WASTE NOT, WANT NOT: "WASTE" AS A TOOL OF RESOURCE CONSERVATION IN THE ATLANTIC CANADIAN OFFSHORE

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As the Atlantic Canadian oil and gas industry continues to mature, offshore regulators face new and varied issues as they work to implement the objectives of the Atlantic Accords. *Laws that were largely developed before the Atlantic Canadian offshore contained producing projects are now being applied to a diverse and evolving industry. As is often the case, laws, as expressed on paper, can prove difficult to apply to each unique set of circumstances that arises in practice.*

Fundamentally, many of the powers of the Atlantic Canadian offshore regulators rely on the concept of "waste." An offshore regulator can order a company to commence, continue, or increase production of petroleum where it is of the opinion that such an order "would stop waste." Conversely, the regulators may order a decrease, cessation, or suspension of the production of petroleum for the same reason. In certain situations of "waste," the Accord Acts *provide for a "forced marriage" via compulsory unitization.*

While "waste" is instrumental to the authority of the offshore regulators, by necessity its definition is open to some interpretation. This article will explore various interpretations of "waste," and examine the role of waste in the Atlantic Canadian offshore regimes.

TABLE OF CONTENTS

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I. INTRODUCTION TO THE ATLANTIC CANADIAN OFFSHORE

A. A BRIEF HISTORY

Today's regulatory framework in the Atlantic Canadian offshore is a product of political compromise. Early exploration and development of oil and gas in the Atlantic Canadian offshore occurred against a backdrop of jurisdictional disputes and mounting political pressures.[1] While the provinces faced off against Canada in court,[2] industry continued exploration efforts culminating in a number of key discoveries, most notably of the Hibernia oil field in 1979[3] and of the various gas fields comprising the Sable Offshore Energy Project from 1972 through 1986.[4] While the courts consistently found that it was Canada, and not the provinces, which held the right to exploit hydrocarbons within the continental shelf, the issue was ultimately resolved through political agreements.[5]

On 11 February 1985 the Prime Minister of Canada and the Premier of Newfoundland executed the *Atlantic Accord: Memorandum of Agreement Between the Government of Canada and the Government of Newfoundland and Labrador on Offshore Oil and Gas Resource Management and Revenue Sharing*.[6] On 26 August 1986 the Prime Minister of Canada and the Premier of Nova Scotia entered into a similar agreement[7] (together with the *NL Accord*, the *Accords*).

In so doing, the governments agreed upon the basic framework of cooperative offshore resource management, and established the Canada-Newfoundland Offshore Petroleum Board[8] (the NL Board) and the Canada-Nova Scotia Offshore Oil and Gas Board (together with the NL Board, the Boards).

B. OVERVIEW OF THE FRAMEWORK

With the basic frameworks of resource management established by the *Accords*, each government proceeded to enact the necessary enabling legislation. The *Accords* are given

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1 Keith R Evans, "Canadian East Coast Offshore Oil and Gas Industry: Sustainable Development Through Cooperative Federalism" (2003) 26:1 Dal LJ 149.

2 *Reference Re Offshore Mineral Rights of British Columbia*, [1967] SCR 792; *Continental Shelf Reference* (1983), 41 Nfld & PEIR 271 (Nfld CA); *Reference Re Newfoundland Continental Shelf*, [1984] 1 SCR 86.

3 Canada-Newfoundland Offshore Petroleum Board, *Respecting the Amendment to the Hibernia Development Plan*, Decision 2003.01 (March 2003), online: <https://www.cnlopb.ca/wp-content/uploads/news/d03_01e.pdf>.

4 ExxonMobil Canada Sable Project, "Timeline," online: <soep.com/about-the-project/timeline/> [ExxonMobil Timeline].

5 Angus Taylor & Jim Dickey, "Regulatory Regime: Canada Newfoundland/Nova Scotia Offshore Petroleum Board Issues" (2001) 24:1 Dal LJ 51 at 54–56.

6 11 February 1985 [*NL Accord*].

7 *Canada-Nova Scotia Offshore Petroleum Resources Accord*, 26 August 1986 [*NS Accord*].

8 Now called the Canada-Newfoundland and Labrador Offshore Petroleum Board.

force of law through parallel statutes enacted at the federal and provincial levels (the *Accord Acts*). Throughout this article, all references will refer to the federal Newfoundland and Labrador statute, the *Canada-Newfoundland and Labrador Atlantic Accord Implementation Act*.[9]

1. THE BOARDS ADMINISTER AND REGULATE, GOVERNMENTS REVIEW AND APPROVE

Under the *Accords*, the Boards have authority to administer the *Accord Acts* and manage the offshore land tenure system. While certain decision-making powers remain with the Federal and Provincial governments, the Boards are charged with the vast majority of decision-making and oversight. It is the Boards that make declarations of discoveries, grant production licences and operating authorizations (and set the conditions that apply to each), approve development plans,[10] and investigate incidents relating to safety and the environment, among other things.

Decisions primarily affecting the pace and mode of exploration and development are subject to review by the federal and provincial governments.[11] Certain decisions of the respective Boards may also be reviewed by each Board's respective Oil and Gas Committee, an independent body comprised of individuals with specialized, expert, or technical knowledge of petroleum.[12] Past members of the Oil and Gas Committees have included a former Chief Conservation Officer, a former General Counsel of an energy regulator, professors specializing in geology and earth sciences, and a reservoir engineer with experience in industry.

The *NL Accord* provides that it is the NL Board which has the power to make final decisions in relation to:

> The Administration of Regulations Respecting "Good Oilfield Practice":
> - *orders relating to waste*
> - *entry into pooling and unitization agreements*
> - administration of technical regulations related to safety, environmental protection, *resource conservation*, and other matters during the exploration, development and production phases
> - production installation, facility and operations approvals, certification of fitness
> - oil and gas committee appellate functions.[13]

It is therefore the Boards that are primarily responsible for waste and resource conservation. Under the *Accord Acts*, this responsibility is primarily delegated to the Chief Conservation Officer (the CCO). The CCO is a statutory officer appointed in each jurisdiction by the respective Board, who is granted significant authority to ensure the conservation of petroleum resources.[14]

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9 SC 1987, c 3 [*NL Accord Act*].
10 Subject to approval by the federal and provincial governments: *NL Accord*, *supra* note 6, s 25(c).
11 *Ibid*, s 25.
12 *NL Accord Act*, *supra* note 9, s 142(1).
13 *NL Accord*, *supra* note 6, s 24(d) [emphasis added].
14 *Ibid*, ss 153, 155–56, 158, 173, 189.

2. AN AGREEMENT ONCE (AND FOR ALL TIME?)

While the Accords represented a significant achievement for "cooperative federalism," and have been heralded (by some[15]) as a positive example of compromise, the unconventional legislative approach has had other consequences. Notably, the *Accords* can only be amended through agreement of the governments, and likewise, the *Accord Acts* can only be amended by the mutual consent of both respective governments.[16] The preamble to the *NL Accord Act* states:

> Whereas the Government of Canada and the Government of Newfoundland and Labrador have entered into the Atlantic Accord and have agreed that *neither Government will introduce amendments to this Act or any regulation made thereunder without the consent of both Governments*.[17]

While seeking legislative change is often a difficult battle, in this context the difficulties can be amplified. It perhaps comes as no surprise that aspects of the regulatory framework maintain a high degree of fidelity to its originally enacted form. This is especially true for the definition of waste, which plays an important role in the *Accord Acts*, and originates in large part from the a model statute promulgated by the Interstate Oil Compact Commission, first published in 1940.[18] However, as geographical location and technological advancements further the divide between modern day offshore and 1930s era onshore production, it is important to consider how effectively the conservation regulations of the past work today.

C. A MATURING INDUSTRY

Just last year, the Hebron project produced first oil after 37 years and an estimated $14 billion dollar capital cost.[19] The project is expected to produce over 700 million barrels of recoverable resources.[20] Construction is beginning on Husky's West White Rose extension project, with confirmed plans for a wellhead platform to tie back to the existing Sea Rose vessel. The estimated resource recovery associated with the West White Rose extension project is 117 million barrels.[21] On 18 May 2018 Husky announced another discovery in the White Rose field, through its A-24 well.[22]

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15 CP MacDonald & RSG Thompson, "The Atlantic Accord: The Politics of Compromise" (1985) 24:1 Alta L Rev 61.

16 *NL Accord*, *supra* note 6, s 2(g).

17 *NL Accord Act*, *supra* note 9, Preamble [emphasis added].

18 Stephen L McDonald, *Petroleum Conservation in the United States: An Economic Analysis* (Baltimore: Johns Hopkins Press, 1971) at 113.

19 ExxonMobil Canada Hebron Project, "Hebron Co-Venturers Reach Sanction" (4 January 2013), online: <https://www.hebronproject.com/mediacentre/2013/sanction.aspx>.

20 *Ibid*.

21 Canada-Newfoundland & Labrador Offshore Petroleum Board, "Staff Analysis of the White Rose Development Plan Amendment Application: White Rose Extension Project" at 4, online: <https://www.cnlopb.ca/wp-content/uploads/news/sawrxdevplan.pdf>.

22 "Excitement Gushes with New Husky Find in Newfoundland Offshore," *CBC News* (18 May 2018), online: <https://www.cbc.ca/news/canada/newfoundland-labrador/husky-oil-crude-prices-1.4669450>.

Production in the Atlantic Canadian offshore has now exceeded 1.7 billion barrels of oil.[23] The region has seen its first[24] (and soon to be second[25] and third[26]) decommissioning efforts, all off the coast of Nova Scotia. Meanwhile, off the coast of Newfoundland, the Jeanne d'Arc Basin has become increasingly crowded. Producing projects and exploration activities now occupy adjacent parcels of land, as neighbours in the offshore. The Newfoundland and Labrador provincial government recently launched its Advance 2030 strategy, aiming to grow the province's oil and gas industry and shorten the time from prospectivity to production.[27]

With the addition of new projects, and the maturing of others, the legal issues faced in the Atlantic Canadian offshore are shifting. While at one time, much of the litigation under the *Accord Acts* focused on the rights of an exploration licence holder and the declaring of significant discoveries[28] (a necessary step to avoid relinquishing this early licence to the Crown), a review of reported decisions suggests a greater emphasis on ensuring the significant existing investments reach their full production potential and that economic recovery is maximized for the offshore as a whole. The increase in adjacent licences has also increased concerns regarding drainage and capture. This has, at least in part, resulted in the first unitization hearing process.[29] Moving forward, we expect that issues related to adjacent acreage and maximizing production from existing infrastructure will play an even larger role in the Atlantic Canadian legal landscape.

II. RESOURCE CONSERVATION

The Boards are tasked with providing for the development of oil and gas resources for the benefit of Canada as a whole and Newfoundland and Labrador or Nova Scotia in particular, as well as to optimize the social and economic benefits to each. More specifically, the Boards are required to "promote … the conservation of petroleum resources."[30]

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23 Canada-Newfoundland & Labrador Offshore Petroleum Board, "Cumulative Production – Offshore Newfoundland" (23 July 2018), online: <https://www.cnlopb.ca/wp-content/uploads/off_prod.pdf>.

24 Canada-Nova Scotia Offshore Petroleum Board, "Cohasset Panuke," online: <https://www.cnsopb.ns.ca/offshore-activity/offshore-projects/cohasset-panuke>.

25 ExxonMobil Timeline, *supra* note 4.

26 Encana Corporation, "Deep Panuke Offshore Gas Development: Pre-Application Project Description for an Application for National Energy Board Leave to Abandon" (March 2018), online: National Energy Board <https://apps.neb-one.gc.ca/REGDOCS/Item/Filing/A90644>.

27 Government of Newfoundland and Labrador, "Advance 2030: A Plan for Growth in the Newfoundland and Labrador Oil and Gas Industry" (February 2018) at 8, online: <www.nr.gov.nl.ca/nr/advance30/pdf/Oil_Gas_Sector_FINAL_online.pdf>.

28 See e.g. *Petro-Canada v Canada-Newfoundland Offshore Petroleum Board* (1995), 133 Nfld & PEIR 91 (Nfld SC (TD)); *Mobil Oil Canada Ltd v Canada-Newfoundland Offshore Petroleum Board*, [1994] 1 SCR 202.

29 *ExxonMobil Canada Properties v Canada-Newfoundland and Labrador Offshore Petroleum Board*, 2017 NLTD(G) 80.

30 *Accord Act*, *supra* note 9, s 135.1.

The *Accord Acts* do not define what they mean by "conservation of petroleum resources," and it has been said that there is no generally accepted definition in industry.[31] However, the following definition appears to capture the key aspects, as they are generally understood:

> In the context of petroleum development, conservation refers to the optimal distribution of resource use over time; that is, the action to maximize the present value of the resource in such a way as to enhance society's overall economic, environmental and social welfare.[32]

Put another way, conservation of petroleum resources has been described as the "manner of recovery and distribution of use over time which maximizes benefit to society."[33] The concept of use over time is key when it comes to oil and gas. As the same author notes, "[t]he conservation of a depletable resource such as oil always involves some degree of postponement of consumption or use."[34] In the early days of oil and gas production, it was this postponement of production that presented the main challenge to resource conservation. Private ownership laws, combined with the physical properties of oil and gas, created an environment where land owners were incentivized to drill as many wells as they could, and produce as much of the resource as possible. Under the "rule of capture," land owners obtained an ownership interest in any oil or gas produced from a well located on their land, regardless of where the oil or gas originated.[35]

A. RESOURCE CONSERVATION IN HISTORY

Historically, resource conservation has largely meant combatting the effects of the rule of capture, namely, limiting the race to produce. The "race to produce" refers to the phenomenon that arose as a reaction to the rule of capture that led to over drilling, inefficient production, and ultimately, a flooding of the market and a drop in prices. The most succinct statement of the rule of capture comes from Hardwicke, who states that "[t]he owner of a tract of land acquires title to the oil and gas which he produces from wells thereon, though it may be proved that part of such oil and gas migrated from adjoining lands."[36]

The unrestricted application of the rule of capture, and the feelings it has engendered in some, is captured in the following comment by Terence Daintith:

> For a rule so important, the rule of capture is singularly unloved. Indeed, it has been subjected to a campaign of vilification that started in the 1920s and has not been abandoned since. The very term "rule of capture" was introduced at that time by those who were convinced that it was the legal rules of property in oil and gas that lay at the root of the tragic waste and disorder of American oil production. *The basic evil*, which they linked directly with the rule, *was the practice of drilling as many wells as possible as quickly as possible after*

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31 Carlos Canales, *Petroleum Conservation: Do International Framework Agreements for the Development of Transboundary Hydrocarbon Resources Effectively Apply Conservation Principles?* (PhD Thesis, University of Leicester School of Law, 2016) [unpublished].

32 *Ibid* at 2 [footnotes omitted].

33 Stephen L McDonald, "Unit Operation of Oil Reservoirs as an Instrument of Conservation" (1973) 49:2 Notre Dame Lawyer 305 at 308–309.

34 *Ibid* at 309.

35 See e.g. *Hammonds v Central Kentucky Natural Gas Co*, 75 SW (2d) 204 (Ky CA 1934).

36 John Bishop Ballem, *The Oil and Gas Lease in Canada*, 4th ed (Toronto: University of Toronto Press, 2008) at 120, citing Robert E Hardwicke, "The Rule of Capture and Its Implications as Applied to Oil and Gas" (1935) 13:4 Tex L Rev 391 at 393.

> *discovery of a new field, and locating them along the boundary lines of one's property*, with the idea either of recovering the petroleum under one's neighbour's land as well as under one's own or of protecting oneself from similar predatory behaviour by others.[37]

B. THE *ACCORD ACTS*' FLEXIBLE APPROACH TO WASTE

The reaction to the "tragic waste and disorder" of oil production has remained a defining feature of the oil and gas industry. The *Accord Acts* continue to reflect this in the specific practices that they identify as wasteful and prohibit. The *Accord Acts* provide regulatory authority to stop waste and to prevent waste from occurring. Waste is defined as follows:

> In this Part, *waste*, *in addition to its ordinary meaning*, means *waste as understood in the petroleum industry* and in particular, but without limiting the generality of the foregoing, includes
>
> a) the inefficient or excessive use or dissipation of reservoir energy;
>
> b) the locating, spacing or drilling of a well within a field or pool or within part of a field or pool or the operating of any well that, having regard to sound engineering and economic principles, results or tends to result in a reduction in the quantity of petroleum ultimately recoverable from a pool;
>
> c) the drilling, equipping, completing, operating or producing of any well in a manner that causes or is likely to cause the unnecessary loss or destruction of petroleum after removal from the reservoir;
>
> d) the inefficient storage of petroleum above ground or underground;
>
> e) the production of petroleum in excess of available storage, transportation or marketing facilities;
>
> f) the escape or flaring of gas that could be economically recovered and processed or economically injected into an underground reservoir; or
>
> g) the failure to use suitable artificial, secondary or supplementary recovery methods in a pool when it appears that such methods would result in increasing the quantity of petroleum ultimately recoverable under sound engineering and economic principles.[38]

This definition resembles what is found in many jurisdictions, including Alberta,[39] Saskatchewan[40] and the US offshore,[41] with some variations. Contrary to the other Canadian statutes, the *Accord Acts*' definition includes the concept of "waste as understood in the petroleum industry" in addition to the somewhat more common "waste in its ordinary meaning."[42] As noted above, the roots of the definition originate from the model legislation promulgated by the Interstate Oil Compact Commission,[43] now called the Interstate Oil and

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37 Terence Daintith, *Finders Keepers? How the Law of Capture Shaped the World Oil Industry* (London: RFF Press, 2010) at 8 [emphasis added].
38 *NL Accord Act*, *supra* note 9, s 154(2) [emphasis added].
39 *Oil and Gas Conservation Act*, RSA 2000, c O-6, s 1(ddd).
40 *The Oil and Gas Conservation Act*, RSS 1978, c O-2, s 2(1)(p).
41 30 CFR § 250.105 (2016).
42 Some but not all provinces define waste this way.
43 McDonald, *supra* note 18 at 113.

Gas Compact Commission (IOGCC). The IOGCC originated in 1935, as an agreement by six American states aiming to address unregulated petroleum overproduction and waste.[44] The language of the IOGCC's model statutes is reflected in many present day conservation statutes,[45] including the *Accord Acts*' definition of waste.

The seven specific examples of waste identified in the *Accord Acts* range from specific ("the inefficient storage of petroleum") to the ambiguous ("the failure to use suitable artificial, secondary or supplementary recovery methods in a pool where it appears that such methods would result in increasing the quantity of petroleum ultimately recoverable under sound engineering and economic principles").[46] Furthermore, it is not immediately clear that waste is consistently understood in the petroleum industry.

This ambiguity has the potential to create confusion in a regime with the prevention of waste at its core. Likewise, while the rule of capture has been a longstanding threat to resource conservation, strictly speaking its application under the *Accord Acts* is undetermined. In order to understand the place of waste and the concept of capture under the *Accord Acts*, it is important to look closer at the regulatory scheme affecting resource conservation.

III. REGULATION OF PRODUCTION UNDER THE *ACCORD ACTS*

A. RIGHTS ISSUANCE AND PROGRESSION

The *Accord Acts* operate on a licensing system, wherein a licence holder is given the opportunity to progress from an exploration licence, to a significant discovery licence, and ultimately, to a production licence by satisfying certain legal tests.

The Boards issue exploration licences pursuant to a call for bids.[47] An exploration licence typically requires certain expenditures over a period of six years, and is valid for a period of nine years. Under an exploration licence, an operator has the right to explore for, and the exclusive right to drill and test for, petroleum over the acreage. The licence holder also has the exclusive right, subject to compliance with the other provisions of the *Accord Acts*, to obtain a production licence.[48] In most cases, an exploration licence will expire after nine years,[49] unless the licence holder has successfully obtained a declaration of significant discovery or a declaration of commercial discovery.

A significant discovery is defined as "a discovery indicated by the first well on a geological feature that demonstrates by flow testing the existence of hydrocarbons in that feature and, having regard to geological and engineering factors, suggests the existence of

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44 Interstate Oil and Gas Compact Commission, "Interstate Oil and Gas Commission Charter," online: <iogcc.ok.gov/charter>.

45 McDonald, *supra* note 18 at 113.

46 *NL Accord Act*, *supra* note 9, ss 154(2)(d), 154(2)(g).

47 *Ibid*, s 58.

48 *Ibid*, s 65.

49 An exception is made for cases where drilling of a well has commenced on any portion of the offshore area to which the exploration licence applies. The licence will not expire so long as the drilling of that well is being pursued diligently, and "for so long thereafter as may be necessary to determine the existence of a significant discovery based on the results of that well" (*ibid*, s 70(1)).

an accumulation of hydrocarbons that has potential for sustained production."[50] A commercial discovery is defined as "a discovery of petroleum that has been demonstrated to contain petroleum reserves that justify the investment of capital and effort to bring the discovery to production."[51]

Where a significant discovery declaration has been made, the Boards will specify the area of the offshore over which "there are reasonable grounds to believe the significant discovery may extend."[52] Any portion of an exploration licence area not included within the significant discovery area will become a Crown reserve area upon the exploration license's expiration.[53] A significant discovery licence entitles a licence holder to all of the same benefits of an exploration licence holder, with two key differences. First, a significant discovery licence is not time-bound, and can theoretically be held in perpetuity. Second, the Boards are empowered to make a drilling order, which requires the licence holder to drill a well on any portion of the significant discovery area within one year.[54] Notably, we are unaware of any instance of either Board exercising this specific power.[55] A significant discovery area (and the corresponding licence) can be increased or decreased based on the results of further drilling.[56] In this sense, it is within the powers of the Boards to compel an idle licence-holder to drill a well and to increase or decrease the licence area accordingly. This, at least in theory, ensures that licences do not become stale and provides the Boards with strategies to stimulate development.

While it may be possible to retain a significant discovery licence indefinitely, ultimately, a licence holder must obtain a commercial discovery declaration to produce petroleum from the licence area.[57] A production licence can only be obtained over an area that is subject to a commercial discovery declaration.[58] A production licence confers on a licence holder "the exclusive right to produce petroleum from those portions of the offshore area" and "title to the petroleum so produced."[59] Production pursuant to a production licence is the only mechanism under the *Accord Acts* by which title to petroleum is granted. Once a commercial discovery declaration has been made, the Boards are empowered to make a development order, requiring an interest owner to begin production or face the reduction of the term of the interest.[60] This power corresponds to the drilling order that may be made against a significant discovery licence, in that it provides the Boards with the ability to require activity or recover the land.

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50 *Ibid*, s 47.
51 *Ibid*.
52 *Ibid*, s 71(1).
53 *Ibid*, s 69(4).
54 *Ibid*, s 76(1).
55 Notwithstanding this, in Canada-Newfoundland Offshore Petroleum Board, *Respecting the Amendment to the Terra Nova Development Plan*, Decision 2005.01 (June 2005), online: <https://www.cnlopb.ca/wp-content/uploads/news/d05_01e.pdf> [*Terra Nova Amendment*], the NL Board imposed conditions on its Development Plan Approval requiring the operator commence two delineation wells in its licence area within stipulated time periods, or else relinquish a selected area.
56 *NL Accord Act*, *supra* note 9, s 71(4).
57 *Ibid*, s 80(1).
58 *Ibid*, s 81(1).
59 *Ibid*, ss 80(1)(c)–(d).
60 *Ibid*, s 79(1).

B. DEVELOPMENT PLAN APPROVAL

Separate from the licensing process is the requirement to obtain approval of a development plan and a benefits plan. In order to develop a pool or a field, an operator must obtain approval of its development plan from the appropriate Board.[61] The development plan must set out the operator's general approach to developing the relevant pool or field, including: the nature of the proposed development, the production system and any alternate production systems that could be used for development of the pool or field, and an array of technical information, including "the production rate, evaluations of the pool or field, estimated amounts of petroleum proposed to be recovered, reserves, recovery methods, production monitoring procedures, [and] costs and environmental factors in connection with the proposed development."[62]

There is no statutory mandated time at which an operator must seek approval of its development plan. As the Boards have the ability to accept or reject the mode of production, it is often done early in the process, prior to project sanction. The Boards have the ability to approve a development plan subject to conditions,[63] and have often exercised this power, including as a tool for resource conservation and prevention of waste.[64]

C. POWERS RELATED TO WASTE

The *Accord Acts* are intended to promote the conservation of petroleum resources.[65] In part, this is accomplished through many of the specific powers of the Boards under the *Accord Acts* which rely heavily on the concept of waste. These powers are in addition to the Boards' broad based powers to oversee development plans and resource management, which also engage issues of resource conservation and waste.

The Boards' powers with respect to waste can be loosely grouped into two categories. First, there are direct production controls. These include the ability to start or stop production, or dictate the rates at which production occurs. Second are the indirect production controls, namely, unitization. While these indirect powers do not directly dictate production levels, they are intended to promote resource conservation by aligning the private interests of the parties with the public interest of conservation.

The Boards' powers relating to waste can also be classified based on whether they respond to past or future waste. First, there are the reactionary, or backward looking powers. These provide the Boards with the tools they need to address waste that is, or was, occurring. As such, they are rather uncontroversial, and comparatively easy to apply. The second set are more challenging. These are the forward looking powers that enable the Boards to prevent future waste of resources, and include powers relating to unitization, spacing units and well approvals.

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61 *Ibid*, s 137.
62 *Ibid*, s 139(3)(a)(ii).
63 *Ibid*, s 139(4).
64 See e.g. *Terra Nova Amendment*, *supra* note 55 at 35.
65 *NL Accord Act*, *supra* note 9, s 135.1(c).

1. PRODUCTION ORDERS

A key aspect of the Boards' authority relates to the power to make a production order, that is, to order the "commencement, continuation or increase of production of petroleum at such rates and in such quantities as are specified in the order."[66] To make such an order, the CCO must "on reasonable grounds" be of the opinion that the capability exists "to commence, continue or increase production of petroleum and *that a production order would stop waste*."[67] Likewise, where the CCO, on reasonable grounds, is of the opinion that such an order would stop waste, the CCO "may order a decrease or the cessation or suspension of production of petroleum for any period specified in the order."[68]

Before exercising either of the production or cessation powers, the CCO must conduct an investigation where interested persons are given an opportunity to be heard.[69] A decision of the CCO can be appealed to the Oil and Gas Committee.[70] While the *Accord Acts* contain procedural safeguards, ultimately the only substantive restriction on the CCO's authority is that the CCO must hold the opinion on reasonable grounds that increasing or decreasing production would stop waste. In this context, the interpretation given to the broad and ambiguous definition of waste provided under the *Accord Acts* has the potential to dramatically impact an interest owner's operations.

2. CONTROL OF MANAGEMENT

The breadth of the CCO's authority when waste is occurring is perhaps most aptly illustrated through the subsection of the *Accord Acts* titled "taking over management." Where the CCO is of the opinion that waste is being committed, and has ordered that all operations giving rise to such waste cease, the CCO "may authorize such persons as may be necessary to enter the place where the operations giving rise to the waste are being carried out and take over the management and control of those operations and any works connected therewith."[71]

We are unaware of any instance of this power being used by either Board. However, its inclusion in the *Accord Acts* illustrates the importance placed on resource conservation and the extent to which the Boards are authorized to intervene when waste is occurring.

3. THE OFFENCE OF WASTE

Finally, the *Accord Acts* create an offence of waste, stating that "any person who commits waste is guilty of an offence … but a prosecution may be instituted for such an offence only with the consent of the Board."[72] The offence may be prosecuted as either a summary conviction or indictable offence. On summary conviction, the maximum sentence is a fine not exceeding $100,000, or imprisonment for a term not exceeding one year, or both. For an

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66 *Ibid*, s 153(1).
67 *Ibid* [emphasis added].
68 *Ibid*, s 153(2).
69 *Ibid*, ss 153(3), 155(2).
70 *Ibid*, s 157(1).
71 *Ibid*, s 156(1).
72 *Ibid*, s 154(1).

indictable offence, the maximum sentence is a fine not exceeding $1,000,000, or imprisonment for a term not exceeding five years, or both.[73]

The creation of a strict liability offence engages principles of criminal law, which could impact the interpretation of waste under the *Accord Acts*. It is a fundamental principle of criminal law that an accused person must be able to understand the offence and that vague and uncertain charges are unfair.[74] The creation of an offence of waste suggests that the statutory definition must be interpreted in a manner that is consistent and ascertainable.

With respect to the offence of waste, the *Accord Acts* contain one caveat. For certain types of waste, their commission is only an offence if "that person has been ordered by the Committee to take measures to prevent the waste and has failed to comply."[75] This restriction applies to the following two types of waste:

> (f) the escape or flaring of gas that could be economically recovered and processed or economically injected into an underground reservoir; or
>
> (g) the failure to use suitable artificial, secondary or supplementary recovery methods in a pool when it appears that such methods would result in increasing the quantity of petroleum ultimately recoverable under sound engineering and economic principles.[76]

As noted above, given the strict liability offences created under the *Accord Acts*, and the seriousness of the penalties associated with each, it is somewhat odd that this additional requirement is only associated with two of the seven aspects of waste. It is not apparent why these two examples of waste should receive different treatment than the others.

4. WELL APPROVALS

Every well operation in the offshore requires the Boards to be satisfied that the work or activity will be completed without waste. An operator must obtain a well approval in order to "drill, re-enter, work over, complete or recomplete a well or suspend or abandon a well or part of a well."[77] The Boards are required to grant approval if "the operator demonstrates that the work or activity will be conducted safely, without waste and without pollution."[78]

In practice, an application for approval to drill a well focuses on the provision of technical, environmental, and safety related information. Furthermore, these applications are typically assessed over a short period of time. This tends to mean that waste considerations such as the location of the well are assessed against the approved development plan, rather than for each individual well.

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73 *Ibid*, s 194(2).
74 Morris Manning & Peter Sankoff, *Manning, Mewett & Sankoff: Criminal Law*, 4th ed (Markham: LexisNexis, 2009) at 75–76.
75 *NL Accord Act*, *supra* note 9, s 194(5).
76 *Ibid*, ss 154(2)(f)–(g).
77 *Newfoundland Offshore Petroleum Drilling and Production Regulations*, SOR/2009-316, s 10(1).
78 *Ibid*, s 13.

5. SPACING UNITS AND POOLING ORDERS

The *Accord Acts* also provide a framework for spacing units and pooling orders as resource conservation measures. Historically, spacing units were used to limit well density and restrain over-investment.[79] A typical spacing unit regime establishes uniform spacing units, sets a maximum number of wells that can be drilled in any spacing unit, and prohibits the drilling of wells within a certain distance of the unit boundary, or from another well.

The *Accord Acts* define a spacing unit as "the area allocated to a well for the purpose of drilling for or producing petroleum."[80] Notably, while the *Accord Acts* provide the authority for a spacing unit regime, spacing units have never been designated in either Nova Scotia or Newfoundland and Labrador. The definition suggests that spacing units would not necessarily need to be uniform, so long as the area was specifically allocated to a well.

In the event that either Board decided to implement a spacing unit regime, this flexibility would likely be important. Regulation by spacing unit has been criticized for being overly rigid, and not necessarily promoting the most efficient development of a pool. While spacing units have successfully limited the ability of a licence holder to place wells on a boundary line for the express purpose of draining the resources under a neighbour's land, they also have their own limitations. With the rise of horizontal drilling, coupled with advances in well technology creating longer completions and well lengths, the spacing unit is at risk of limiting the economic recovery of a pool.[81] Applied too rigidly, what was once a resource conservation measure may in fact lead to waste.

Typically, a spacing unit must be under common ownership or control in order for production to occur, or the relevant owners must enter into a pooling agreement. Pooling refers to the practice of owners of separate leases within a spacing unit entering into an agreement to provide for the operation of the spacing unit.[82] The *Accord Acts* provide for voluntary pooling, and authorize the Oil and Gas Committee to make pooling orders.[83] Ultimately, petroleum can only be produced from a spacing unit with multiple licence holders if a pooling agreement has been entered into. The *Accord Acts* provide that where there are two or more separately owned working interests within a spacing unit, no production can occur until a pooling agreement has been made.[84] While in theory this restriction on production could be significant, without established spacing units, this section of the *Accord Acts* is essentially of no effect.

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79 Nigel Bankes, "Pooling Agreements in Canadian Oil and Gas Law" (1995) 33:3 Alta L Rev 493 at 497–99.

80 *NL Accord Act*, *supra* note 9, s 166.

81 See e.g. Bret Wells, "Allocation Wells, Unauthorized Pooling, and the Lessor's Remedies" (2016) 68:1 Baylor L Rev 1; Benjamin Holliday, "New Oil and Old Laws: Problems in Allocation of Production to Owners of Non-Participating Royalty Interests in the Era of Horizontal Drilling" (2013) 44:4 St Mary's LJ 771.

82 *NL Accord Act*, *supra* note 9, s 167(1).

83 *Ibid*, ss 167, 168(4).

84 *Ibid*, s 171.

6. UNITIZATION

While spacing units and pooling orders have not become a reality in the Atlantic Canadian offshore, unitization has received slightly more favour. Unitization has been described as the "joint, coordinated operation of a petroleum reservoir by all the owners of rights in the separate tracts overlying the reservoir."[85] Unitization may be voluntary or compulsory. Under the ambit of compulsory unitization are two different concepts, and as discussed below, the *Accord Acts* provide for both.

a. Voluntary Unitization

Voluntary unitization is just that — licence holders decide to coordinate development of their respective tracts of land. While it has been said that most unitization is voluntary, certain authors question the truth of that proposition:

> Even in the United States, state conservation commissions with weak or nonexistent unitization powers have nonetheless used no-waste and no-flare orders under their conservation authority, with the ultimate effect of indirectly [effecting] compulsory unitization without a compulsory unitization statute.… Under such orders, lessees are starkly presented with two options: Either agree to unitize or suffer seriously restricted cash flow from reduced production rates imposed by the conservation commission to prevent waste.… "Voluntary" unitization usually followed such orders fairly quickly.[86]

b. Compulsory Unitization

True compulsory unitization can occur on the East Coast in two ways, the first being through an owner-initiated process. Many statutes contain provisions similar to this:

> One or more working interest owners who are parties to a unit agreement and a unit operating agreement and own in the aggregate sixty-five per cent or more of the working interests in a unit area may apply for a unitization order with respect to the agreements.[87]

While this process is referred to as "compulsory" unitization, it is by necessity "voluntary" for a majority of owners. Essentially, such a provision provides a mechanism to force recalcitrant owners into a unit.[88]

The other form of compulsory unitization provided for under the *Accord Acts* is initiated by the CCO, rather than a licence-holder. The *Accord Acts* provide:

> Notwithstanding anything in this Part, where, in the opinion of the Chief Conservation Officer, the unit operation of a pool or part thereof would prevent waste, the Chief Conservation Officer may apply to the

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85 Jacqueline Lang Weaver & David F Asmus, "Unitizing Oil and Gas Fields Around the World: A Comparative Analysis of National Laws and Private Contracts" (2006) 28:1 Hous J Intl L 3 at 6 [footnotes omitted].

86 *Ibid* at 27, n 53 [citations omitted].

87 *NL Accord Act*, *supra* note 9, s 174(1).

88 Weaver & Asmus, *supra* note 85 at 17.

> Committee for an order requiring the working interest owners in the pool or part thereof to enter into a unit agreement and a unit operating agreement in respect of a pool or part thereof, as the case may be.[89]

The CCO must apply to the Oil and Gas Committee for an order requiring the working interest owners to unitize. The Oil and Gas Committee is authorized to make an order requiring unitization if, following a hearing, the Committee is of the opinion that unit operation of the pool or part thereof would prevent waste.[90] This future-focused application of waste requires an understanding of when and how unitization might prevent waste, as well as whether a particular development plan would in fact be wasteful.

It has been said that "[u]nquestionably, unitization is a proper and generally accepted measure in the industry to prevent waste."[91] However, this general approach must be reconciled with the legislative perspective that a hearing would be required to determine whether unit operation of a pool or part thereof would prevent waste, as it is not a foregone conclusion. Even where the Oil and Gas Committee is satisfied that unit operation of a pool or part thereof would prevent waste, it remains a discretionary decision of the Committee as to whether unit operation should be ordered.[92]

c. Board Mandated Unitization

Separate from the Oil and Gas Committee waste-based process for imposing unitization, the Boards have imposed unitization conditions on development plan approvals in the past.[93] In 1997, the NL Board was called upon to approve the Terra Nova project. The Approval Decision stated:

> The Proponent notes that the varying ownership across Terra Nova requires unitization of the field and that a process is underway which, when complete, will establish the equity interest of individual owners.
>
> The Terra Nova Significant Discovery Area is comprised of five significant discovery licenses with varying ownership. The Board notes that according to the information provided by the Proponent, it is also possible that the oil accumulation may extend into the Hebron Significant Discovery Area and Exploration License 1022.
>
> …
>
> The Board acknowledges the unitization efforts by the Proponent and believes that unitization of the field is important for conservation purposes and for effective administration of the regulations governing production of the resource. Therefore, it is a condition of the Board's approval that:

89 *NL Accord Act*, *supra* note 9, s 173(1).
90 *Ibid*, s 173(3).
91 Weaver & Asmus, *supra* note 85 at 27.
92 *NL Accord Act*, *supra* note 9, s 173(3).
93 But notably, the *Accord Acts* do not expressly authorize the imposition of unitization conditions.

> Condition 15:
> The Proponent file with the Board a unit agreement and a unit operating agreement prior to initiating oil production.[94]

The NL Board's approval for the White Rose project also contained a condition respecting unitization. In that approval, the NL Board stated:

> The White Rose Significant Discovery Area is comprised of thirteen significant discovery licenses with two different ownership interests. In addition, both parties have interest in Exploration Licenses in the region.… According to the Proponent, pooling agreements should not be a significant issue due to the uniform Working Interest over the portions of the field containing the majority of the reserves.
>
> The Board notes that the extent of the White Rose South Avalon pool extends outside of the current Significant Discovery Area. The Board will review this item with the Proponent prior to initiation of production. Also, the Board notes that the working interests vary over the Significant Discovery Area. The Board believes that unitization of … the South Avalon pool outside the current significant discovery area, is important for conservation purposes and for effective administration of the regulations governing production of the resource.
>
> Condition 21:
> Prior to initiating production from the White Rose field, a unitization agreement among license holders for the White Rose Significant Discovery Area be submitted to the Chief Conservation Officer.[95]

In later years, the NL Board moved away from imposing formal conditions of unitization. The NL Board Staff Analysis of the Hebron Development Plan provided the following commentary:

> Board staff notes that resources of the Hebron Asset extend outside of the current Significant Discovery Area. The Proponent will be expected to come to a commercial agreement with the owners of adjacent Significant Discovery Licenses prior to submission of a Commercial Development Application for the Hebron Asset.
>
> It is the Board staff's view that unitization of the Hebron Asset is important for conservation purposes and for effective administration of the regulations governing production of the resource.[96]

However, unlike in the case of the Terra Nova or White Rose projects, the Hebron Development Plan was approved without a condition relating to unitization.[97]

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94 Canada-Newfoundland Offshore Petroleum Board, *Terra Nova Development Plan*, Decision 97.02 (December 1997), online: <https://www.cnlopb.ca/wp-content/uploads/news/d97_02e.pdf>.

95 Canada-Newfoundland Offshore Petroleum Board, *White Rose Development Plan*, Decision 2001.01 (26 November 2001), online: <https://www.cnlopb.ca/wp-content/uploads/news/d01_01.pdf>.

96 Canada-Newfoundland and Labrador Offshore Petroleum Board, "Staff Analysis: Hebron Development Plan" (April 2012) at 83, online: <https://www.cnlopb.ca/wp-content/uploads/news/sahebdevplan.pdf> [Hebron 2012].

97 Canada-Newfoundland and Labrador Offshore Petroleum Board, *Hebron Development Application*, Decision 2012.01 (April 2012), online: <https://www.cnlopb.ca/wp-content/uploads/news/hebdecision042012.pdf>.

IV. ALTERNATIVE RESOURCE CONSERVATION APPROACHES

While the *Accord Acts* contain a number of resource conservation tools, there are two notable alternatives that are absent. First, the *Accord Acts* do not contain any express protection for correlative rights. Second, the *Accord Acts* do not contain any express notion that the full geological extent of a pool or field must be unitized. These two alternative approaches are explored below.

A. CORRELATIVE RIGHTS

The doctrine of correlative rights, or the principle that licence holders ought to be entitled to their fair share of a resource recovered from a well, developed as a response to the rule of capture. "Correlative rights" refers to a doctrine of law developed in some jurisdictions that acts to limit the rights of landowners to a share of a migratory substance that corresponds to their proportionate land ownership.[98] That is, the correlative rights doctrine invokes an "ownership in place" concept, and limits the right to produce which would otherwise exist by virtue of the rule of capture.

The development of the correlative rights doctrine has been explained as follows:

> To mitigate such wasteful effects, a number of jurisdictions started to replace the law of capture with an ownership-in-place doctrine called "correlative rights". Correlative rights were defined as "the opportunity of each owner in a pool to produce his just and equitable share of oil and gas in the pool without waste." Under a correlative rights doctrine, the produced hydrocarbons were divided among the different owners "on the basis of what they could have produced without unnecessary drilling."[99]

The *Accord Acts* do not provide a mechanism whereby adjacent landowners can obtain value for hydrocarbons that originated under their licence area. Instead, the concept of capture has been embodied in the *Accord Acts* by way of section 80(1) and is a key part of the regulatory regime enacted by the legislatures. The *Accord Acts* provide that the holder of a production licence obtains the following rights:

> A production licence confers, with respect to the portions of the offshore area to which the licence applies,
>
> (a) the right to explore for, and the exclusive right to drill and test for, petroleum;
>
> (b) the exclusive right to develop those portions of the offshore area in order to produce petroleum;
>
> (c) *the exclusive right to produce petroleum from those portions of the offshore area*; and
>
> (d) *title to the petroleum so produced*.[100]

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98 Canales, *supra* note 31 at 34, citing *Browning Oil Co Inc v Luecke*, 38 SW 3d 635 (Tex CA 2000).

99 Canales, *ibid* at 33 [footnotes omitted], citing Samuel B Pettengill, *Smoke-Screen* (Kingsport, Tenn: Southern Publishers, 1940) at 96.

100 *NL Accord Act*, *supra* note 9, s 80(1) [emphasis added].

In the offshore, the Crown has the right to explore for and produce hydrocarbons, and the right is subsequently granted to private operators through the licensing regime. Private operators have no ownership interest in any of the petroleum underlying a licence area until that petroleum is produced.[101] It is by operation of the *Accord Acts* that title to the petroleum produced from the applicable lands is granted to the production licence holder. In this sense, the concept embodied by the rule of capture has been codified. As has been stated by leading author Terence Daintith:

> Everything depends upon the way in which the state administers its oil and gas estate and, notably, whether it chooses to secure development by inviting oil companies to compete for the rights to explore and exploit restricted parcels of onshore or offshore territory.… It is for the granting authority to decide whether to give its grantees rights to any petroleum they may recover by operations in their grant area or only to the petroleum that originally lay, undisturbed, beneath that area. If they choose the former course, as did the United Kingdom, United States, and Australia, the rule of capture will be retained; if the latter, as in the Netherlands, it will be eliminated.[102]

The legislatures of Canada, Newfoundland and Labrador, and Nova Scotia have decided to grant licensees in the Atlantic Canadian offshore rights to the petroleum they recover by operations in their licence area, rather than to the petroleum that originally lay, undisturbed, beneath that area. Where title is obtained on production, there is no need for a correlative rights doctrine. The licence holder has no right to the petroleum underlying the licence until it is produced.

B. FULL FIELD UNITIZATION

Another resource conservation approach seen worldwide is full field unitization. Full field unitization requires that the entire extent of a field or pool must be unitized in order to produce from the pool. This approach removes any incentive to compete, and in theory at least, ensures maximum production from the pool. There are many advocates for this position. One author has boldly stated:

> By now it should be evident that the conservation problem in oil results from the combination of the fluid nature of reservoir contents and the multiplicity of property interests in the typical reservoir. It would seem to follow that a solution to the problem is to eliminate one of these circumstances, and since the latter is the only one amenable to change, there is no choice to make. There is available a well-known, widely used device to eliminate the multiplicity of property interests in common oil reservoirs: unitization and unit operation of such reservoirs.[103]

The automatic unitization of straddling pools is an approach favoured by some regulators. It has been said that "[b]ecause optimum exploitation is in the best interests of the state, from the standpoints of hydrocarbon recovery, taxes, and royalties, unitization of a straddling field is often required by petroleum regulators as a precondition for development approval."[104]

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101 *Ibid*.
102 Daintith, *supra* note 37 at 430–31.
103 McDonald, *supra* note 33 at 311.
104 Paul F Worthington, "Contemporary Challenges in Unitization and Equity Redetermination of Petroleum Accumulations" (2011) 3:1 SPE Economics & Management 10 at 10.

Full field unitization shifts the focus away from waste, and onto the extent of a pool or a field. Where a waste-based approach to unitization requires that licence holders and regulators have a strong understanding of the depletion plan, full field unitization places more emphasis on understanding the extent of the hydrocarbon accumulation.

V. WASTE

For a concept that is so central to many oil and gas regulatory regimes, there has been surprisingly little consideration (judicial or otherwise) of exactly what waste entails.[105] Perhaps this is because we believe we will "know it when we see it." Certainly the specificity of the examples contained within the petroleum statutes could lead one to believe that waste can be objectively assessed, perhaps even with relative ease.

The waste-based powers of the Boards and the CCO suggest certain conclusions about the scope of waste as well. Under the *Accord Acts*, the regulators must be able to assess both when waste is occurring and when waste may occur in the future. Furthermore, the unitization powers require a decision maker to determine, looking to the future, whether unitization would prevent waste. Additionally, the definition of waste must allow waste to be assessed on a well-by-well basis, and also in relation to the "unit operation of a pool or part thereof."[106] The powers granted under the *Accord Acts* reveal that waste can be stopped through commencing or ceasing operations, increasing or decreasing production, and may be prevented by unit operation.

A. WASTE IN ITS ORDINARY MEANING

The *Accord Acts* incorporate the ordinary meaning of waste into the statutory definition. Waste in its ordinary meaning has also been incorporated into the definition of waste under Alberta's *Oil Sands Conservation Act*[107] and has been explored in an article published in the *Alberta Law Review*.[108] The article focuses on the Alberta regulatory regime, however the similarities in the statutory definition between Alberta and the *Accord Acts* mean the conclusions are important. In examining what is encompassed within the ordinary meaning of waste, Jason Metcalf states:

> The *Paperback Oxford English Dictionary* defines waste in three ways potentially relevant to this discussion: "1. Use carelessly, extravagantly, or to no purpose. 2. Fail to make full or good use of. 3. Destroy or ruin."
>
> The first two definitions seem to impart the same meaning, namely, a failure to utilize some resource to its potential or for its stated purpose, through either inefficient management or prodigal use of the resource. The third definition imparts a sense of permanent injury to the resource; it will never be able to be used to its potential. The conjugation of the two concepts, it is submitted, forms the core of what "waste" should be under the *Act*. That is to say, *waste is a failure to exploit bitumen reserves in a way which maximizes the*

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105 Jason Metcalf, "Waste in the Land of Plenty: An Examination of the Theoretical Implications of Waste on the Alberta Oil Sands Deposits" (2007) 45:1 Alta L Rev 227.
106 *NL Accord Act*, *supra* note 9, s 173(1).
107 RSA 2000, c O-7, s 1(s).
108 Metcalf, *supra* note 105.

> *potential capture of the reserves though, at minimum, the needless depletion of reservoir energy or destruction of the reserves.*[109]

Even within this ordinary understanding of waste, the author alludes to the potential subjectivity when he states that waste is the needless depletion of reservoir energy or destruction of reserves.

Given the breadth of the ordinary definition of waste, it is also possible to argue that the definition could include any failure to exploit the resource. It could be suggested that leaving behind any amount of stranded oil amounts to a "failure to make full or good use" of the resource, and therefore fits within the definition of waste, regardless of economics. In our view this approach is not overly practical, and the conclusion put forward by Metcalf is sound.

B. WASTE AS UNDERSTOOD IN THE PETROLEUM INDUSTRY

The second aspect of the *Accord Acts*' definition of waste refers to "waste as understood in the petroleum industry."[110]

The difficulties inherent in identifying waste in the oil and gas industry were identified by the 1969 legislators who ultimately extended the application of the *Oil and Gas Production and Conservation Act* to apply to the offshore.[111] The *1969 Act* was enacted after an unsuccessful effort by the Federal Government to attain agreement with the provinces. The Federal Government proceeded to enact its desired legislation, but initially limited its application to the Yukon Territory and the Northwest Territory. When the responsible Minister spoke to the proposed law in the House of Commons, he stated:

> Because of the different structure and form of an oil field compared, for instance, to a mine, the engineers very often have to work with indirect information. From time to time there will be differences of professional opinion with respect to the nature of this information and interpretation of its meaning. Part of the duties of the proposed oil and gas committee will be to look into cases where such differences of opinions arise and to ensure that the interpretation of the information available is as satisfactory and as fair as possible to all concerned.[112]

This inherent uncertainty in developing a plan absent key information requires any discussion of waste to consider risk tolerance. Depending on one's view of a reservoir, the optimal placement of a well may change. Too conservative an approach may result in significant volumes of oil left behind. Too bold, and the well may produce nothing at all. Technically, each of these scenarios could fit within the definition of waste under the *Accord Acts*.

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109 *Ibid* at 231–32 [emphasis added].
110 *NL Accord Act*, *supra* note 9, s 154(2).
111 SC 1968-69, c 48 [*1969 Act*].
112 *House of Commons Debates*, 28th Parl, 1st Sess, vol 7 (15 April 1969) at 7543 (Hon Robert K Andras).

C. WASTE INCLUDES PHYSICAL AND ECONOMIC CONSIDERATIONS

Many academics and commentators who have written about waste have made a distinction between physical waste and economic waste. Essentially, physical waste is true waste of the resource: loss due to leakage, fire, evaporation, or loss of oil otherwise recoverable due to excessive rate of production.[113] Economic waste consists of production in excess of market demand: those practices that do not reduce the quantity of petroleum produced, but reduce its value through overproduction.

While this is an initially compelling dichotomy, the *Accord Acts*' examples of waste incorporate economic considerations into what would traditionally be considered physical waste, effectively blurring the line between the two concepts. For example, it is not suggested that complete recovery of petroleum is necessary to avoid physical waste. It is acknowledged in the industry that the recovery rates of oil producing fields do not approach 100 percent. Unrecovered hydrocarbons, on their own, do not constitute waste. Instead, the *Accord Acts* introduce the concept of "sound engineering and economic principles,"[114] and assert that waste is developing a pool in a manner that recovers less than would be recovered under these principles. One way to look at this is to consider that waste occurs in relation to an optimized production baseline that is based on sound engineering and economic principles. Under such an approach, producing less than this baseline would be considered wasteful.

In this sense, waste is not, for example, failing to achieve a recovery factor of 100 percent. Instead, it is measured against a baseline that incorporates economic principles. This approach has been acknowledged by the staff of the NL Board, which has stated:

> Methods to maximize oil and gas recovery are primarily determined by geological and engineering criteria, and in some situations it is necessary to consider economic factors. *For example, if two different production systems are being considered, and one is expected to achieve a higher recovery but at significantly higher cost, then the value of the additional hydrocarbon recovery must be weighed against the added expenses to determine the most economic approach*.[115]

Consider this: a 50 percent recovery factor of a pool can be achieved with one well, whereas it is expected that achieving a 55 percent recovery factor would require five additional wells to be developed. Is it wasteful to implement a one-well development project? At its simplest, the answer is, "it depends." It depends on factors ranging from the relatively straightforward, such as the amount of recoverable hydrocarbons in the pool and the incremental cost of each well, to those more nuanced or complex. Examples of such factors include the operator's (or the regulator's) confidence in the reservoir model, the predicted value of the resource, and the risk associated with the technical aspects of recovery. All of these factors are important, and all of this is to say that assessing waste is far from straightforward.

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113 McDonald, *supra* note 33 at 307.
114 *NL Accord Act*, *supra* note 9, s 154(2)(b).
115 Hebron 2012, *supra* note 96 at 34 [emphasis added].

VI. CONCLUSION: WASTE AS AN EFFECTIVE TOOL OF RESOURCE MANAGEMENT

Ultimately, the question worth asking is whether the waste provisions of the *Accord Acts* enable the Boards to meet the resource conservation goals of the *Accords* and ensure the development of oil and gas resources offshore of Nova Scotia and Newfoundland and Labrador, for the benefit of Canada as a whole, and the provinces in particular.[116] In our view, the answer is yes.

As noted above, a waste-based approach to resource conservation maximizes value for the Crown. Under the royalty regimes, the Crown benefits when the most resources are produced for the lowest cost. To that end, the current provisions of the *Accord Acts* should be preferential to the Crown over any other.

One potential criticism of waste-based regulatory models is that they are complex and require significant technical oversight by the regulator. However, in our view, there is considerable benefit to having an engaged and technically knowledgeable regulator. Such engagement ensures that the Boards play a meaningful role in resource conservation and do not simply provide "rubber stamp" approvals. This is also beneficial for new entrants who can rely on the expertise of the Boards as they commence exploration and development.

The concept of waste, and its various applications under the *Accord Acts*, is by necessity open to interpretation. While any regulatory uncertainty can be uncomfortable for an operator, the flexibility that it provides has allowed the *Accord Acts* to remain relevant and respond to changing environmental, technological, and social concerns, while maximizing benefits as intended by the framers of the *Accords*.

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[116] *NL Accord*, *supra* note 6; *NS Accord*, *supra* note 7.