforts to cut greenhouse gas emissions. Finally, public and private landowners are perfecting the structure of oil and gas agreements with oil companies; this Article describes further steps they could take to ensure maximum benefit from the new oil and gas boom.

I. THE FIRST AGE OF OIL AND GAS LAW

The first age of oil and gas law began ten days into the twentieth century, when the Spindletop gusher blew out in Beaumont, Texas, on January 10, 1901.[6] The Beaumont boom was not the world's first oil boom; there had been nineteenth-century oil booms in Pennsylvania and in Baku, now part of Azerbaijan but then part of the Russian Empire.[7] But the Beaumont boom changed the world. Most importantly, it coincided with the development of the automobile and the internal combustion engine, which created a seemingly unending demand for petroleum products.[8] And it also cemented the United States as the world center of the oil industry, as the world's leading industrial power, and the world's leading producer of oil for the next sixty years.[9]

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6. *See* BERNARD F. CLARK, JR., OIL CAPITAL: THE HISTORY OF AMERICAN OIL, WILDCATTERS, INDEPENDENTS AND THEIR BANKERS 52–54 (2016); DANIEL YERGIN, THE PRIZE: THE EPIC QUEST FOR OIL, MONEY AND POWER 66–76 (3d ed. 2012); Alexandra B. Klass & Danielle Meinhardt, *Transporting Oil and Gas: U.S. Infrastructure Challenges*, 100 IOWA L. REV. 947, 959 (2015).

7. *See* YERGIN, *supra* note 6, at 3–15, 41–43. Some of the earliest oil wells were drilled accidentally by prospectors trying to produce salt. CHARLES AUSTIN WHITESHOT, THE OIL-WELL DRILLER: A HISTORY OF THE WORLD'S GREATEST ENTERPRISE, THE OIL INDUSTRY 22–24 (1905).

8. The previous oil booms had focused on producing kerosene, a cheap substitute for more valuable whale oil. *See* RICHARD RHODES, ENERGY: A HUMAN HISTORY 138–44 (2018); PETER TERTZAKIAN, A THOUSAND BARRELS A SECOND: THE COMING OIL BREAK POINT AND THE CHALLENGES FACING AN ENERGY DEPENDENT WORLD 19–20 (2007) (describing how "kerosene became the most sought-after illuminant on the market" because most consumers could not afford sperm whale oil anymore); HAROLD F. WILLIAMSON & ARNOLD R. DAUM, THE AMERICAN PETROLEUM INDUSTRY: THE AGE OF ILLUMINATION 1859–99, at 232–51 (1959); *cf*. HERMAN MELVILLE, MOBY DICK 478 (Penguin Books 1988) (1851) (describing how when whalers illumined their modest ships with their precious oil "you would have almost thought you were standing in some illumined shrine of canonised kings and counsellors").

9. By 1928, "the United States produced 68% of the world's total." J. Howard Marshall & Norman L. Meyers, *Legal Planning of Petroleum Production*, 41 YALE L.J. 33, 33 n.2

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