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Natural Gas Storage Regimes In Canada: A Survey

An Executive Summary

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COMMENTS

This paper is posted as a working paper. Comments on the paper may be sent to Nigel Bankes at (ndbankes@ucalgary.ca). This is the **Executive Summary** of a working paper entitled *Natural Gas Storage Regimes in Canada: A Survey*. A copy of the full paper can be downloaded at (<http://www.iseee.ca/whatsnew/reports>).

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Executive Summary

This is the Executive Summary of a working paper entitled *Natural Gas Storage Regimes in Canada: A Survey*. The working paper examines the natural gas storage regimes in place in the different jurisdictions in Canada. The paper tries to answer the following questions for each jurisdiction:

- What does the regime say about the ownership of storage rights? Does it vest such rights in the Crown or does it recognize that storage rights might be privately owned? Is the ownership of storage rights associated with ownership of the surface or ownership of the mines and minerals?
- To the extent that storage rights are owned by the Crown, how does the Crown dispose of those storage rights? Are storage rights associated with the rights to produce petroleum and natural gas, or does the relevant legislation provide for a distinct form of storage tenure (or some combination of the two)?
- To the extent that storage rights are privately owned, does the province provide any mechanism for the compulsory acquisition of storage rights from a holdout? If so, is there a mechanism to provide compensation?
- What is the regulatory mechanism in place for the approval of natural gas storage projects? Does responsibility for approval lie with the provincial energy department or a regulatory tribunal?
- How does the regime deal with the potential for resource use conflicts (e.g. sterilization of other resources as a result of designating lands for storage)?

The paper does not refer in any great detail to the technical regulation of storage facilities and does not discuss the private contractual arrangements relating to the use of storage.

The paper is divided into twelve parts including a conclusion. Part 1 provides an introduction to the subject and to the scope of the paper and also provides a review of the legal literature on natural gas storage in Canada. Part 2 offers an overview of some of the more technical aspects of gas storage. Gas storage may occur at any point along the supply chain from the point of production to the point of distribution. Storage serves a

number of different but interrelated purposes. It provides security of supply, it helps maximize the use of transportation facilities and it provides peaking capacity. It also allows producers and other parties to hedge the market injecting when prices are low and producing when prices are higher. There are three types of storage structures: depleted petroleum and natural gas reservoirs, salt caverns and aquifers. Storage structures can be evaluated in terms of both capacity and deliverability. Gas within a storage structure comprises physically unrecoverable gas, cushion gas and working gas. Working gas represents the gas that can be injected and recovered and represents the true measure of the value of a storage property. Cushion gas represent a capital cost of developing the property. There are pros and cons to different forms of storage. Depleted reservoirs may offer large volume storage while salt caverns offer high injectivity and deliverability and therefore the ability to cycle gas thereby providing peaking potential and reducing the unit cost of storage. There are no aquifer storage facilities in Canada. Currently Canada has about 600bcf (billion cubic feet) of storage, and, at the time of writing (fall 2009), storage has reached record levels because of low gas prices and surplus deliverability.

Summaries of parts 3 - 10

Parts 3 – 10 examine, successively, the law of those provincial jurisdictions that have storage legislation (i.e. all of the provinces except Prince Edward Island and Newfoundland).

The key conclusions for each of those jurisdictions are as follows.

British Columbia has only one geological gas storage facility, Aitken Creek, which is located in the producing part of the province. The province recognizes that gas storage rights may be owned by private parties as well as by the Crown, apparently on the basis either of private ownership of mineral titles or ownership of the surface. However, the province has adopted a mechanism whereby storage rights in relation to any particular property may be vested in the Crown. Private owners, to the extent that they are disentitled as a result of such a vesting, may be able to claim compensation. Although

hardly tested, this should be an effective mechanism to deal with potential holdout problems. The province has developed a separate tenure system for storage although, Aitken Creek is licensed on the basis of a production tenure and a scheme approval rather than on the basis of a storage tenure.

Legislation in *Alberta* provides that pore space ownership for the purposes of gas storage follows the ownership of petroleum and natural gas rights. Storage rights are not vested in the surface owner and they are only vested in the Crown to the extent that the Crown owns petroleum and natural gas rights. The Crown disposes of storage rights that it owns under the terms of the *Mines and Minerals Act*. While the *Act* provides the Crown with the flexibility to negotiate special gas storage agreements, its standard model is based on a unitization agreement, the premise of which is that the operator of the proposed storage project already has an existing oil and gas production tenure which the operator proposes to extend (both in terms of duration and the rights conveyed) by entering into a gas storage unitization agreement. The technical aspects of gas storage projects in Alberta are regulated by the ERCB. The *Surface Rights Act* deals with any potential holdouts at the surface rights level but the provincial legislation does not provide any mechanism to deal with the recalcitrant owner of storage rights who refuses to participate either at all, or at least not on the terms offered.

Saskatchewan hosts both salt cavern and depleted aquifer natural gas storage projects. Natural gas storage rights in the province may be owned privately or publicly. Publicly owned storage rights are disposed of by agreement under the terms of the *Crown Minerals Act*. Regulatory approval of storage projects is dealt with under s.17 of the *Oil and Gas Conservation Act* although that section fails to deal explicitly with the idea of storage. The legislation does not provide a clear framework for dealing with holdout problems, either with respect to surface owners or with respect to private pore space owners.

There are no natural gas storage projects in *Manitoba*. There are no clear provisions vesting natural gas storage rights in the Crown and therefore, much as in Alberta and

Saskatchewan, storage rights may be owned by the Crown or by private parties depending on the ownership of mineral rights. Manitoba has a single piece of legislation (the *Oil and Gas Act*) to deal with both the disposition of Crown oil and gas rights and the regulation of oil and gas development. In the case of oil and gas, the legislation offers a clear separation between disposition issues and regulatory issues. The *Act* does not maintain this distinction with respect to storage rights. Thus, Part 13 of the *Act* on storage reservoirs presents some challenging interpretive issues. We think that this Part is best interpreted as providing for the disposition of Crown owned storage rights by way of a permit and as creating a basic regulatory framework, in conjunction with regulation under the *Public Utilities Board Act*, but it should not be seen as effecting a vesting of privately owned storage rights in the Crown or in a private operator licensed (permitted) by the Crown. A permit under Part 13 may be a regulatory necessity to operate a storage project in Manitoba but it will not provide a sufficient approval where the storage rights are privately owned.

The Manitoba legislation does not provide a resolution for holdout problems where a private owner of storage rights refuses to contribute them to storage undertaking. A storage operator would likely be able to use the surface rights provisions of the *Act* to acquire the necessary surface rights for that operation.

There are numerous natural gas storage projects in southern *Ontario*. Union Gas is the most important operator. Ontario has more than fifty years experience with natural gas storage. This experience is reflected in both the number of storage projects in the province but also in the sophisticated and transparent regulatory approach of the Ontario Energy Board to the approval of such projects.

Ontario recognizes that storage rights may be owned by the Crown or by private owners based upon ownership of the mineral rights in relation to the land. Private ownership is dominant in that part of the province where storage operations are active but the Crown does have in place a tenure regime for disposing of Crown owned natural gas storage rights. The Ontario Energy Board regulates the development of storage sites and in the

course of that also provides a mechanism to deal with and provide compensation in the event of holdouts (either surface or subsurface). In recent years Ontario has moved away from the economic regulation of gas storage and has signaled that new storage, and the expansion of existing storage facilities, should be able to take advantage of market-based rates.

Quebec has elected to take the same approach to storage rights as it has taken with respect to minerals, including oil and gas, and to vest all such rights in the state (subject to some very limited grandparented exceptions). The legislation (the *Mining Act*) provides for a two step exploration and lease tenure scheme for storage which seems to track (perhaps somewhat slavishly) the two stage tenure scheme for hydrocarbons. As in some other jurisdictions (e.g. Manitoba), the *Mining Act* serves as both a disposition statute and as a conservation/regulatory statute. Since storage rights are vested in the government there are no storage holdout problems that need resolution; however, there is some possibility that the legislation needs to be amended to ensure that storage operators can access the surface rights provisions of the *Mining Act*.

New Brunswick has had storage legislation in place since 1978 but is only now beginning to develop its first storage project. The provincial ownership rules are clear and simple; all storage rights are vested in the Crown. There are therefore no private owner holdout problems that need to be dealt with, other than with respect to surface owners.

The natural gas storage industry in *Nova Scotia* is in its infancy. The province has adopted free-standing storage disposition legislation. That legislation seems to be premised on the idea that all storage rights are already vested in the Crown by virtue of Crown vesting provisions in provincial mining and petroleum legislation. It would certainly be anomalous if mining and petroleum rights were vested in the Crown but not storage rights; but still, this might usefully be clarified. The disposition legislation provides for two forms of tenure, a storage exploration tenure and a long term lease tenure for continuing operations.

Other matters

Part 11 of the paper briefly canvasses the position in each of Newfoundland and Prince Edward Island confirming that neither has a natural gas storage regime. The same is true for lands subject to the *Indian Oil and Gas Act*. There are elements of a storage regime for Yukon, for Canada lands (Nunavut and Northwest Territories and the East Coast) although none of these regimes have been tested. This part of the paper also includes a brief assessment of the federal role in natural gas storage regimes. It concludes that while there is certainly a federal role where storage rights are vested in the federal Crown (eg Nunavut and Northwest Territories and the East Coast), in general, the development of gas storage lies firmly within provincial jurisdiction and control. This is subject only to the outside possibility that in some cases a storage facility might be so closely integrated with a federally regulated interprovincial or international pipeline that the storage will also fall under the federal regulatory jurisdiction of the National Energy Board rather than that of a provincial regulator; but this will clearly be a rare and unusual situation.

A thematic summary

Part 12 of the paper offers a thematic summary to supplement the jurisdiction-by-jurisdiction account. The thematic summary is organized around the following themes: (1) ownership of storage rights, (2) the treatment of holdout problems where storage rights are privately owned, (3) disposition rules for government owned storage rights, (4) resource sterilization, and (5) regulation. We have reproduced it here in the Executive Summary as a supplement to the jurisdiction-by-jurisdiction approach.

Who owns natural gas storage rights?

The literature on the ownership of natural gas storage rights in Canada suggests that there is some uncertainty as to who owns pore space for storage purposes. Is pore space owned by the owner of the mineral estate or is it owned by the owner of the surface estate? Given this uncertainty, governments in Canada have responded in several ways.

First, some governments have responded by vesting natural gas storage rights in the Crown or the government. This serves both to clarify and simplify the ownership position. A prospective storage operator need only deal with one owner and that owner is a public owner. This approach also serves to resolve the potential holdout problems that may arise when a single owner in a fragmented ownership situation refuses to agree to the assembly of the properties required for a storage project at the price offered, or indeed at any price. This is the position taken in Quebec and New Brunswick: both have elected to vest pore space and storage rights in the government. The position is not quite as clear in Nova Scotia, although the provincial storage legislation seems to proceed on the basis that storage rights are already vested in the Crown by virtue of provincial petroleum or mineral legislation.

Second, a single jurisdiction, Alberta, has chosen to enact legislation to clarify the ownership position and, in the course of doing so, has vested natural gas storage rights with the owners of petroleum and natural gas rights. Thus, in Alberta, storage rights may be owned either by the Crown or by private parties depending upon the background mineral titles. Since about 80% of mineral rights in Alberta are owned by the provincial Crown this makes Crown ownership dominant though certainly not exclusive. One still encounters many townships in the settled parts of the province with fragmented (Crown/freehold) ownership patterns. In sum, the Alberta legislation has clarified the matter of ownership but it does not completely resolve matters from the perspective of a prospective storage operator seeking to assemble the necessary block of rights. There is still the potential for holdout problems.

A third group of provinces has not seen the need to clarify the ownership rules for natural gas storage, although each seems to proceed on the *assumption* that storage rights follow mineral ownership and that, as a result, storage may be vested in the Crown or a private owner depending on the background mineral ownership. This is the case in Ontario, Manitoba, and Saskatchewan.

Fourth, one other jurisdiction, British Columbia, proceeds on the premise that ownership of natural gas storage rights is unclear and that such rights may be owned by the surface owner or the mineral rights owner. British Columbia's response to this acknowledged uncertainty is to create a procedure for vesting storage rights in the Crown, subject to the payment of compensation where a private owner can show that it has been divested of its ownership rights. The BC model provides certainty to an operator proposing to assemble a storage project, but the model delivers that certainty on a case-by-case basis rather than by the enactment of a global rule (as in Alberta) that vests storage rights in one category of owner. The BC model also puts the onus on the private party who claims compensation on the grounds that it has been divested of its storage by the operation of the scheme to establish that claim. This is the case whether that party presents its claim on the basis of its ownership of surface rights or on the basis of its ownership of mineral rights.

Dealing with holdouts

A storage operator needs to assemble and acquire all of the interests in the target storage formation. If it fails to do so, the operator may, at worst, not be able to proceed with its project; at best it runs the risk of another party producing its stored gas. A storage operator will also require surface access for injection wells and other facilities. In most cases we can expect the operator to proceed by way of contract, storage agreement, lease, or voluntary unitization to acquire the necessary rights – all with the necessary consent of the relevant owners of storage rights (whether private or public). But this may not always be possible. It may not be possible to trace owners; or an owner may simply not consent, either at the offer price, or at all. For example, the owner may simply not like the idea of gas storage under his or her lands.

Faced with this reality, some jurisdictions recognize that it may be appropriate to allow the operator to acquire the necessary rights compulsorily where negotiations fail. For most jurisdictions this is fairly straightforward in relation to any surface rights that an

operator may require, but the practice suggests that it is much more contentious in relation to the storage rights themselves.

In relation to surface rights, the western jurisdictions generally have a surface rights regime either as stand-alone legislation (Alberta, Saskatchewan, and Manitoba) or as part of petroleum and natural gas legislation (British Columbia). Generally, these jurisdictions have found it fairly easy to amend this legislation over the years to accommodate new activities as they develop, including injection activities for enhanced oil recovery operations and gas storage operations. This is clearly the case for British Columbia and Alberta. Nova Scotia prescribes the surface rights access and compensation regime within the storage legislation itself, as do Ontario (in the *Ontario Energy Board Act*) and New Brunswick. In Saskatchewan and Quebec however it is less clear that the legislation has been amended to afford a storage operator the same access to surface rights legislation (or its equivalent) as would be available for exploration and production operations.

The picture is considerably more diverse in relation to the storage rights themselves. First, legislative measures to deal with holdouts are unnecessary in those jurisdictions that vest storage rights in the government (New Brunswick and Quebec), in any jurisdiction that seems to assume that it has done so (Nova Scotia), or in any jurisdiction which has a means of vesting storage rights in the Crown on a case-by-case basis (British Columbia). But, of those jurisdictions that contemplate private ownership of storage rights, only one, Ontario, has addressed the problem of how an operator may gain access to storage rights owned by a private party that is holding out and which rights are necessary to complete the storage unit.

Ontario has the requisite legislation and has used it, but none of the other provinces (Alberta, Saskatchewan, and Manitoba) have specific legislation on the books, and we have concluded in this paper that existing provisions dealing with such matters as pooling and unitization do not, as currently framed, permit an operator to compulsorily acquire storage rights. The Ontario legislation provides a compensation regime that allows an operator to compulsorily acquire storage rights from a private owner. Compensation

appears to be payable on the basis of the “going-rate” in the pool or the region, and is calculated on the basis of a per hectare fee rather than on the basis of storage capacity. British Columbia also provides for the possibility of compensation to the owner of private storage rights whose rights may be affected by a Crown vesting order. Both Ontario and British Columbia provide that the amount of compensation is to be determined by an expert board rather than the courts: in Ontario, the Ontario Energy Board (OEB); and in British Columbia, the Mediation and Arbitration Board (the provincial surface rights board). While the OEB has decided such cases, no such cases have been brought before the BC Board. The Ontario legislation gives the OEB very general directions in terms of determining compensation (just and equitable compensation for any damage and for any rights acquired). The BC legislation adopts a listing model that is typical of western surface rights legislation and seems ill-suited for determining compensation for the loss of storage rights.

How does the government dispose of its natural gas storage rights?

Where natural gas storage rights are vested in government -- either by virtue of a general Crown vesting, as in New Brunswick and Quebec, or by virtue of some other element of its title (e.g. in Alberta, Crown ownership of petroleum and natural gas rights) -- the government needs to have a disposition regime for disposing of that category of resource rights, in much the same way as the government develops a scheme to dispose of rights to other resources such as petroleum and natural gas.

Governments appear to have adopted two distinct approaches to this challenge. Most governments have adopted a specific tenure scheme for the acquisition of storage rights. Typically this is a two-step tenure, with some form of a short term exploration tenure and then a longer holding tenure. In some cases this may take the form of dedicated gas storage legislation. This is the case, for example, in each of New Brunswick and Nova Scotia, and was the case originally in British Columbia. However, most jurisdictions have elected to deal with tenure issues within the context of provincial petroleum or mining legislation as follows: British Columbia, the *Petroleum and Natural Gas Act*;

Saskatchewan, the *Crown Minerals Act*; Manitoba, the *Oil and Gas Act*; Ontario, the *Mining Act* and the associated regulations; and Quebec, the *Mining Act* and the regulations. While most jurisdictions maintain a clear separation between the disposition of the storage right on the one hand and the regulation of the storage project on the other, Manitoba's approach seems conceptually confused insofar as a permit for a storage project under the *Oil and Gas Act* seems to serve as both the regulatory and the property authorization for the project. There is also some (more limited) overlapping of function in the Quebec model.

Alberta has taken a conceptually different approach and does not provide a distinct and stand-alone storage tenure. Rather, the Crown natural gas storage tenure grows out of an existing production tenure which the tenure holder extends as to both function (storage in addition to production) and duration (the tenure is continued by production and/or storage) by entering into a gas storage unit agreement with the Crown and other affected parties. Alberta seems to have adopted this approach in recognition of the fact that the dominant mode of storage in that province is in depleted reservoirs. Certainly, this represents a very pragmatic response to the reality that a storage scheme in a depleted reservoir will have to take account of, and build upon, existing tenures.

Other jurisdictions also have to grapple with this reality even where, in theory, they have distinctive and stand-alone storage tenures. In managing the transition from production to storage, a jurisdiction will need to think about whether it is necessary for the tenure holder to acquire a new form of tenure and/or whether an existing tenure holder should have a preferential right to acquire a storage tenure. Most jurisdictions seem to accept (at least where the storage property is a depleted reservoir) that an operator will require overlapping production and storage tenure, if only because of the risk that the operator will produce some native gas for which it will be royalty liable and for which it will need a production tenure.

Alberta's scheme apparently handles this transition seamlessly. It seems messier in other jurisdictions. In British Columbia, for example, it is significant that the one active storage

project (Aitken Creek) is not developed on the basis of a storage tenure but on the basis of an original production tenure combined with a scheme approval. A provincial policy paper in BC suggests that future storage projects will require both a production tenure and a storage tenure, and the injunction in the Quebec legislation and regulations that a storage operator cannot produce any more mineral substances than it injects will also likely prompt the storage operator, at least the risk averse storage operator, to acquire a production tenure as well as a storage tenure. Most if not all storage operations in Ontario seem to be dominated by privately owned storage tenures which have evolved from a variety of production leases and storage agreements that defy orderly classification. One jurisdiction (New Brunswick) proposes to deal with the transition from production to storage by giving the holder of the production tenure a right or a preferential right to receive a storage tenure, while the Nova Scotia legislation stipulates that a storage tenure will not be issued for areas that are under a production tenure.

The practice shows that governments charge for storage rights for publicly owned storage in different ways. First, governments may charge a rental for the storage tenure. This may be a flat rental. For example, British Columbia levies a flat rental of \$7.50 per ha per year, Nova Scotia fixes the lease rental at \$5.00 ha, while in Alberta and Saskatchewan it is \$3.50 per ha. Both Ontario and Quebec, however, contemplate that the rental should be based on the storage capacity of the property. In Ontario this will be the greater of the bid amount or 30 cents per thousand cubic metres, while the Quebec scheme reserves greater discretion to the Minister who may fix the rent for a storage lease based on the depth, thickness, extent and economic prospects of the underground reservoir. Second, it is possible that governments may dispose of storage rights by means of a bonus bidding system in the same way in which they dispose of production rights. The Ontario scheme provides for bonus bidding -- both cash, and, as noted above, bidding based on a proposed storage rental. In Alberta, bonus bidding is also the norm since storage rights begin as an exploration and production tenure and then roll over to a gas storage unit agreement. The original exploration and production tenure will almost invariably have been acquired at a Crown sale and on the basis of a bonus bid. However, it seems

unlikely that the bidding party would have taken account of potential storage values when originally bidding on the property.

Resource sterilization

Development of a storage facility may sterilize the development of adjacent resources (or at least lead to resource use conflicts) and may engender safety concerns. Governments respond to this in several ways. First, where the government is disposing of storage rights it may take care to protect existing production interests. For example, Nova Scotia provides that the Minister shall not accept an application for an exploratory storage licence for areas that are subject to leases under the *Mineral Resources Act*, production agreements under the *Petroleum Resources Act*, or areas for which there is in force a prohibition on exploration or development activity. Second, governments and regulators may address these concerns at the regulatory stage where governments are approving storage projects. For example, a regulator may require that the applicant provide consents from the mineral rights owners of offsetting acreage. This is the practice in Alberta through the Energy Resources Conservation Board and seems to be required in Saskatchewan as well. Governments and regulators have also discussed the need to reserve protective corridors around a project. Some regulators are uncomfortable with this idea, suggesting that it is up to the storage operator to identify its project boundaries and not transfer risk to the government or third parties. This seems to be the position in British Columbia and Alberta. Ontario allows for a narrow protective corridor while the Quebec regulator contemplates that the protective perimeter shall be at least 10% of the reservoir measured at its widest place. In Manitoba, the legislation goes so far as to provide that adjacent owners may be entitled to compensation in the event that development of a gas storage property results in resource sterilization and loss of value. Once a storage project has been approved, jurisdictions may also address safety and resource concerns in additional ways. For example, the regulator may require special approvals for drilling and mining activities within a certain margin of the perimeter of the project. This is the case in British Columbia and most notably in Ontario.

Regulation

All of the provincial jurisdictions regulate the safety and conservation aspects of storage projects, whether those projects involve publicly owned storage or privately owned storage. And, as stated above, the various jurisdictions generally try to maintain a clear separation between the government's role as owner of the storage resource (where relevant) and the government's role as regulator of storage projects. Here are some examples: in British Columbia, storage rights are acquired from the Ministry of Energy Mines and Petroleum Resources, project approval falls to the BC Oil and Gas Commission and the BC Utilities Commission may subject the facility to economic regulation; in Alberta, storage rights are acquired from the Department of Energy, while project approval and safety regulation is the responsibility of the Energy Resources Conservation Board; and in Ontario, government storage rights are acquired from the Ministry of Natural Resources, drilling is regulated by the same Department, and the overall project approved and regulated by the Ontario Energy Board. However, in other cases, the separation is not as clear, for example in Quebec.

In some jurisdictions storage projects will trigger the need for an environmental assessment (EA). This was the case, for example, with Nova Scotia's first gas storage project, the Alton Project, but it is by no means the norm. Gas storage projects in Alberta do not trigger the need for an EA, and in British Columbia, new storage projects in depleted reservoirs in the Peace District of the province are expressly excluded as reviewable projects. Salt cavern projects may present more obvious environmental issues (acquisition of water rights for the salt dissolution process and ultimate disposal of the brine) than do depleted reservoir projects.

In addition to regulation for safety, environmental and resource conservation reasons, gas storage projects may also be subject to economic regulation. Historically this seems to have occurred because storage was initially developed in association with gas distribution utilities which were natural monopolies and were regulated as such. This is clearly the case for storage in Ontario, Alberta, and Quebec, but we can also see this influence in

other provinces. For example, although there is no operating storage in Manitoba, the provincial regulatory scheme contemplates that storage, if developed, will be subject to rate regulation. Similarly, the Nova Scotia system contemplates that storage projects will be subject to review and approval by the Nova Scotia Utility Review Board, although it is not completely clear whether such a review is directed at safety issues or at matters of economic regulation. In recent years, there has been a trend to deregulate storage, in some cases to remove it from the rate base of regulated utilities (Alberta), and in other cases (especially Ontario but also Alberta) to emphasise that new storage will operate in a competitive market with market-based rates rather than rates based upon ideas of cost of service. While British Columbia in recent years has toyed with subjecting the Aitken Creek facility to a greater degree of economic regulation, the province seems to have backed off, but has left in place a complaints-based system of regulation that might be triggered if a party believed that the operator was abusing its market power.