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The Nova Scotia Fuel Shortage:

Report of the Independent Review Panel

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INTRODUCTION

THE OUTAGE

Friday August 28th to Monday August 31st for many Nova Scotians represented the last weekend of summer. The weather forecast promised hot sunny days throughout the weekend and there was a feeling that this was the last chance to get out and enjoy the good weather before school started on September 2nd.

Many people were planning a weekend that included travel, spending time at cottages, getting out camping or just enjoying the weather with friends and family. The Utility and Review Board, the agency responsible for the regulation of fuel prices, had reduced the price of fuel twice during the week. That morning the price of regular unleaded gas (RUL) was below one dollar a litre for the first time since February 6, 2015¹, a welcome event for motorists.

At the same time that Nova Scotians were making plans for weekend travel, the Imperial Oil terminal in Dartmouth, which supplies substantially all the gasoline and diesel in mainland Nova Scotia, was experiencing a series of highly unusual events that would result in a RUL outage at the terminal rack² beginning at

1 https://nsuarb.novascotia.ca/sites/default/files/gas_price_effective_february_6_2015.pdf; at one point in June RUL had nearly reached \$1.22. https://nsuarb.novascotia.ca/sites/default/files/gas_price_effective_june_19_2015.pdf.pdf; but had been slowly falling through the summer.

2 The rack is the industry name for the facility at a terminal for delivering fuel into a railroad tank car, a tanker truck, or the fuel tank of a ship. It is a cluster of industrial sized spigots.

7:02 am on Friday, August 28th.

Imperial Oil had alerted its terminal customers the previous evening to expect an outage. In its official notice of the outage on Friday morning it indicated RUL would be available again at the terminal Saturday, August 29th at 6:00 pm. Imperial did not know at that time that further complications would result in the rack not opening to the trucks until Monday, August 31st at 8:00am.

Once gasoline stopped flowing at the Imperial Oil terminal, service stations of all brands on the mainland were left with only the gasoline they had in their holding tanks and whatever was already in tanker trucks. As Friday advanced motorists were surprised to find service stations that had no gasoline and the media began reporting gas shortages. As the weekend progressed there were stories of panic buying and disputes at services stations where customers argued over how much gasoline one person should pump while others waited in line.

In addition to the impact on the general public, some key service providers³, particularly [Emergency Health Services \(EHS\)](#), which provides⁴ emergency response through ground ambulance⁵ across the province, were having difficul-

3 In this report the term “key service providers” includes fire, police, ambulance, telecommunication providers, and utility providers that are heavily dependent on fuel for their operations and to which other essential services turn when their operations are threatened.

4 The service is operated by Emergency Medical Care, a private company owned by Medavie Blue Cross that is the contractor providing the services to EHS.

5 It also provides Life Flight helicopter and fixed-wing aircraft emergency services but they were not affected because there was no disruption of the supply of aviation fuel.

ty finding gas for their vehicles. EHS was putting contingency measures in place as they moved into Monday, which included locating alternate sources of gasoline and determining which movements may have to be reduced. Police in some areas had also taken steps to restrict their use of gasoline and had curtailed some discretionary patrols and response to minor incidents in order to conserve gas for more serious matters.

The gasoline outage was also leading to speculation about the cause. One theory was a conspiracy by the oil company to hold tankers offshore until the price of gasoline went up again. There were also purported experts in the field who stated that a tanker had arrived with a cargo of winter grade gasoline that by law could not be off loaded without an exemption, which was not sought, so the tanker was turned away. These reports were not accurate but created confusion and in some cases anger over the gasoline shortage.

Nova Scotians wanted to know why they did not have gasoline available to them and looked to the government for answers.

THIS REVIEW

On Sept 2nd 2015, Municipal Affairs Minister Zach Churchill announced “an independent review on the fuel⁶ supply man-

⁶ Fuel is anything that stores energy. The August fuel shortage in Nova Scotia was confined to gasoline. Since the focus of our work is public safety and emergency services, specifically their ability to operate vehicles, when we say fuel in this report we mean gasoline and diesel fuel. We refer to regular unleaded as RUL since it is the product that was in short supply.

agement system in Nova Scotia in the wake of failures in the gas supply chain at the end of August”.

The complete terms of reference are found in Appendix 1 but broadly the Review Panel (the Panel) was asked to determine the cause of the August fuel shortage, assess its effects on public safety and emergency services, and recommend measures to improve continuity of those services in the event of further fuel shortages.

The Panel was not asked to produce a fully developed plan to avoid fuel shortages or to deal with them but to strike a broad direction for fuel contingency planning in light of what we learned.

The chance of fuel shortages can be reduced but no hazard can be eliminated. So one should plan for it by assessing the likelihood of the event, determining its possible consequences, and developing mitigation strategies. This is the time-tested way of emergency management.

Emergency management is a continuous and established process in Nova Scotia. It is better to build on it than to try to duplicate it or focus unduly on one hazard.

WHO WE ARE

ALPHONSE MACNEIL

Alphonse MacNeil is an independent consultant. He retired from the Royal Cana-

dian Mounted Police in April of 2014 after thirty-eight years of service in four provinces. He retired at the rank of Assistant Commissioner with his last posting being the Commanding Officer of the RCMP in the Province of Nova Scotia.

As a Senior Manager with the RCMP he held several other high profile positions including the Officer in Charge of the National Traffic Program, The Canadian Air Carrier Protective Program (Air Marshalls) and was the Officer in Charge of security planning for the G-8 and G-20 Summits held in Ontario in 2010.

Since retiring from the Force in 2014 he has lead the review of the murder of 3 RCMP Officers and wounding of 2 more in Moncton, New Brunswick that occurred in June of 2014. Following that review he was retained by the Government of Ontario to assist in the review of the security planning in advance of the 2015 Pan American and ParaPan American Games and then in conducting the After Action Review of Games security.

DOUGLAS J. KEEFE QC

Douglas J. Keefe QC is an independent consultant. He retired from the Nova Scotia public service in March 2007 after nearly thirty years in legal and management positions. In his last seven years he was the deputy minister of justice and deputy attorney general. In those roles he was responsible for the justice system as a whole and, in particular, court administration, corrections, oversight of police, services to victims of crime, and

legal services to government.

During his career he played key roles in such varied matters as the government responses to three judicial public inquiries (Marshal, Westray, and Nunn youth justice), restructuring the court system, negotiation of the Canada/NS oil and gas agreement and implementing legislation, and in numerous national justice initiatives.

After leaving the public service he helped create, and was the first executive director of, the Fundy Ocean Research Centre for Energy ([FORCE](#)), a not for profit research corporation that built and now operates a facility for research, testing, and demonstration of tidal energy devices in Nova Scotia's Minas Passage, served on a national Panel studying the correctional systems in Canada, co-chaired, with John Furlong, the [Vancouver Hockey Riot Review](#) in 2011, and conducted several workplace harassment investigations, and strategic planning processes for various organizations.

OUR PROCESS

This is a review not a public inquiry that could compel evidence, however the Panel received excellent cooperation from all sectors and we are confident that we have obtained the information required to provide the Minister of Municipal Affairs and all Nova Scotians with a report that explains the cause of the shortage and provides recommendations to mitigate the risk of fuel shortages for key services the future.

During the course of the review the Panel reviewed documentation and conducted interviews with government, industry and key service providers. We placed a premium on candor and full disclosure so we assured each person interviewed that the Panel would not cite commercially sensitive information. As a result we were given access to detailed information from which we were able to piece together the facts and events recounted in this report.

THE STRUCTURE OF THE REPORT

The report begins with the outage, the circumstances that caused it, and the efforts to avoid and abate it. Appendix 2 is a timeline. Then it explains the effects on the public health and safety sector, in particular key service providers.

We describe the fuel sector in high level terms so people can see the complexity, dependencies, risks and redundancies. Appendix 3 portrays it.

The report ends with observations and recommendations.

THE FUEL OUTAGE AND SHORTAGE⁷

CONTEXT

Nova Scotia is a small market in the national picture and our local gas stations are at the end of a supply chain made up of multiple players pursuing commercial opportunities. It is normally so reliable that we take it for granted but it is such a long and complex chain that it does not require an intentional act to interrupt it.

The story of the outage is a relatively simple one: all of the fuel sold in Nova Scotia arrives at either Imperial Oil's Dartmouth or Sydney marine terminals. At the Dartmouth terminal refined product is landed at one of its two docks by between 50 and 60 tankers a year. In August one tanker arrived more than a week late and then its cargo and the cargo in a replacement tanker were determined to be "off spec" (i.e. didn't meet specifications for RUL) and required treatment.

Imperial shared commercially sensitive details of the terminal's daily draws and how many days reserve it maintained. Had the first tanker arrived as originally scheduled there would have been no disruption to motorists. Had it or the other tanker arrived when they did but "on

⁷ In this report "outage" refers to the period during which there was no fuel at the Imperial terminal. "Shortage" refers to the effect on consumers. It is an important distinction because we were told there was always fuel somewhere in the province during the outage. On the other hand, shortages persisted in some areas for at least two full days after the outage ended as refueling efforts rolled out.

spec” there would likely have been little or no disruption to motorists. In all likelihood the distribution and retail systems would have been able to manage through the supply outage, as would public health and safety services. Had only the cargo in the second tanker been on spec the outage would have been much shorter than it turned out. In other words, the 73 hour outage occurred because of the conjunction of three rare events.

Because there was so much speculation about the outage at the time it is useful to describe the events in some detail. Admittedly, it is not an easy story to follow. There is the movement of three tankers to follow; problems with two of their cargoes and problems with the tests conducted on those cargoes; and there is the outage at the terminal itself.

TANKERS

In mid July Imperial ordered a cargo of RUL for a delivery window of August 17 to 20 in accordance with its normal replenishment practices. On August 13 its supplier informed Imperial that, while loading the tanker **Alpine Hibiscus** at a port on the Gulf of Mexico, it found that the fuel was “off spec”. It is the supplier’s responsibility to deliver fuel that meets Imperial’s specifications and the supplier promised to treat the fuel but indicated the vessel would be late. The next day Imperial secured two cargoes of RUL in an attempt to fill the gap. One was already in transit but willing to divert to Dartmouth to deliver a partial load.

The other was in Europe and available to take a full load.

None of these would arrive in the original delivery window. So on August 20 Imperial imposed a 90% allocation on all its terminal customers, meaning they would be limited to 90% of the volume they had projected for the period.⁸

On the 21st **Hibiscus**’s cargo was certified by an independent lab as on spec and it sailed for Nova Scotia. The first replacement tanker, the **New England**, arrived August 24 and completed discharging the next day. This was only about one third the **Hibiscus**’ cargo but it bought Imperial an extra two or three days’ supply.

Hibiscus docked at the Imperial terminal August 28 at 11:06 and began discharging at 16:24 that afternoon.⁹

Just past midnight on the 29th the second replacement tanker, **Acadian**, arrived from Europe with a load greater than **Hibiscus**’. It moored in the harbour. Imperial has two docks but **Hibiscus** was alongside and another tanker was discharging aviation fuel at the second dock. In any case Imperial was concentrating on **Hibiscus** in the belief its fuel was on spec and because it was already out of RUL.

THE OUTAGE STARTS

On the evening of the 27th Imperial notified its terminal customers by email that

⁸ Allocation and load limits are explained below.

⁹ From this point in the report onward, the time of specific events becomes important, so we use the 24 hour clock.

it expected to run out of RUL the next day and at 07:00 on Friday the 28th it did. It issued an Operational Disruption Notification (ODN) to its customers but, confident that **Hibiscus'** would begin discharging that afternoon, it informed them that it expected to reopen the rack by 18:00 Saturday the 29th. With **Hibiscus** at the dock Imperial issued a second ODN at 22:17 on Friday estimating a return of supply at 12:00 noon on Saturday.¹⁰

But both were optimistic. Two more rare events were to occur.

THE CARGOS

On the evening of the 28th Imperial learned that **Acadian's** cargo was off spec when the results of a test of a sample of the **Acadian** cargo taken before it left Europe belatedly arrived.

Industry practice is to require each cargo be certified as on-spec by an independent testing lab before it is allowed to clear the load port. The European testing lab used for **Acadian's** cargo was not certified to test for the North American Corrosion Engineers (NACE) standard. So it sent a sample to a Texas lab. Unfortunately, the sample was lost for a time by the courier so, with the clock running for Imperial, the vessel left port without the NACE test result. When it eventually arrived the test revealed that the cargo did not conform to the NACE standard. The necessary treatment additive for **Acadian's** cargo was located in Montreal and ordered.

¹⁰ All in all Imperial issued 7 ODNs during the outage, each with a different resumption time.

That was not Imperial's immediate concern, **Hibiscus** was already unloading and its cargo had been certified before it left port.

However, because contamination can occur at any stage, Imperial also has an independent lab test a sample on arrival at Dartmouth. At 12:48 Saturday 29th, after about half of **Hibiscus's** cargo had been discharged, offloading was suspended and a sample sent for testing.

At 14:25 that day Imperial was advised that the test¹¹ of the Dartmouth sample showed **Hibiscus'** cargo had a silver corrosion problem.¹²

Both cargos were off spec.

It is uncommon for product to arrive off spec although it happens. But two of the people the Panel spoke with at Imperial had 33 and 35-years experience with the company and neither had ever heard of two tankers arriving off spec, back to back.

TREATMENT OPTIONS

Imperial attempted to treat the **Hibiscus** cargo with locally available additives but by Saturday evening it was clear that the necessary additive was in Montreal. It

¹¹ Associated labs had conducted the tests at each end of the voyage. When the Panel interviewed Imperial it was still working with the labs to determine whether either of the tests was wrong or the cargo had been contaminated during the voyage.

¹² Sulphur occurs naturally in crude oil. Most of it is removed during refining. Particular sulphur compounds that may remain in petroleum products can corrode silver alloy components in automobile fuel systems. If the fuel is not treated damage to vehicles will occur. See: <http://www.astm.org/Standards/D7671.htm>

was, as one Imperial employee put it, “a race between additives” and the **Acadian**’s had a 24-hour head start.

Imperial knew how to bring **Acadian**’s cargo on spec¹³ and decided to handle the treatment itself in the interests of time. **Hibiscus** was ordered off the dock and departed for a mooring off Halifax Harbour at 23:20. **Acadian** docked less than an hour later at 00:15 on Sunday the 30th.

The additive arrived from Montreal early Sunday the 30th and, to expedite matters, was mixed in as **Acadian** discharged its cargo. Discharge started at 07:24.

The treated cargo had to be tested to determine if the additive was properly mixed and in the right proportion, so the cargo was discharged in batches. The test on the first batch was conducted in Dartmouth and took 5 hours – which we are told is normal for this kind of test. The RUL was found to be on spec, but all petroleum product contains some water which must be allowed to settle out before the product can be delivered to the rack. This takes 6 to 12 hours.

The rack reopened Monday August 31st at 08:00 having been down for 73 hours.¹⁴

After that it was up to the distribution system to resupply retailers. The outage

¹³Treatment depends on additives and it is first necessary to “bench test” the additive with the specific petroleum product in a lab to determine which additive or additives are effective and in what proportion.

¹⁴Because it was necessary to unload in batches, Acadian was not fully discharged until September 2nd at 03:50 but there was no further interruption of service at the rack.

was over but the shortage was to persist in some parts of the province until Wednesday.

THEORIES AND RUMOURS

Three main theories emerged as causing the shortage: two related to the retail price reductions for gas that occurred that same week and one blamed bureaucratic intransigence. These theories were not correct.

Theory 1: The price of gas spiked demand and caused the shortage

Gasoline and diesel fuel prices are regulated in Nova Scotia by the Utility and Review Board under the [Petroleum Products Pricing Act](#) and the [Petroleum Products Pricing Regulations](#) using the New York Harbour spot prices as benchmarks.

The URB is required to set a benchmark price for each petroleum product effective at 12:01 AM each Friday. But:

“The Petroleum Products Pricing Act and Regulations permit the Board to “interrupt” the regularly scheduled weekly setting of prices and re-set the price to meet the objectives of just and reasonable prices and security of supply.”¹⁵

The URB used the interrupter effective 00:01 AM August 26th¹⁶ to change the price it had set August 21st. The price ta-

¹⁵<https://nsuarb.novascotia.ca/sites/default/files/interrupter.pdf>

¹⁶ https://nsuarb.novascotia.ca/sites/default/files/gas_order_aug_26_2015_interrupter.pdf

bles are available [here](#)¹⁷ but, for the sake of comparison, immediately prior to the interrupter order, the retail price of RUL in zone 1 was a minimum of \$1.081/L and maximum of \$1.102/L. The interrupter lowered RUL in zone 1 to \$1.030/L and \$1.05/L¹ respectively. The regular weekly setting on Friday August 28th reduced prices further to \$0.987/L and \$1.007 respectively. Everyone in the industry spoke of the impact of breaking the “one-dollar psychological barrier” but no one could really pinpoint the effect of price on demand because by Friday morning Imperial had run out of RUL and word of the shortage was abroad.

Views in the industry on the effect of the price cuts vary. A spokesperson for the Atlantic division of the Canadian Fuels Association was quoted in the media as saying:

“I think the overall issue for people to keep in mind is that just like any business, just like stocking shelves in grocery stores, is it’s a just-in-time operation. You’re not going to fill your shelves at home with butter for a year or cereal,” he said.

“If everybody went up to top up their car at the same time you would have run outs. The system is just not designed for that.”

He said the combination of a drop in price and the shortage is a “self-fulfilling issue.”

“You will drain the tanks,” he said.¹⁸

¹⁷ <https://nsuarb.novascotia.ca/mandates/gasoline-diesel-pricing/historical-prices>

¹⁸ <https://ca.news.yahoo.com/gas-shortage-nova-scotia-getting-163634598.html>

One major retailer told the Panel the price cuts caused the shortage – that is, the industry could have managed the outage without significant effects at the pumps. Some said it exacerbated it. Others said things like “we’ve seen similar price cuts before and this (shortage) didn’t happen.” Others told us it was knowledge of the shortage, not the price, that drove up demand.

Demand was up. People in the industry offered the Panel estimates of increased retail demand ranging from a high of 35% (which was acknowledged as a rough estimate) to a low of a slight increase. Actual data for one brand showed a 23% increase over the previous week. But no one could disaggregate bargain buying and panic buying because the sales period included the price drops, the shortage, and the outage phases. The difference between bargain buying and panic buying is in the mind of each motorist and remains there.

Some argued that price regulation precluded price hikes which would have mitigated the shortage by discouraging demand. In an unregulated market prices reflect local supply¹⁹ and demand and mediate them, so this argument cannot be dismissed out of hand. But there are two reasons to doubt market pricing would have mitigated this particular outage.

First, the major retailers the Panel spoke with all expressed a fear of being seen

¹⁹ Dave Collins, Vice President of Wilson Fuel, is quoted in the [media](#) as urging the URB to consider local supply when setting prices. He repeated that view when the Panel interviewed him.

as profiteers so it is doubtful, in a relatively brief supply outage like this one, free market pricing would have abated demand for the simple reason that the major suppliers at least would not likely have raised prices. In fact, having examined the measures adopted by some of the larger retailers and suppliers, forced to choose, they preferred to lose money rather than lose customers – at least over a period of a few days. Many stations offered superior grade gasoline at the price of regular grade once their regular grade ran out. As one of the majors told us “No one (in the fuel sector) made money during the outage”.

Second, once a shortage is established in the public mind, it is questionable whether any but the most severe price hikes would moderate demand. While no one has empirical data, there were stories of people filling up gas cans while other motorists fumed in long lineups. Whether this was common or rare, it is certainly true that when people saw a station with gas they topped up their tank not because it was cheap but because it was there.

The shortage was caused by the three day outage at the rack. The price drops did not cause the outage and neither did stockpiling. But together price and panic made a bad situation worse. Of the two, consumer stockpiling (or panic buying) was likely the greater factor.

Theory 2: Vessels deliberately delayed because of the price of gas:

The second theory is that tankers were

deliberately delayed waiting for the price to go back up. As with all conspiracy theories there are facts that appear to support this one. At all times during the shortage there were tankers at berths and moored in and off the harbour mouth, so what would they be waiting for except a better price?

The images of tankers docked and moored during the outage are powerful. That is why we go into detail explaining the movement of the tankers to and from the Imperial docks. Traders do sometimes hold tankers at sea in anticipation of price swings but not companies with customers to serve and no fuel. As one long serving Imperial employee said “Being a reliable supplier of quality product is a key part of the value proposition we offer our customers”. Another stated “this was the most disappointing thing that has happened in my 33 year career”.

However it is not necessary to simply accept their words; there are additional reasons to reject the conspiracy theory:

1. In an attempt to maintain supply, Imperial put its terminal customers on allocation August 20th, six days before the first price drop.
2. When it learned a tanker would be late, Imperial secured two other tankers the next day.
3. Irving Oil is in the process of re-opening its Halifax Harbour Terminal near Imperial’s terminal so this is hardly a good time for Imperial to raise doubts about its reliability.

4. While on allocation and during the supply outage Imperial was losing sales as its terminal customers trucked in supply from outside the province.
5. During the outage Imperial continued to incur the fixed costs of its terminal with no revenue against these costs.
6. Demurrage – the day rate for holding a vessel - on a tanker ranges from \$25,000 to \$30,000/day.
7. Imperial imported 2 tractor trailer loads – about 90,000 to 100,000 L - of gas from Ontario to supply its stations during the outage.
8. Imperial continued to supply fuel from its Sydney terminal.
9. Imperial, and the other retailers the Panel spoke with, discounted premium gas to RUL prices when they ran out of RUL.

Imperial did not deliberately curtail supply. The evidence is that its first priority was to ensure continuity by securing alternate supplies, attempting to extend its reserves, and assuming responsibility for treating off spec fuel.

Theory 3: Environment Canada rejected fuel

There were stories in the media that the shortage was caused by Environment Canada rejecting the cargo of one tanker (and even two tankers) because either benzene or butane levels exceeded limits. Regulations²⁰ prohibit the supply of gasoline exceeding a benzene emission number of 71 during the summer and 92

20 <http://laws-lois.justice.gc.ca/eng/regulations/SOR-97-493/>

during the winter. The seasonal differential reflects summer and winter operating conditions.²¹

One expert was quoted as saying:

“... the shipment contained a higher level of butane, which makes the fuel more evaporative. It’s called ‘winter-weight’ gas, and due to concerns with the temperature outside, it’s only legal in Canada after Sept. 15. The first load that came by did not meet the national standards for this time of year. From what I understand, it had to be turned away, which made a bad situation even worse. Environment Canada does not permit any flexibility, even when there could be a shortage.”²²

A senior Environment Canada official told the Panel this was wrong on two counts and referred us to its public statement at the time:

“(the regulations) provide flexibility to import fuel that may be otherwise non-compliant and to blend and treat the gas before bringing it to market.... (and) There are circumstances where by Environment Canada could grant a waiver to the oil and gas regulations. However, no request has been received by the department.”²³

No tankers were sent away before discharging their cargoes. Environment Canada did not reject a cargo. It did not even test or sample a cargo.

21 <https://www.ec.gc.ca/lcpe-cepa/default.asp?lang=En&n=4B-FBD709-1&offset=2&toc=hide>

22 The interviewee did not return our messages so the Panel was unable to verify if he was accurately quoted and, if so, the basis for his opinion.

23 Environment Canada news release.

Imperial confirms that it did not ask Environment Canada for a waiver for the simple reason that there was no problem with the butane or benzene levels in any of the cargos. **Hibiscus**' cargo had a silver corrosion problem and **Acadian** did not meet the NACE standard. Both cargos were eventually treated and entered the fuel system.

THE CAUSE

The shortage that occurred in mainland Nova Scotia and parts of Cape Breton late in August and early September was caused by the outage at Imperial Oil's terminal in Dartmouth. The outage at the terminal started at 07:02 August 28th and continued for 73 hours until 08:00 August 31st.

Times of local shortages varied depending on local supplies and resupply constraints such as truck availability and delivery priorities.

As is often the case, systems that are robust enough to handle a single event and even a series of events of short duration, fail under the pressure of multiple events. If **Hibiscus** had arrived in its original slot with its cargo on spec there would have been no interruption. Even if it had been on time but off spec Imperial would have had more than enough opportunity to have the product treated and avoid interruption. If it had been on spec when it arrived on the 28th, although the rack was already down, service would have resumed by 18:00 the next day at the latest and most people in

the industry that the Panel talked to believe the situation could have been managed with minimal disruption to consumers.

Similarly, if **Acadian**'s cargo had been on spec the rack would have been up some time on Sunday the 30th.

None of this is to make excuses for Imperial – they were candid and frank in accepting responsibility for the outage – it is part of assessing the risk of another fuel outage.

Finding

The 3 day outage was solely due to the conjunction of three factors: one tanker arrived a week late and the fuel it and another tanker carried unexpectedly required treatment to meet Canadian RUL anti-corrosion specifications.

Butane and benzene levels were not the problem. No tankers were turned away by government or deliberately delayed by industry.

The cuts to fuel prices on August 26th and 28th did not cause the outage. They may have contributed to demand but probably not as much as stockpiling by motorists as word of a shortage spread.

HOW THE OUTAGE AFFECTED KEY SERVICE PROVIDERS

One of the critical objectives of the review is to determine how the fuel short-

age impacted key service providers and, by extension, the safety of Nova Scotians.

When Nova Scotians think of essential services they immediately think of police, fire and ambulance, but there are other essential services such as electrical power, telecommunications, snow removal, general health services, nursing homes, grocery stores and so on that are critical to a community's function, health and safety. All of these areas are dependent on fuel to some degree. The difference is that, as the Panel was told, if they can't function, they would call on key service providers for assistance.

Ensuring that key service providers have fuel contingency plans is critical to so many, if not all, essential services.

Discussions with key service providers revealed significant business continuity planning exists covering a multitude of potential disruptions such as weather, loss of infrastructure, and electrical power. The majority acknowledged, however, that they did not have specific plans for a fuel shortage. Since the gasoline shortage in August planning has commenced in earnest.

POLICE

The Panel surveyed police services in Nova Scotia to evaluate the impact of the fuel shortage.

Municipal police services indicated they were not negatively impacted. The ma-

majority of these police services obtain their fuel from municipal fuel depots, all of which had an adequate supply on hand. They did indicate, however, that an outage beyond the three days would affect their ability to provide service to the public.

Some police services, once advised of the fuel shortage, put measures in place to conserve fuel such as operating with two police officers in one car as opposed to patrolling in two cars, thereby reducing the number of vehicles on the road. They also utilized more foot and bicycle patrols.

Crucially they confirmed all emergency calls were responded to and no calls for service were deferred as a result of a lack of fuel.

The Royal Canadian Mounted Police indicated the fuel shortage presented a low to moderate impact on their operations across the province. The RCMP, unlike most municipal police services, relies on purchasing gasoline at commercial gas stations and therefore they were competing for the same fuel supply as the public. The RCMP indicated some routine discretionary patrols and response to non-priority calls were curtailed to minimize fuel usage. This would have been very low priority matters that were able to wait for a police response, such as minor damage to property and general assistance to the public. None of their emergency services or priority or emergency calls was affected. They added, however, that the potential did exist for

serious implications if a major incident had occurred. The RCMP also indicated that, if the fuel shortage lasted beyond the three days, it would definitely have had an effect on their operations.

Municipal police services reported that they do not have adequate contingency plans for a protracted fuel outage. Those that rely on municipal depots or a fuel company to supply a tanker in the event of an emergency, recognize that the depots and tankers would run dry if the fuel supply was cut off for an extended period. They acknowledge the need for a more robust plan and some have commenced supply security discussions with a fuel supplier.

The RCMP has, through their Emergency Management Section, Detachments and units throughout the province initiated three measures:

1. Develop formal fuel sustainability plans.
2. Establish a fuel supply security contract with a supplier.
3. Directed Detachment Commanders to seek individual agreements with municipalities they serve for supply of emergency fuel on a cost recovery basis.

The RCMP assessed the acquisition of individual self-contained fuel storage at strategic RCMP facilities and determined it was not feasible.

One of the key concerns raised by police services is the lack of a formal communi-

cation plan in the event of a fuel shortage. Most of the police services received their first information about the outage through the media with a follow up call later from an EMO representative. Some were never formally advised of the situation and only remained informed through following mainstream and social media. They want a formal process to inform key service providers of anticipated shortages to give them adequate lead time to plan and respond.

The RCMP suggests the Emergency Management Organization (EMO) should alert key service providers to an impending shortage. This would trigger individual key services fuel shortage plans and prompt contracted suppliers to allot fuel at predetermined strategic locations around the province. The “trigger” would be heavily reliant on fuel industry cooperation and advance communication.

THE HEALTH SYSTEM

Overview

The health system delivers services in several ways: through the [Department of Health & Wellness](#) (including [Public Health](#), [Emergency Health Services \(EHS\)](#), [811 NS Telecare](#), and [Continuing Care](#)) the [Nova Scotia Health Authority](#) (which is responsible for more than 40 sites (hospitals/health centres/community clinics, and in excess of 100 buildings), the [IWK Health Centre](#), and service providers ranging from large organizations like Shannex and VON, to individual physicians and [Medical First Responders](#).

The Department of Health & Wellness has a [Health Services Emergency Management](#) (HSEM) branch, a small office which was initially established as part of pandemic planning but now has an all hazards remit for the entire healthcare system. Its main focus is to “increase the capacity and capability of the province’s health system to cope with emergencies or disasters of all types, as well as to maintain a state of readiness to most efficiently manage regional, provincial, national and international health crises”.

The health system is heavily dependent on fuel – from EHS vehicles, to home care providers and staff getting to work; and patients using their own cars to access services (such as dialysis and blood work) and obtain supplies such as home oxygen. Provisions, such as food, medical supplies and laundry, are distributed to facilities by truck. There are central warehouses for province-wide distribution that are constantly receiving and sending medical supplies. It is impossible to say how long medical supplies would last in a fuel outage because the on-hand supply for each product is a function of consumption rate and ability of industry to resupply in normal times.

DEPARTMENT OF HEALTH & WELLNESS

The Panel met with personnel from the Department of Health and Wellness to discuss the fuel shortage.

Emergency Health Services

EHS is the sole provider of ground and air

ambulance services in Nova Scotia. EHS receives on average 156,000 requests annually, of which over 88,000 result in transportation to hospital for further treatment. It is important to note that in addition to 911 emergency calls, a central component of EHS’ work is inter-facility transfers to both bring patients to hospitals that are staffed and equipped for providing tests and treatments necessary to manage their conditions and also to return patients to hospitals after they have received their tests and treatment and still require in hospital care. This is approximately 68,000 transports per year.

EHS, as a regulator, ensures that EHS Operations Management has a System Status Plan that matches resources with anticipated or actual demand. Resources are moved around the province as circumstances require in order to serve all communities. The expectation is that an ambulance will respond to a 911 call within 9 minutes, 90% of the time, with an allowance for more widely spaced rural communities.

EHS has 181 vehicles, all but 6 of which operate on gasoline.²⁴ Their fleet is constantly moving to either transport patients or to staging areas awaiting potential calls for service.

EHS contracts with one commercial fuel supplier, Irving Oil, but under extenuating circumstances, a paramedic may purchase fuel from another supplier with a

²⁴ This is the result of a decision by Ford, the chassis manufacturer, to discontinue diesel motors in the model EHS uses, not a strategic decision by EHS.

supervisor's approval. They do not maintain bulk storage for fuel; their only storage capacity is what they hold on board each vehicle. Their vehicles average about 300 kilometers per tank and the fleet drives 13,000,000 kilometers per year so EHS is critically dependent on a reliable fuel supply throughout the province.

As the outage extended into Sunday, locating gasoline became a major challenge. Employees of EHS were on the phones calling stations across the province to try and find gas but even when they found a station, sending units up to 50 to 60 kilometers to refuel negatively impacted the System Status Plan for optimal ambulance coverage throughout the province and also adversely affected fuel capacity for such a high consumption vehicle. Management put measures in place to conserve fuel wherever possible by not idling vehicles and positioning vehicles in strategic locations.

When they could find a station with gas, EHS vehicles were forced to line up with everyone else. In some cases others who were lined up allowed the ambulance to go ahead of them but in many cases they were not afforded that privilege. Some paramedics reported seeing people filling both their vehicle and multiple gas cans while the ambulance waited for fuel.

One small mercy was that the outage occurred on a weekend, the period when EHS operates fewer vehicles than during the week.²⁵ But on Monday morning the routine business of patient transfers re-

²⁵ On weekends they run 86 units and on weekdays 126.

sumed and, though the outage at the Imperial terminal was over, the task of resupplying service stations was just getting underway so EHS actually experienced more significant challenges on Monday and Tuesday after the outage ended. As late as 16:06 on Tuesday, September 1st, EHS was advising EMO that fuel availability was still an issue in many areas across the province.

EHS told the Panel that, although the gasoline shortage resulted in very long hours for staff who had to devise plans to cope with the situation, it had no impact on their patients. Cape Breton was not a problem for them with the exception of the St. Peter's and Port Hawkesbury areas. This was likely due to the fact that the Imperial terminal in Sydney, which provides gasoline to Cape Breton, was not subject to the disruption.

EHS has a contingency plan for a 48 hour period. There is no doubt that, had EHS not been able to make arrangements on Monday with its supplier, Irving Oil, to resupply designated stations, and had the outage extended beyond Monday, August 31st, EHS would have been forced to curtail some or all patient transfer activity and respond only to emergencies.

EHS is currently exploring the feasibility of installing bulk fuel storage at its Burnside and Sydney Regional Offices.

As with the police, EHS feels there has to be a formalized communication plan in the event of a fuel outage that will last for a prolonged period of time. EHS' first

indication of the impending fuel shortage was at 05:35 Saturday morning when one of its units called dispatch to report that the gas station it was at was out of fuel. If EHS had known on Friday that this shortage could be expected to last for several days, they could have enacted conservation measures and immediately started looking for alternate sources of fuel. They believe EMO should be advised by Industry when a fuel shortage is anticipated and EMO should advise all key service providers. This would trigger each agency to activate their individual contingency plans.

EHS believes they should not have to rely on the media for information but should receive regular situational awareness updates from EMO to inform their planning. They also believe EMO should bring key service providers together to discuss joint planning for potential situations of this nature. Ideally key service providers would also have consulted one another on their fuel plans to ensure they do not conflict in a time of crises.

Continuing Care

The Continuing Care program offers a wide array of services outside hospitals including home care nursing, home support, nursing homes and residential facilities located across the Province.

Home care has 27,800 clients across Nova Scotia who receive 242,000 visits per month.

There are 7,800 long term care beds in nursing homes and residential facilities.

They rely on daily deliveries of food and care supplies, and visits from family and volunteers. Their residents are very vulnerable and, of course, staff need fuel to attend work. Most licensed long term care facilities have back up diesel generators which are checked when the facility is inspected each year. Their generators run on diesel and can last up to 36 hours on a tank of fuel. They all have continuity plans that are also checked during inspections, but the continuity plans are short term and when they have a situation they cannot deal with, they call 911.

The fuel shortage did not have a significant impact on these services. Only one home care service provider contacted Continuing Care for information but was able to manage on its own. Neither the home care agencies nor long term care facilities reported that staff could not get to work or that residents/clients could not get to emergency services, as a result of the fuel shortage.

It is not difficult to imagine what could happen in a longer term shortage where staff cannot provide services in the home. Or, in a long term care facility, when delivery of supplies and services is interrupted. There would be an additional burden on 911 and 811.

Nova Scotia Health Authority (NSHA)

The Health Authority was not affected by the gasoline outage because most of its vehicles use diesel. However, in the event of a general fuel shortage extending for any more than three days, supplies of food, laundry, medical equipment

and other health care products could be disrupted, resulting in negative impacts on the quality and safety of care and service. In the winter a gas shortage would impair services such as snow clearing.

IWK Health Centre (IWK)

IWK is an Atlantic regional hospital so, if its functions are disrupted, all of Atlantic Canada is affected.

IWK surveyed clinical teams and there was little impact; only one patient cancelled an appointment. There were no reports of staff missing work due to fuel.

Like NSHA, the IWK's generators are diesel and have a 2-3 day run time. By allocating power they can add ½ day.

Observations

Health services were not affected but it was a close call in some respects and could have deteriorated dramatically had shortages continued much longer. For example, of the 586,023 visits to emergency departments last year, 463,016 “walked in” or arrived on their own. That is 1,269 per day. EHS handles an average of 241 emergency calls per day. If even 10 percent of “walk ins” called EHS instead of self-transporting, that would increase demand by 50% without counting calls from facilities.

The officials the Panel met with in the health care sector believe that communication and planning is the key to preparation. They feel strongly that EMO should be the starting point and the trigger for them to activate their fuel contingency

plans. EMO should base their decisions on the information available to them and they should have a network of trusted people within the key service provider community that can be advised and come together in any future situation where fuel supply could impact service delivery. Some health officials suggest provincial legislation should be updated to allow the province to take control of the fuel supply in a critical situation to ensure it is provided to those who need it the most.

FIRE SERVICE

The Panel was told that the gasoline outage had no impact on fire services across the Province. No calls for service were missed or delayed. The majority of the Fire Service fleet operates on diesel fuel and since diesel was not in short supply there was no issue from their standpoint.

Despite this, the outage has been a catalyst for planning for future shortages, something that was not considered before this event.

Fire services, as with other key service providers, want to be included in any sessions that occur or are facilitated by EMO to discuss plans for all types of fuel outages and shortages, including a discussion on methods of ensuring key service providers receive priority when fuel supplies become available.

TRANSPORTATION AND INFRASTRUCTURE RENEWAL (TIR)

TIR is the provincial department responsible for building and maintaining provincial government infrastructure including highways. It relies on fuel for construction projects, maintaining roads and plowing snow in winter.

The Panel interviewed a representative of TIR who indicated they were not impacted by the gasoline shortage largely because 90% of the fuel utilized by TIR is diesel. Only their light duty vehicles use gasoline.

The provincial government has a bulk contract with Irving Oil to supply fuel.²⁶ All of TIR's facilities have fuel storage tanks. These storage tanks are diesel with the exception of four gasoline tanks. The gasoline tanks are not large enough to supply gasoline to key service providers for an extended period of time. The diesel tanks could sustain TIR for one to two weeks during the summer but in winter after a wet snowfall the fuel might last three to four days. In some locations Irving Oil trucks would be refuelling them as often as every day. The holding tanks permit TIR to buy in larger quantities thereby gaining an advantage in relation to pricing and being able to

²⁶ The provincial government, municipalities, and agencies ([view them here](#)) are required by the [Public Procurement Act](#) to procure goods and services through competitive processes, one of which is the Standing Offer for gas and diesel in bulk (for example see <http://novascotia.ca/tenders/tenders/ns-tenders.aspx?category=3000&date=1>)

One fortuitous consequence of this appears to be an inventory of storage tanks by county.

sustain themselves for longer periods.

In winter, if fuel delivery to their tanks in rural areas is delayed, TIR will purchase fuel from local retailers and bill the difference back to Irving Oil. This ensures they have an adequate supply of fuel on hand at all times to maintain the highways.

Perhaps because they have a fuel service contract and their own storage facilities, TIR does not have a formal fuel shortage contingency plan. If there was a localized shortage they could try to cover it off from other sites but they do not have trucks that can transport fuel. If they were running out of fuel all over the province they would only operate vehicles where necessary for emergencies.

TIR has appointed someone to work with EMO and has participated in exercises where they have utilized the TIR fuel supply to run the diesel generator at the Provincial Data Center.

TIR did receive some calls from EMO and Service Nova Scotia during the shortage enquiring as to what gasoline reserves they had on hand but as their RUL reserves were minimal.

DEPARTMENT OF NATURAL RESOURCES

The Fleet Management Division of the Department of Natural Resources (DNR) supplies and maintains vehicles province wide for the Department and for the conservation officers enforcement section recently moved to the Department

of Environment. It also provides aviation services for all provincial government departments and agencies. Its fleet comprises 239 cars, trucks, vans, and SUVs; 73 pieces of heavy equipment such as tractors, dozers, skidders, backhoes, and forklifts; 74 snowmobiles; 165 ATVs and UTVs; and 5 helicopters used for fire fighting, searches, wildlife surveys, forestry surveys and such.

All its fuel (RUL, diesel, aviation fuel, and furnace oil) is supplied by bulk delivery, the same as TIR. DNR has its own card lock fuel dispensing system with a 9,000 litre gasoline tank, a 4,540 litre diesel tank, and a 50,000 litre jet fuel tank. They only use commercial stations when away from base.

Their service was not affected by the outage. There is no specific contingency plan but in the event of a prolonged outage they would use fuel sparingly “based on urgent need only” and could operate vehicles for approximately 2 to 3 months if tanks are at full capacity and they were only supplying their own operations.

The helicopter fleet could operate for approximately 6 months on normal jet fuel reserves if they were full at the outset.

As with others, Fleet Services learned of the outage through the media. Their concern was with the lack of information on how long it would last and at what locations fuel was still available.

They suggest development of a government wide coordinated plan to deal with

fuel shortages.

ENVIRONMENTAL HEALTH AND FOOD SAFETY

The Environmental Health and Food Safety division of the Department of Environment was formed in July 1, 2015 to consolidate provincial regulatory enforcement and includes environmental, fisheries, conservation officers, animal welfare, mink, meat, food, and health & welfare inspectors.

The consolidation is a work in progress. Most inspectors use their own vehicles and rely on retail gas stations although the conservation officers continue to use the vehicles in the DNR fleet. The division also has some leased vehicles and owned vehicles.

With the exception of the conservation officers, who continue to have access to DNR’s card lock facilities, this division could not maintain field operations in the event of an outage unless they were given access to government bulk stations or other designated outlets.

They were already in the process of developing and updating their business continuity plan when the outage occurred and will now include an examination of fuel security.

CHILD PROTECTION

The Department of Community Services is responsible for child protection. Child protection services were not affected

by the shortage. Child protection workers use their own vehicles so an extended shortage would disrupt normal practice. Routine services would be curtailed or scaled back depending on the nature of the shortage. However they have an emergency response protocol that is coordinated provincially and delivered regionally. DCS would ensure whatever resources it had or could gather would be provided to maintain emergency child protection services. In any case they work closely with police and would utilize police vehicles and services in a child protection emergency.

As long as police and EHS have fuel, child protection can meet its essential services.

NOVA SCOTIA POWER INC.

The Panel met with a senior executive of Nova Scotia Power Inc. (NSPI) to examine what impact the fuel shortage had on NSPI operations. The fuel outage had no material impact on NSPI.

They became aware of the fuel shortage on Friday, August 28th and since it pertained to gasoline it would only affect their light duty fleet that is utilized for things such as meter reading. They had no issues and could postpone that function if necessary. Their heavier trucks used for line repairs operate on diesel. They purchase this fuel from commercial stations and do not have fuel depots for diesel. Their trucks can go two to three days normally on the tank of diesel and therefore even if there was a demand for

line repairs, and there was a diesel shortage, unless it lasted beyond 3 days they would likely be able to manage. Any outage beyond three days would have an impact on their fleet.

The senior executive emphatically stated “NS Power cannot run out of fuel” – meaning they cannot allow that to happen – and therefore they have systems in place to ensure supply. Their only reliance on the commercial fuel supply in Nova Scotia is fuel for their vehicles and light oil for the start up of generators.

NSPI has robust contingency plans in place for all aspects of their operation and, in the event of a significant disruption to that supply, they have the industry contacts to arrange the fuel delivery they require.

NSPI also has business continuity plans and risk mitigation strategies to deal with any potential fuel shortages that could impair electrical generation. Included in their plans is a contingency to ensure power gets to critical locations such as hospitals, and key service providers.

They have a full time fuel logistics unit that monitors the ships and trucks delivering fuel to them and is constantly aware of delivery times and any potential delays. Their Risk Management Platform informs them how much fuel must be on hand at all times and they own their own storage area and tanks.

As with other critical service providers, they believe it is essential that a system

be developed that would immediately inform NSPI of any anticipated long term disruptions in the commercial fuel supply for gasoline, diesel and light oil.

TELECOMMUNICATIONS PROVIDERS

A Bell Aliant representative informed the panel that since the gasoline shortage occurred over a weekend when Bell Aliant has fewer field service technicians scheduled to work there was limited impact. Only a few technicians experienced ‘fuel challenges’ but there was no significant impact to their operations. At the beginning of the week, there were enough service stations open to enable technicians to access gasoline for their vehicles. Bell Aliant indicated that if the shortage had been longer or had occurred during the regular work week, impacts would likely have been more significant.

Bell Aliant maintains business continuity plans for all critical functions and disaster recovery plans for critical sites. As part of their risk mitigation plans, they maintain a 72 hour supply of diesel fuel for generators at critical sites. Beyond those local fuel tanks, they do not maintain any diesel fuel storage facilities.

Bell Aliant does not maintain any gasoline storage facilities for their fleet of vehicles. They do have reserve gas cans in their work centres for gas powered generators, used to maintain the smaller central offices and remote switching centres during power outages. Although this event did not include a die-

sel fuel shortage, Bell Aliant relies on diesel fuel to power generators for their larger and more critical central offices to ensure service continuity during commercial power outages.

Bell Aliant has not to date experienced a shortage or inability to receive fuel for their generators that has resulted in any service impacts or disruption of operations.

They have investigated securing a commitment to diesel fuel delivery from their suppliers but none has been willing to commit to a guaranteed supply due to factors beyond their control (road closures, etc). Their procurement team continues to pursue their diesel suppliers to assign a higher priority to Bell Aliant to ensure supply in event of a prolonged power outage.

The Panel also spoke with a representative of the Eastlink telecommunications company who advised that the August fuel shortage did not have a negative impact on service delivery for Eastlink. The company does not have bulk fuel storage but had adequate gasoline in supply to carry out their normal operations. Eastlink indicated they have contingency plans for a fuel outage but would not provide those plans to the Panel.

Finding

Some public health and safety services were affected but no essential or emergency services were interrupted or impaired. Where non-essential services were reduced or discontinued there were

no noticeable effects on public safety or health.

Officials were correct not to declare an emergency. The fuel sector and key service providers coped successfully with the outage. However, conditions were relatively benign. Had the outage continued for even one or two more days; had a major incident occurred during the outage; or had the outage occurred during the week instead of a weekend, public health or safety could have been affected. There would have been a cascading of demands on key service providers as the public and other critical services run out of fuel.

All key service providers are critical but not all critical services are key service providers as the term is used in this report. Critical services extends beyond 1st responders. The Health Authority has central food, laundry, and supply in Halifax and relies on trucks to service each facility. Extended Care and home care rely on staff and clients' own vehicles and, if they were not available, would turn to 1st responders as needs become critical. The Panel was told, only partly in jest, that the last line in everyone's emergency management plan is "call 911". EHS handles patient transfers between health care facilities so tests and treatments would be curtailed if EHS restricted its activities to emergencies to conserve fuel.

FACTORS IN THE SYSTEM THAT MAY LEAD TO A FUEL SHORTAGE

THE FUEL SYSTEM IN ATLANTIC CANADA

Although Canada is a major exporter of petroleum products, Atlantic Canada depends on imported crude and petroleum products.

Even in the Canadian context Atlantic Canada is a small market:

"On average, Ontario and Quebec account for about 60 per cent of the gasoline consumed in Canada. The western provinces account for about 32 per cent of Canada's gasoline consumption, while the remaining 8 per cent of gasoline is consumed in the Atlantic provinces and the Territories."²⁷

KEY ELEMENTS

When we think of the petroleum industry we often picture giant, multinational corporations spanning the whole spectrum of activities from exploration to the pumps. In fact the fuel distribution system is really a series of markets and exchanges, a largely decentralized web of commercial transactions dealing in crude oil, petroleum products, and logistics. There are very big players and very small "mom and pop" players, and everything in between. Some have more influence than others but no one is in overall control.

The key elements of the fuel system are re-
²⁷ <http://www.nrcan.gc.ca/energy/crude-petroleum/4551>

finers, distributors, and retailers. As with any bulk commodity, transportation plays a large role at every stage whether it be by pipeline, very large crude carrier (VLCC), rail, coastal tanker, tractor-trailer, or straight truck.

The key to understanding the infrastructure is the supply/exchange agreement.

Supply/exchange agreements

Gasoline and diesel are standard commodities. Additives that distinguish one brand of gasoline from another are mixed in as the fuel is delivered from the terminal tank to the truck. This is called “rack blending” because it occurs at the loading rack when the tanker trucks fill up. The driver enters a customer code or swipes a badge that specifies which brand is to be loaded and blending occurs automatically. Diesel does not contain brand specific additives.²⁸

This enables product exchanges and supply agreements. Under an exchange agreement one refiner provides another refiner with specific products at a location in exchange for products at another location. A supply agreement is simply a wholesale transaction but they have had a powerful impact on petroleum infrastructure.

“These agreements have not only allowed the industry to consolidate their operations at the refinery level but have also led to a consolidation of local product terminals. It is no longer unusual to purchase gasoline from a branded outlet that was produced by one of its main competitors... Imperial Oil and Irving Oil provide refined petroleum

products to Shell, PetroCanada and Ultramar at Atlantic terminals in exchange for similar quantities of product in Montreal and Quebec City.”²⁹

This makes good sense for industry because it lowers inventories and transportation costs, and spreads facility costs.

It is as a result of this system of agreements that virtually all the gasoline, diesel fuel, furnace oil, and aviation gas consumed in Nova Scotia, regardless of brand, is imported by tanker and landed at Imperial Oil’s marine terminal and bulk storage facilities, either in Dartmouth or Sydney.³⁰

Refiners

There are only two refineries in Atlantic Canada, the 115,000 barrel-per-day refinery at Come By Chance Newfoundland owned by New York-based SilverRange³¹ and Irving Oil’s 320 000 barrel-per-day refinery at Saint John New Brunswick. The Irving refinery is the largest in Canada. The Imperial refinery in Dartmouth closed and was converted to a terminal in 2013.

Ships

In Atlantic Canada crude oil and refinery products move primarily by ship. In one respect at least this is advantageous.

“Because of their connection via major wa

²⁹ <http://www.nrcan.gc.ca/energy/infrastructure/5897>

³⁰ Cape Breton is largely supplied from Imperial’s Sydney terminal and it appears that for the most part the shortage only affected Cape Breton in areas near the mainland, likely because of people crossing the Strait of Canso to fill up.

³¹ <http://business.financialpost.com/news/energy/canada-come-by-chance-refinery-in-newfoundland-samples-new-crude-on-own-front-door>

²⁸ Companies must blend 2% of their diesel sales with biofuel nationally. See the discussion of biofuels below.

terways, Atlantic Canada and Quebec have good access to imports...”³²

Imperial receives 50 to 60 tankers a year at its Dartmouth terminal. Well over eighty percent of the production of the Irving Oil refinery is shipped out by sea.

Terminals

Terminals are large storage facilities from which petroleum products are transported to end users or local storage facilities. They contain fuels that meet basic standards.

The major terminals in Atlantic Canada are located in: Dartmouth, Sydney, Saint John, Charlottetown, Cornerbrook, St. John's, and Chatham. Regardless of who owns them, these terminals provide all the fuel in their “orbit”.

Bulk plants

The next step down from the terminals is the bulk plant; a storage facility at the wholesale level, comprised of a number of small to medium capacity tanks. These are familiar sights in rural Nova Scotia.

Trucks

Tractor trailer tankers move fuel from terminals to bulk depots and the larger retail dealers. The principle carriers in Atlantic Canada are [Seaboard Transport](#) and [RST](#) but Irving Oil has branded tractor trailers as well. A tractor trailer has a capacity of between 40-50,000 litres. Straight trucks haul fuel from bulk depots to smaller stations, homes, farmers, fishers, construction sites, and other industrial customers.

³² <http://www.nrcan.gc.ca/energy/crude-petroleum/4551>

Retail dealers

According to the [Retail Gasoline Dealers Association](#) there are 385 dealers in the Province. About 150 are controlled by the familiar brands.³³ The rest are “independents” although their size and degree of independence varies greatly. For the most part the independents are the smaller outlets but [Wilson Fuels](#), through its own brand and all but 11 of the ESSO stations, has the most outlets in the Province.

FACTORS THAT MAY AFFECT THE RISK

CONSOLIDATION

The exchange agreements resulted in consolidation of refineries and bulk facilities since one oil company providing product in a region allows them all to optimize their supply chain around it. According to a report provided to us by the [Canadian Independent Petroleum Marketers Association](#), at one time there were as many as 8 marine terminals and two refineries on Halifax Harbour. The Panel was told by one industry executive that at present, “there is no backup terminal in practical terms” in Atlantic Canada. They are too far apart to provide cost effective redundancy because of distance and practical constraints such as the number of tanker trucks available.³⁴

³³ This is consistent with the national picture: “Of the over 14,000 retail gasoline stations in Canada, 4,494 (32 percent) are price controlled by integrated refiner -marketers. The others (68 percent) are price controlled by proprietors or companies who are not involved in the refining of petroleum products.” Ibid

³⁴ The key is “cost effective” backup. During the recent shortage suppliers and transport companies hauled fuel to Nova Scotia from Saint John and Charlottetown. But the ex-

Irving Oil is in the process of refurbishing and re-opening its Halifax Harbour Terminal. It will be commissioned in the late fall of 2016 providing a second fuel supply point on Halifax Harbour.³⁵ This is a welcome development. However, the general trend over the last 30 years is clear; exchange and supply agreements allowed rationalization of facilities, and competition required it. There is little slack in the system because underperforming assets cost money. That is not to say that individual operators do not maintain redundancies and reserves, they clearly do. It is to say that they maintain what they judge they require to provide reliable service. That, of course, is a matter of judgement and calculation based on the historical demand of their customers. In a small market like Nova Scotia, if a big player runs reserves too low we all suffer because there are not a lot of other players with spare capacity to fill the gap.

CLOSURE OF THE IMPERIAL REFINERY

The Panel was told by a number of people that Imperial's conversion from a refinery to a terminal has made supply less reliable in Nova Scotia.³⁶

tra expense could not be passed on to the consumer in part because of price regulation but also fear of being accused of profiteering. The second constraint is trucking capacity which the Panel discuss further below.

³⁵ Imperial's Sydney terminal has only one seventh the capacity of the Dartmouth terminal and this, together with the round trip trucking distance from Sydney to retail locations affected by the Dartmouth outage means it is not a practical backup source. Although during the outage, Imperial moved several truckloads of gasoline from the Sydney terminal to areas served by the Dartmouth terminal.

³⁶ For example, Dave Collins VP of Wilson Fuel is quoted in the media as saying "Terminals, by their very nature, are much more tenuous around supply than say a refinery is be-

The Imperial Oil refinery in Dartmouth opened in 1918 and processed its last crude September 16 2013. Imperial is the largest refiner in Canada. It operates three remaining refineries in Nanticoke and Sarnia, Ontario; and Edmonton, Alberta. It is a fully integrated petroleum company with activities from exploration through to retail under the ESSO brand.

There are two arguments that a terminal is inherently less reliable than a refinery.

The first is that a refinery is expensive to shut down and start so crude oil inventories are maintained at very high levels. There is no similar penalty for a terminal. In fact maintaining inventory costs money and ties up capital so, in cash flow terms at least, the ideal is to have only what you need on hand.

Balanced against inventory costs there are penalties for outages: lost sales and an unwelcome reputation for unreliability in an industry where steady supply is critical.

No one intentionally runs the risk of a supply outage and even its competitors say Imperial is a good operator. Of course, there are outages when the rack is shut down either for routine maintenance or unexpectedly because of equipment failure or adverse conditions. Whether Imperial is any more or less reliable now than it was, as some have as-

cause the inventory levels in a refinery are much greater. So, is this something that will happen to us again? I guarantee we'll be on allocation for shortages at some point in time in the next year," <http://www.cbc.ca/news/canada/nova-scotia/nova-scotia-gas-shortage-could-last-for-days-says-wilson-fuel-vp-1.3209418>

served, we cannot say. Imperial says the August shortage was the first time it imposed allocation in regular unleaded gas. It has, however, imposed load limits in the past. When assessing reliability it is important to understand the difference between the two.

Imperial asks its terminal customers to project their requirements three months in advance. Normally they are allowed to draw as much as they require regardless of their estimates. If the draw is higher than anticipated Imperial may impose load limits in order to ensure every customer receives at least their projected amount. Even with that, a load limit might be 120% of a customer's projection. It might be as low as 100%. When the limit is set below 100% it is called an allocation. A load limit means a customer gets less than they want but as much or more than they said they would want. That is, supply is not unreliable, it's just not infinite. Only in the event of an allocation is reliability called into question.

After interviewing Imperial staff and reviewing their efforts to deal with the situation the Panel is confident that running out of fuel at the Dartmouth terminal is no more tolerable to Imperial now than running out of crude when they operated a refinery. The outage was not the result of carelessly or recklessly running down fuel stocks.

The second argument is, as one person told us, "Shutting the Imperial refinery put the Nova Scotia market at the end of a very long refined product supply chain.

Lengthening a supply chain creates risk." In the final analysis large quantities of both crude and refined product are delivered by tanker. Where formerly Nova Scotia was at the end of two parallel supply chains, now it is at the end of only one.

On the other hand, refineries are complex machines that occasionally break down, and when they do outages result.

There is another point as well. A terminal is not as versatile as a refinery. As a general proposition, a refinery is in a better position to deal with fuel that is "off spec" than a terminal. So, as a general proposition, the Imperial refinery would have been in a better position to manage off spec cargoes than the Imperial terminal found itself.

It is not necessary for the Panel to resolve this debate. Whether Imperial's reserves were reasonable according to industry standards or not, the fact is they ran out – not because Imperial recklessly ran close to the line but because its reserves could not accommodate two off spec cargos, back to back, one a week late. The conjunction was unthinkable – until it happened. An unthinkable series of events could shut down a refinery too.

LOCAL STORAGE

In 1973 there were 1,418 retail dealers in the province, which is 1,033 more than today. This decline is another manifestation of the rationalization of petroleum infrastructure. A 2005 report³⁷ on Nova

³⁷ [Economics of the Nova Scotia Gasoline Market](#), Gardner

Scotia's gasoline market stated:

“Marketers started to rationalize their networks in the 1980s, responding to the over capacity in the retail segment of the industry. The number of gas stations in Canada has declined by 36% since 1990, dropping from an estimated 22,000 to about 14,000 in 2004.”

Storage capacity varies from dealer to dealer. A typical station in Halifax would have 50,000 to 75,000 litres of capacity for regular gas, 20,000 to 25,000 litres for Supreme and 10,000 to 15,000 litres for diesel. Full tanks represent 36 to 48 hours supply of regular, 5 to 7 days of premium and 3 to 6 days of diesel. Outside Halifax tanks generally have about 75% the capacity of Halifax stations but demand is lower so, under normal market conditions, full tanks may last an extra 2 days longer than in Halifax even in major towns like Truro and Bridgewater, and 4 days longer in the more sparsely populated rural areas.

However, these figures offer false assurance. To minimize travel time and costs, resupply is scheduled so that tankers deliver full loads or as large a load as possible. It is a standard practice for stations to run down supplies. The true state of reserves in any particular location depends less on the size of the tank than on when fuel was last delivered. A tank is as likely to be nearly empty as nearly full.

Rationalization has also affected bulk plants. The Panel was told that there used to be a bulk plant in just about every

Pinfold Consulting Economists Ltd., MJ Ervin & Associates Inc., at p8.

town but now there are far fewer due to the combination of environmental requirements and costs associated with petroleum storage; and arrangements, similar in effect and consequence to exchange agreements, between local competitors to draw from each other's bulk plants.

Whether there was over capacity before or under capacity now is not for the Panel to say (and is probably a matter of perspective) but it is clear that storage capacity is neither as widely distributed nor as plentiful as it once was.

BIOFUEL/ETHANOL

There were comments in the media that ethanol played a part in the shortage.

One industry expert was quoted:

“When you have low inventory like that, you need to look elsewhere to make up the product,” he said. “Normally, we would have looked at the Irving refinery in New Brunswick. But Irving's mandate on gasoline is E10, meaning 10 percent of the gasoline is made of ethanol. A lot of gas stations in Nova Scotia are not equipped for E10. It requires quite a bit of retrofitting with the tanks, and we're just not there yet.”³⁸

Regulations under the Canadian Environmental Protection Act³⁹ require 5 percent renewable content in gasoline production and imported gasoline. The targets are national averages so a refiner with

³⁸ <http://www.thechronicleherald.ca/novascotia/1308691-analyst-gas-regulation-could-lead-to-more-shortages>

³⁹ <http://laws.justice.gc.ca/eng/regulations/SOR-2010-189/>

more than one refinery can meet the standard through a high biofuel proportion at one refinery and none at another. Imperial Oil was able to meet its obligations through its refineries elsewhere in Canada, incidentally saving Nova Scotia dealers the cost of conversion to handle ethanol. Irving Oil has only one refinery and meets the federal requirement through its New Brunswick market.

Biofuel blended gasoline picks up water and requires special equipment and handling. Upgrading a station to handle it is costly. The investment would likely drive many small, rural locations out of business.⁴⁰ As a result only about 10-15% of retail stations in Nova Scotia can handle gas mixed with biofuel and they tend to be the high volume, larger market stations.

The Irving Oil refinery in Saint John produces many fuels, only one of which is ethanol blended. Ethanol is, like branded additives, rack mixed. Irving mounted an impressive resupply effort during the outage. It added 11 tractor trailer tankers to its Nova Scotia fleet to make deliveries in the province. These units came from Quebec, Ontario, and New Brunswick to move product from Charlottetown and Saint John to various sites in Nova Scotia including 7 identified by EHS. Irving Oil told us that logistics and the available reserves elsewhere in the Maritimes were much more significant factors in developing its resupply strategy than biofuel.

Irving Oil, RST Transport, and Seaboard

⁴⁰ <http://atlantic.ctvnews.ca/n-s-gas-retailers-worried-shortage-could-happen-again-1.2540534>

Transport jointly asked the Province to consider an extension of drivers' hours but the [Commercial Vehicle Drivers' Hours of Service Regulations](#) under the Motor Vehicle Act do not permit extended hours in these circumstances.⁴¹

Finding

Irving was able to move conventional gas from bulk storage facilities in Charlottetown and Saint John. Trucking and the need to avoid creating a shortage in those provinces were the prime constraints. During the outage, even stations that can use Ethanol ran dry.⁴² The impact of the biofuel requirement on resupply was overstated by commentators.

COMMUNICATIONS

In order for industry, government, key service providers, and the general public to assess the potential impact of any serious or unusual situation, it is essential for them to have accurate situational awareness. Without adequate situational awareness suitable plans cannot be enacted to mitigate potential risks within their environment.

IMPERIAL

The evolving situation at Imperial's terminal led Imperial to communicate with its terminal customers, government, and the public through various means.

⁴¹ S 21 (1) A special permit may be issued that allows a reduction of 2 hours in rest time and an increase of 2 hours of drive time can be issued in certain circumstances but the requirements of s 23(1) are very extensive and certainly too rigorous for an emergency.

⁴² <http://www.cbc.ca/news/canada/nova-scotia/gas-shortage-reoccur-1.3220052>

Imperial began communication with its terminal customers through a notification on August 20th of an allocation to 90%. Its next communiqué was an email to them on the evening of August 27th warning of an anticipated RUL outage the next day. On August 28th it issued an Operational Disruption Notification (ODN) to customers informing them the rack was out of RUL but was expected to reopen by 18:00 Saturday the 29th. At the time of the ODN Imperial had good reason to believe they would be pumping RUL at the rack by that time.

Over the course of the outage Imperial issued a total of 7 ODNs, each with a different resumption time. The ODNs reflected Imperial's changing situation as problems with the cargos were discovered and treatments explored.⁴³ In addition to these, Imperial sales representatives had telephone contact with customers over the weekend.

Imperial used its standard procedures to

⁴³ They are summarized as:

1. Issued at 7:02 a.m. on Friday, August 28 estimates the start of product unavailability at 7 a.m. with an estimated return of supply at 6 p.m. on Saturday, August 29.
2. Issued at 10:17 p.m. on Friday, August 28 revises the estimated time of return of supply to 12:00 noon on Saturday, August 29.
3. Issued at 11:30 a.m. on Saturday, August 29 revised the estimated time for return of supply to 3 p.m. on Saturday, August 29.
4. Issued at 2:43 p.m. on Saturday, August 29 revises the estimated time for return to supply to 6 p.m. on Saturday, August 29.
5. Issued at 5:54 p.m. on Saturday, August 29 revises the estimated time for return of supply to 2 p.m. on Sunday, August 30.
6. Issued at 12:02 p.m. on Sunday, August 30 revises the estimated time for return of supply to 12:00 noon on Monday, August 31.
7. Issued at 8:03 a.m. on Monday, August 31 advises that supply was available at approximately 8 a.m. on Monday, August 31

communicate with terminal customers. The situational changes must have been almost as much a source of frustration for rack customers and truck drivers as they were for Imperial staff but terminal customers were informed of Imperial's estimates of resumption as they reflected the evolving circumstances.

The Panel learned there is no requirement for Imperial to formally notify the Government of Nova Scotia of an actual or anticipated disruption in the supply of fuel to the Province. However, Imperial's public affairs officer contacted Nova Scotia's Department of Energy on Friday, the 28th, advising both the Deputy Minister and Director of Communications of the outage expected to last until Saturday evening, as was understood at the time.

There was no further contact between the government and Imperial until August 30th, when Imperial's public affairs officer advised of the new circumstances by email and voice mails to the Energy's Deputy Minister and Director of Communications. That evening he also contacted a member of the Premier's staff he knew. Imperial also advised Natural Resources Canada of the outage.

The contact with Energy bears further examination. The Sunday email was sent to the Deputy Minister at 14:26 and appears to immediately follow the voice mails as it says "I tried your cell... it appears you are not checking cell messages". The reason the Deputy was not checking cell messages was that he had left the province at noon the previous day and was in

China on business and 14:26 Halifax time is 02:26 in Beijing. At 18:36 Halifax time (or 06:36 Beijing) the Deputy responded by asking that either Imperial or Energy's Communications Director contact the Deputy Minister of Municipal Affairs whose responsibilities include EMO. The communications director did so at 19:56 that evening.

While acknowledging that there was no requirement for Imperial to contact government at all, the Panel believes Imperial ought to have alerted government officials as soon as it was clear the rack would not reopen at 18:00 on Saturday, as they had earlier advised. Instead Imperial decided to wait until Sunday when it would have better information on the return to service to provide both government and the public - as in fact it did. Given the setbacks Imperial had suffered on Saturday this caution is understandable, especially with regard to the public. However, Imperial should have recognized that, at that stage, given the outage's potential to impair key services, public officials needed the most up to date information precisely *because* of the uncertainty.

What was required was direct contact between operational officials at the terminal and operational officials in government. Informing a single senior official by voice mail and email was not sufficient. It might have succeeded had he been in the same time zone but, when there was no direct contact, other avenues ought to have been sought.

On the other hand, it is surprising that no one in government reached out to someone in operations at Imperial or at least the public affairs officer who was being quoted in the media. As late as 15:04 Sunday the Deputy Minister of the Department of Municipal Affairs (DMA) sent an email asking if anyone has a contact at Imperial to confirm the report⁴⁴ that two tankers had unloaded RUL the previous evening. He indicates that EMO does not have a contact at Imperial.

The result was that it was not until late Sunday evening that public officials, including EMO, learned that resupply operations had not only not commenced on Saturday but had not commenced on Sunday.⁴⁵ This left key government personnel with limited and unreliable information on which to base decisions.

COMMUNICATIONS WITHIN GOVERNMENT

Government was first alerted to the gasoline shortage when reports started to circulate in the media on Friday the 28th. Service Nova Scotia (SNS) fielded media calls on Friday and contacted a staff member at EMO who advised the Deputy Minister of the shortage.

SNS is responsible for the regulations under which the Utility and Review Board sets petroleum prices. As a result it possesses a good working knowledge of the structure of the industry. SNS and its

⁴⁴ The report of the two tankers was based on Internet vessel tracking. The hypothesis that they had unloaded RUL was erroneous.

⁴⁵ By 15:17 CBC's website was quoting Imperial that RUL would resume mid-morning Monday.

Minister responded on Friday and Saturday to comments in the media⁴⁶ that the shortage was the result of price regulation. SNS is responsible for the [regulations](#) under which the Utility and Review Board sets petroleum prices. As a result it possesses a good working knowledge of the structure of the industry.

As late as Saturday the situation, for government at least, was largely an external communications matter due to the high public interest. However, by Saturday afternoon the Minister and officials were wondering about the effect of the outage on first responders and staff of SNS were in touch with the RCMP's Operational Communications Center and other key service providers. They were also asking TIR about its reserves of gas. However, they did not know how to contact Imperial operations and were relying on media reports and online vessel tracking programs in an attempt to estimate the duration of the outage.

Throughout the weekend there was brisk email traffic (despite an interruption in Blackberry service at one point) among officials at SNS and DMA/EMO. However there does not appear to have been any contact between Energy and SNS or DMA/EMO until Sunday evening. This may be the ironic result of a combination of three factors: Imperial assuming Energy is responsible for the fuel distribution sector; the people at SNS knowing it is not; and Energy's reliance on Imperial's initial assurance of resupply starting on Saturday evening. In any case, despite a

⁴⁶ <http://www.news957.com/2015/08/28/some-gas-station-could-run-out-this-weekend-as-fuel-shortage-hits-nova-scotia/>

great deal of effort by a good many people over the weekend, government was missing a vital piece of information. Had officials known resupply was not underway EMO's formal information processes would likely have been initiated on Sunday. Instead they were not invoked until Monday.

COMMUNICATIONS BETWEEN GOVERNMENT AND KEY SERVICE PROVIDERS

As the weekend progressed and the outage was beginning to affect operations, particularly at EHS, only minimal information was available to key service providers. They were lacking the situational awareness they required to deal with an extended fuel shortage. They were responding based on information they could glean from the media, their own contacts and, others who were equally in the dark. Most were developing plans in isolation.

Everyone the Panel spoke with in the public sector felt that situational awareness was poor. For most, the first and only consistent source of information was the media and it was largely speculative.

People the Panel interviewed acknowledged a degree of hindsight in their frustration. At the outset no one expected a 3 day outage followed by a 2 day shortage. The initial, low key, response was appropriate for an outage expected to be of short duration and limited effect. As late as 14:43 on Saturday even Impe-

rial expected to return to supply in little more than 3 hours, at 18:00 that evening. Until Sunday evening, government officials had reason to believe relief was already underway. There may also have been a tendency to play down the shortage for fear of further inflaming panic buying, given that many key service providers compete with the general public for gas.

EMO officials had been in contact with key service providers over the weekend but, once it was realized that resupply had not started Saturday evening, and having received a request from Health and Wellness, decided to hold a teleconference Monday, August 31st at 09:00 in an effort to improve situational awareness. EMO, EHS, RCMP, TIR and Office of the Fire Marshal participated on the calls.

ANALYSIS

Ministers, senior officials, and communications personnel from government departments were conversing with one another. The limited information they had until late Sunday indicated that key services were coping successfully and the shortage would soon end. As the timeline in Appendix 2 shows EMO and key service providers were in bilateral contact throughout the weekend and were exchanging information.

The information within government was largely anecdotal and some of it inaccurate. There was not adequate situational awareness. Most indicated the information they obtained came through main-

stream and social media and by making their own phone calls to service stations seeking fuel and asking questions about when they may have fuel again. EMO's robust systems that exist to inform key service providers were not engaged until Monday.

Crucially, no one in the EMO community was in direct contact with Imperial. This was detrimental in two ways: the actual duration of the outage was not known and there was, until late Sunday, an erroneous belief that resupply was underway and that the shortage would begin to ease when in fact it was about to get worse for some key services.

Imperial should have been in direct contact with EMO from the outset.⁴⁷ The problem was not the individuals. Everyone was dealing with a novel, evolving, and entirely unexpected situation. It was the lack of a planned systematic response with a robust communications protocol that was the problem. In August Imperial, not unreasonably, viewed the Department of Energy as their contact in Government. They expected that any notification of other government departments would be made by Energy. To an extent this belief was justified since the Deputy Minister of Energy caused his staff to alert the Deputy Minister responsible for EMO, as soon as he learned that the outage was continuing. However, Energy is not the best point of contact in a potential emergency situation. It is a policy and program department, not

⁴⁷ The Panel saw evidence that this lesson has been learned when, as we were conducting an initial interview with the head of EMO, he was passed an ODN from Imperial. The outage was for routine maintenance.

specifically equipped for situational response such as frontline operational departments like TIR, Health & Wellness, or EMO. In any case, despite its name Energy's expertise is "upstream" of fuel distribution. So, while from the perspective of a person external to government, a call to Energy is appropriate, in the circumstances as they unfolded a better course would have been to initiate and maintain contact with EMO.

Finding

Situational awareness was poor for at least two reasons:

1. Communication was convoluted – there was no direct line of communication between operational people at Imperial and people in government at tempting to manage the situation of key services;
2. Context was lacking.

Context is critical. Communication without context leads to confusion and context requires conversation. It is too much to expect the fuel sector to automatically have a complete understanding of the key service providers' needs and, likewise for public officials to understand what is entailed in offloading and treating a cargo; and resupplying customers across most of the province.

Communication between the public and private sectors must be direct, open, and complete in order to enable both to have a full understanding of the situation.

Various government officials conferred over the weekend and recognized the

potential for disruption of public health and safety but "on the ground" information gathering and dissemination was poor and not systematic. There were two explanations for this:

1. The belief that the situation was in hand and the rack would be in service by 18:00 Saturday;
2. A desire to play down the outage in order to avoid panic buying which would only make matters worse.

These are valid reasons but, as the shortage continued into Sunday, and the position of key service providers began to worsen, overall situational awareness within government was lacking. A direct call to or from Imperial operations on Saturday evening or Sunday morning would have been of immense value to key service providers but it did not occur.

Fuel is an essential commodity. The fuel sector has a responsibility to advise one point of contact in government of a circumstance that could have an impact on the fuel supply in the Province. Although the subject matter is energy, the potential consequence is an emergency so the most logical contact is EMO. EMO and industry would assess the situation and determine whether to advise key service providers. Those services could then make an informed decision whether to trigger their plans, developed in consultation with other key service providers, to ensure they have fuel available to maintain service to the public.

In terms of communicating to the public,

Industry should communicate the reason for the outage, its expected effects, and steps being taken to resolve the problem. If public health or safety is likely to be affected, the Minister responsible for EMO should communicate on behalf of government. That communication should include an update on the status of key service provider's ability to deliver critical services and should seek the public's cooperation in supporting the delivery of fuel on a priority basis to key service providers.

ENSURING HEALTH & SAFETY SERVICE DELIVERY

It is not possible to ensure delivery of public health and safety services under all conditions but it is possible to improve their stability in the face of a fuel outage. It will require both the fuel sector and the public sector to work together in complementary roles.

Only the fuel sector can advise government of the likelihood of a variety of fuel shortages and outage scenarios and the mitigation measures that the fuel sector could put in place in each scenario. Competition and competition laws complicate, and may rule out, a single collaborative process but we believe the fuel companies would extend the same cooperation to government as was extended to the Panel. So, with a bit of trust, the necessary information about likelihood and mitigation could be collected by government.

If that can be accomplished government, with each key service provider, can:

1. identify the consequences of each of the shortage and outage scenarios;
2. develop mitigation measures that the public sector can adopt to extend supply; and
3. define for the fuel sector the key public interest service priorities.

Then together they should develop communications protocols and plans.

FACTORS AFFECTING RISK

While it is correct, as the Panel was told, Nova Scotia is at the end of a long supply chain, fuel shortages are not uncommon in other parts of Canada.⁴⁸ It is not, as some suggested, a symptom of third world status, but of the rationalization – that is, the diminution – of petroleum infrastructure and the complexity of fuel delivery. In some respects Nova Scotia is better off than locations dependent on a pipeline because it is on the ocean so cargos can be bought “afloat” on the spot market to fill supply gaps (albeit at a high price). Landlocked jurisdictions do not

⁴⁸ Western Canada suffered shortages through much of the summer due to “unplanned maintenance activity,” at Shell’s Scotford Refinery <http://www.edmontonjournal.com/Shell+looking+refill+stations+running+empty/11198131/story.html>; <http://www.edmontonsun.com/2015/07/22/unexpected-maintenance-continues-to-leave-shell-pumps-dry>; <http://www.edmontonsun.com/2015/07/25/edmonton-gas-stations-running-dry-as-lightning-maintenance-hinder-operations>. The outage was still affecting stations in late August: <http://www.cbc.ca/news/canada/manitoba/shell-station-gas-shortages-could-indicate-bigger-problem-analyst-says-1.3204310> <http://www.cbc.ca/news/canada/manitoba/some-winnipeg-shell-gas-stations-run-out-of-fuel-1.3203840> . As the Panel was preparing this report we noticed British Columbia is suffering a shortage.

have that option.

On the other hand outages at one brand, like the one that occurred in Western Canada this summer, are not as harmful as an outage that affects all brands. In large markets, at least in urban centres, if one brand is out there are other brands available. In many parts of Nova Scotia the next station is many kilometers away and its supply may be equally depleted.

At the more mundane level of risk, fuel is a bulk commodity and exposed to all the risks entailed in transportation – everything from perils of the sea to snow-bound roads. Terminals and service stations depend on electricity. The Imperial terminal has its own generators but the Panel was told that few if any service stations have generators and without electricity they cannot pump fuel.

Finding

The reality for Nova Scotia is that Atlantic Canada is a small market with little redundancy in fuel and facilities. At present we depend on one marine terminal and a smaller one in Sydney.

The greatest constraint on alternative supplies when the outage occurred at Imperial was not ethanol but truck transport and fuel reserves in the adjacent provinces. Market forces tend to treat spare capacity as waste until proven necessary. Even the coming of the Irving Oil marine terminal, while creating welcome redundancy in terminals, is unlikely to duplicate reserves. Each terminal will set its reserve to meet the anticipated needs of

its customers.

RISK, LIKELIHOOD AND CONSEQUENCE

Risk is weighed in terms of likelihood and consequence of an occurrence.

The first crucial question from a public health and safety perspective – which is our mandate – is: what is the likelihood of a fuel outage seriously disrupting public health and safety services?

Two ships, one late, arriving off spec, back to back, is a highly unusual occurrence. Imperial has not had a 3 day supply outage in the memory of their senior personnel. There are several reasons to believe the chances of a 3 day outage happening again are slight:

1. A number of rare occurrences had to coincide to create it.
2. Imperial has increased its “safety stock” (the level that triggers re-ordering in the same way a driver decides to pull in for gas sooner) and added more lead time to its transit allowance for vessels from outside the region so ships arrive earlier.
3. Irving Oil is reopening its Halifax Harbour Terminal creating redundancy by doubling terminal facilities.

Nevertheless, planning is in order because the negative consequences of a prolonged outage are so great and because it would be wrong to assume services can cope with 3 days. Had conditions been less benign than they were in

August; had the outage not occurred on a weekend; had there been a major incident; the public health and safety services would have found themselves in a much worse situation.

PLANNING

Prior to August little consideration had been given to interruption of the fuel supply by the public health and safety communities. No organization, public or private, the Panel spoke with had contemplated a fuel outage of 3 or more days. It would be wrong to characterize this as a failure in emergency management planning – an extremely unlikely event occurred – but it would be a mistake not to plan for one now. So, just as it would be a mistake not to plan for the risk, it would be a mistake to supersede or duplicate systems of emergency planning already in place. Each organization must manage its own planning but everyone the Panel spoke with agrees there is no sense in each key service provider competing for the same tank of fuel.

While public services were maintained and all those the Panel spoke with in the fuel sector exhibited a willingness to maintain emergency services, the distribution system is too lean and complex to rely on ad hoc approaches. In the absence of an emergency management plan, the fuel sector will default to resupplying in accordance with customer demand and will not reflect public health and safety priorities unless they are stated.

Planning for fuel shortages is underway in most critical service organizations and EMO is bringing all key service providers together to discuss next steps in planning for future fuel interruptions. This is the correct approach. Emergency management is a continuous and established process in Nova Scotia. It is better to build on it than to try to duplicate it or focus unduly on one hazard.

Planning should include the fuel sector and the federal government. The Energy Supplies Emergency Act (Canada)⁴⁹ establishes a system to conserve and control supplies of petroleum products in Canada during a national emergency caused by shortages or market disturbances affecting the national security and welfare and the economic stability of Canada. It provides for a “mandatory allocation program” - a program to control the allocation of supplies of a petroleum product at the suppliers and wholesale level; and a rationing program which may extend to the retail market. Among other powers it allows exemptions from the Competition Act, can relax environmental standards, can direct the Canadian Transportation Agency to direct railways, ships, pipelines, and extra-provincial trucking for the purpose of ensuring adequate supplies of a controlled product in various parts of Canada. A fuel emergency in one part of the country can be considered a national emergency for the purposes of the Act. It would be necessary for the Province to request assistance.

49 R.S.C., 1985, c. E-9

EMO

EMO should have the leadership role in coordinating the planning process.

The [Emergency Management Office](#) (EMO) is a division of the Department of Municipal Affairs. Many of the assets and much of the focus of emergency management in Nova Scotia is at the municipal level. According to its website:

“EMO aims to ensure the safety and security of Nova Scotians, their property and the environment by providing for a prompt and coordinated response to an emergency.

EMO works hand-in-hand with municipal authorities to provide assistance in planning for emergencies, coordinate provincial resources when an emergency occurs, and assist with analysis and evaluation after an emergency.

... EMO operates under the four pillars of emergency management - mitigation, preparedness, response and recovery”

EMO monitors, and harvests information from subject matter experts such as Environment Canada’s Weather Office, the Department of Natural Resources’ Fire Control Centre, Nova Scotia Power, Bell Aliant, police, fire, and emergency health services, about any potential or active situation that threatens citizens, property, and/or the environment, or may negatively affect critical services. This information is provided via email and/or virtual video and teleconferences to representatives in departments from all

three levels of government, and to key critical infrastructure providers to facilitate their mitigation, response and recovery activities.

The goal is to ensure a common understanding of the situation and of the consequences and challenges each response agency has, so that the best possible response occurs. When circumstances dictate the potential need for a multi-agency response EMO will facilitate discussion between representatives to identify and develop a coordinated mitigation, response or recovery plan. The principle vehicle for this is the Initial Operational Planning Group (IOPG) teleconference.

The relevant legislation is the [Emergency Management Act](#) which defines an emergency as:

(b) “emergency” means a present or imminent event in respect of which the Minister or a municipality, as the case may be, believes prompt co-ordination of action or regulation of persons or property must be undertaken to protect property or the health, safety or welfare of people in the Province;

A state of emergency can be declared by the Minister responsible or by a municipal council, mayor or warden:

12 (1) The Minister, after consulting, if it is practical to do so, with a majority of the members of a committee established pursuant to Section 5 or a quorum of the Executive Council and, if the Minister is satisfied that an emergency exists or may exist, may declare a state of emergency in respect of all or any district, subdistrict

or area of the Province.

(2) A municipal council may, when satisfied that an emergency exists or may exist in all or any area of that municipality, declare a state of local emergency in respect of that municipality or area thereof.

(3) If a municipal council is unable to act promptly, the mayor or warden may exercise the authority of the municipal council contained in subsection (2) after consulting, if it is practical to do so, with a majority of the members of the council's committee to advise on the development of emergency management plans.

(4) A declaration pursuant to this Section shall identify the nature of the emergency and the area in which it exists.

(5) Nothing in this Section prevents the Minister from declaring a state of emergency whether a state of local emergency has been declared or not. 1990, c. 8, s. 12; 2005, c. 48, s. 6.

The Emergency Management Act (NS)⁵⁰ does not include a specific power to direct the fuel sector in an emergency but, where a state of emergency has been declared, the Minister or mayor may:

“...do everything necessary for the protection of property and the health or safety of persons therein and, without restricting the generality of the foregoing, may...

(b) acquire or utilize or cause the acquisition or utilization of personal

property by confiscation or any means considered necessary;

(c) authorize or require a qualified person to render aid of such type as that person may be qualified to provide;

(e) provide for the maintenance and restoration of essential facilities, the distribution of essential supplies and the maintenance and co-ordination of emergency medical, social and other essential services;

(g) authorize the entry by a person into any building or upon land without warrant...

SOME PRINCIPLES TO GUIDE PLANNING

At the end of this report the Panel offers a series of findings and recommendations but the dimension and complexity of both the fuel system and the key services are such that planning can only be undertaken by the systems themselves, ideally together. In this section the Panel presents observations and ideas for consideration by planners.

MUTUAL ASSISTANCE

In a fuel shortage the ability to marshal fuel and transport resources will be a key mitigation strategy. Mutual assistance is a useful tactic.

All three levels of government should examine opportunities for mutual assistance in the provision of fuel. A prime op-

⁵⁰ S.N.S., 1990, c. 8, amended 2005, c. 48, ss. 1-6; 2007, c. 10, s. 2; 2009, c. 12; 2011, c. 9, ss. 4-15. Section 14.

portunity is a coordinated approach to managing reserves, which we speak of in the next section.

Imperial and Irving Oil, as the two major suppliers in the region, should examine the feasibility of maintaining an inventory of common additives to treat fuel that arrives off spec, at least when not treating the fuel on a timely basis would result in fuel shortages or an outage that is likely to affect critical services in the Province. The Panel recognizes this may not be feasible due to practical considerations such as shelf life, quantities, and varieties of individual additives.

To the extent permitted by competition laws, the major companies in the fuel sector should consider how they can collaborate with each other in an EMO-led planning process to provide fuel to critical services during a shortage or outage.

A STRATEGIC, NOT A STATIC RESERVE

There is no strategic fuel reserve for critical services in Nova Scotia. This is not surprising. Even the federal government does not maintain a strategic reserve. Natural Resources Canada explains why:

“The issue of whether or not Canada should hold strategic oil reserves has been thoroughly examined over the years.

The cost of establishing, maintaining and administering such a reserve, and the logistical difficulties inherent in the transportation of oil outweigh the benefits of creating a national strategic petroleum

reserve.”⁵¹

The Panel does not recommend creation of an actual strategic reserve for these reasons:

1. The cost is disproportionate to the risk it insures against.
 - a. Bulk storage plants are expensive and pose environmental and security hazards.
 - b. Fuel goes stale.
2. Multiple locations would be required because central locations require vehicles to burn fuel to get fuel.
3. There are existing public sector storage facilities that can be managed strategically in the event of a fuel shortage.
4. There may be a better alternative.

There could be a virtual strategic reserve by which we mean a combination of existing government storage facilities and private sector service stations holding minimum reserves on hand which, in a fuel shortage, are available to key service providers only. That is, instead of waiting until a tank is nearly empty, resupply would occur as the minimum reserve amount is reached. The private sector obligation would be part of one or more supply assurance contracts with fuel suppliers and would include three main elements: maintaining specified reserves at designated locations in the province; resupplying them, and the government storage facilities, on a priority basis; and

⁵¹<http://www.nrcan.gc.ca/energy/crude-petroleum/4555#reserve>

exclusive access by key service providers. A number of key service providers are already exploring such supply assurance contracts individually. A centralized plan might be less expensive and more responsive to overall priorities.

If it is not possible or desirable for the Province to enter into a single supply assurance contract, the Province should prepare a model service assurance contract that individual municipalities and 1st responders can use to guide them should they opt for some form of fuel assurance.

PLANNING FOR SHORTAGES & OUTAGES

An extended fuel shortage is very rare. It should be part of normal all hazards planning and not supplant or dominate it. Treat a fuel shortage as any other hazard, assess it against all other hazards; don't make it a standalone planning effort but rather as part of continuity planning for all public health and safety services.

Coordination is required because

1. Individual plans might all inadvertently rely on the same resource (e.g. a local bulk station or supplier)
2. The fuel system is complex, key services providers need to rely on the expertise and resources of the fuel sector to distribute, allocate, and recover.
3. Priority fuelling and resupply may be required, so it should be set at the provincial level based on the best assessment of the situation.

EMO should coordinate the planning process but each organization should remain responsible for managing its own planning.

Part of the plan should include a protocol that identifies key events or conditions that trigger specific actions by a central, accountable authority. EMO should be that authority. It should be the switchboard in a fuel crisis. In a fuel outage or shortage the fuel sector should call EMO and EMO should maintain a list of key fuel sector contacts it can call upon for information. It should be able to advise key service providers of an outage with sufficient context that they can determine whether to implement their response plans.

Public officials and the fuel sector face a dilemma, if they inform the public of the risk of a shortage they will trigger stockpiling which is likely to exacerbate the shortage. However misinformation will fill the vacuum left by the absence of information.

KEY FINDINGS:

At present there is no redundancy in marine terminals. The Sydney terminal is too small and too far away to serve as a practical alternative to Imperial's Dartmouth terminal.

A 73 hour RUL outage occurred at Imperial Oil's Dartmouth terminal between 0702hrs on August 28 and 0800hrs on August 31 that caused a cascading short-

age across the Nova Scotia fuel supply system resulting in many service stations on mainland Nova Scotia and in some parts of Cape Breton running out of gasoline.

The outage at Imperial's Dartmouth terminal caused the shortage. The cause of the outage is directly linked to failure on the part of Imperial's suppliers to deliver tankers of gasoline (RUL) on time and "on spec". For two ships to arrive back to back off spec is a highly unusual event and Imperial did not have sufficient reserves on hand to handle it.

Imperial Oil immediately put a mitigation strategy in place when they knew a regularly scheduled delivery would be delayed. That involved putting customers on a 90% allocation and locating two other tankers to deliver at the terminal in Dartmouth.

Even with the delayed tanker, if that tanker (**Hibiscus**) or the **Acadian**, ordered from Europe, had arrived on spec it is very likely the public and key service providers in Nova Scotia would have noticed little or no impact at the pumps.

Imperial Oil has not experienced a three day gasoline outage in the memory of senior people working for the corporation.

Imperial has increased its reserves and delivery tolerances significantly since the outage.

The shortage, though caused by the outage, was exacerbated by an increase in

demand. Demand was driven by an unknown combination of three factors. On Friday August 28th, the first day of the outage, the price of gasoline was below \$1.00/litre for the first time since February 2015. It was the last weekend before school opened and the weather was exceptional. Word of the gas shortage was spreading quickly.

Initially the outage was, correctly, treated as a consumer and public information issue by government. Appropriate people were engaged in the public information effort.

Communication within government was good in respect of the provision of public information and officials correctly identified concerns about the effects of a shortage on key service providers but they lacked overall situational awareness because they were not in direct contact with Imperial's operations personnel.

Communication between Imperial and government was poor. While understandable initially when the outage was thought to be of short duration and little effect, Imperial ought to have immediately informed public officials when it realized that it would not be back in service by 18:00 Saturday. However, officials did not contact Imperial either. Had a communications protocol been in place Imperial would have known to contact EMO and EMO would have known who to contact at Imperial.

As a result of this poor communications public officials had reason to believe re-

supply had been underway since Saturday night. They did not learn otherwise until Energy advised EMO at 17:56 on Sunday evening. The effect was to leave key service providers with inadequate situational awareness over the weekend.

The key service provider and public health and safety services generally managed to cope reasonably well through the shortage, however, had the outage continued they would have had to find alternate sources of fuel and to curtail some functions.

As to the suggestion that provincial legislation should allow the government to take control of the fuel supply in a critical situation the Panel does not recommend this for three reasons:

1. The current legislation appears to be broad enough to enable this now in a state of emergency;
2. Contractual arrangements, such as supply assurance agreements, could accomplish the same ends more flexibly in moderate to serious situations;
3. In extreme situations detailed federal legislation would apply and impose controls including rationing.

The Emergency Management Act is probably sufficiently comprehensive to all public authorities to assume control of the fuel system if a state of emergency has been declared but one or more commercial contracts would allow a well planned and more nuanced response that would not require a declaration of a state of emergency.

The inability to adjust truck drivers' hours hampered resupply.

In general, given the novelty of the situation, people performed well during the outage and useful lessons can be learned. But it points to the need for planning and for improved communications between the fuel sector and public officials involved in emergency management and key services.

RECOMMENDATIONS:

PLANNING

1. Planning for fuel outages and shortages should utilize existing emergency management planning systems, networks, and institutions.
2. EMO should facilitate meetings of key service providers to encourage the exchange of best practices, fuel consumption abatement strategies, planning coordination, and mutual assistance agreements, and fuel supply assurance methods.
3. Each key service provider should develop a contingency plan to ensure they maintain an adequate fuel supply in the event of an extended fuel shortage.
4. That the Government of Nova Scotia should engage the federal authorities in the planning processes to ensure that federal powers and agencies are fully understood by provincial

authorities and fully integrated in provincial and municipal plans.

5. Planners need to pay particular attention to diesel outage scenarios because diesel dependent public services were not tested by this outage.

COMMUNICATION

6. The Government of Nova Scotia should designate EMO as the appropriate point of contact for the fuel sector when a fuel outage or shortage is anticipated or is occurring.
7. The Government of Nova Scotia should work with the fuel industry to formalize a notification system that ensures that the industry will alert EMO if a fuel shortage/outage is anticipated and maintain contact until the shortage has passed.
8. EMO should immediately notify key service providers of interruptions in the fuel supply system, for a period that could impair delivery of a key service.
9. EMO and key service providers should develop a protocol, including one or more scenarios, to guide EMO on when it should notify key service providers of an anticipated fuel shortage so they can determine if and when to activate their fuel contingency plans.
10. In the event of a fuel shortage that could impair key service delivery, EMO should act as the information conduit for all key service providers and the

fuel sector.

11. EMO should maintain a list of trusted personnel in key positions in the fuel and public sectors who can exchange information about an actual or anticipated fuel shortage confidentially and confidentially.

INDUSTRY

12. That the operators of the major marine terminals in the Maritime Provinces stock the common additives for treating fuel that arrives off spec or develop mutual aid agreements to stock complimentary supplies of common additives or develop a process to obtain them expeditiously.
13. The operator of a terminal or bulk station should develop a plan so that, when the supply of fuel is limited or, following an outage, resupply is underway, the operator shall give first priority to tanker trucks fulfilling a supply assurance contract with one or more key service providers.
14. Following the designation of EMO as the contact point within Government, the operators of terminals should advise EMO of all interruptions in fuel supply in order that EMO can make a determination of whether that interruption could impact Key service providers.
15. Given the importance of good communication, and sharing of information and contextual knowledge,

EMO should identify critical companies in the fuel sector and those companies should appoint one or more knowledgeable, operational staff members to function as Departmental Emergency Planning Officers and attend, as required, at the Joint Operations Centre in the event of a fuel related emergency.

SUPPLIES

16. The Government of Nova Scotia should inventory all functioning public sector fuel storage facilities in the Province, regardless of which level of government owns them, and should invite New Brunswick and Prince Edward Island to do the same and share the results.⁵²

17. The Government of Nova Scotia should consider if a network of public sector storage facilities can be utilized as a supply assurance program or ‘virtual’ reserve, particularly regarding diesel. This may be extended to include one or more mutual aid agreements with other governments.

18. That the Government of Nova Scotia should consider developing a request for proposals for supply assurance contracts for key service providers. The contract could include requirements to

- a. maintain fuel minimum reserves for key service providers in strategic locations, such as service stations and government bulk facilities, and

- b. a procedure for resupply of the designated locations as a first priority as fuel becomes available.

19. Industry and key service providers should develop simple processes that dealers can deploy to signify priority access to designated key service providers either pursuant to a contract or voluntarily, and it should include measures to support those dealers and ensure their safety.

20. The Government of Nova Scotia should develop a communications strategy, to inform the public of priority measures that will be taken during a fuel shortage and invite their cooperation and forbearance.

21. The Department of Transportation and Infrastructure Renewal should review the Commercial Vehicle Drivers’ Hours of Operation Regulations under the Motor Vehicle Act to determine if the regulations should be amended to allow the Director to issue a special permit (possibly after conferring with the head of EMO) to extend drive time or reduce rest time in the event of an emergency.

CONCLUSION

The fuel outage in August did not become an emergency but it had that potential and it is a wakeup call.

It did not threaten lives or property like the Nova Scotia weather emergencies

⁵² This inventory may already exist as part of the procurement process.

we are all too familiar with. It meant inconvenience for most and anxiety for many but it passed without impairing public services. That was largely because it affected only gas not diesel and lasted only three days, over a summer weekend. Public health and safety services coped and the fuel sector stretched and adapted in various ways so there was always fuel somewhere in the Province. However they were all reaching the limits of their resources and creativity by the third day when gas began to flow again at the terminal in Dartmouth.

We learned some important lessons: that fuel outages of 3 or more days are possible; our systems can cope well for about 3 days in good weather but, without specific planning, not much longer; emergencies are not confined to disruption of public services, a dialysis patient whose car is out of gas faces an emergency, as does the parent of a sick or injured child; and that, as private individuals and public systems run out of fuel, demand will increase for emergency services because the last stage in many continuity plans is “dial 911”.

So it is continuity of public health and safety services – particularly key service providers – that must be the priority in planning because we depend on them to come to the rescue when all else fails.

As unlikely as a 3 day outage was, as a result of measures initiated since August, it is even less likely now. But the fuel system has been taken for granted and – given our dependence on fuel, the length

of our supply chain, and the consequences of a prolonged fuel shortage regardless of cause – we need to better integrate fuel disruption into our all hazards emergency management plans.

The fuel sector is such a specialized and complex web that government needs to rely on the sector’s expertise and infrastructure but the sector needs a reliable public interest context set by government to provide guidance on priorities and needs.

For a first effort, out of the blue, the outage was not badly handled, but the next one needs to be systematically handled. That the inconvenience of 3 days did not turn into an emergency was the result of a lot of extra effort and creative, ad hoc activities that furnish a solid foundation for planning. The Panel found a strong sense among the major fuel suppliers that they have a social obligation to key service providers and critical public services. Competition was set aside. They incurred extra costs to secure and transport fuel.

We can all build on that.

A WORD OF THANKS

We close by thanking all those who provided information and insight for their candor, time, and patience.

Alphonse MacNeil

Doug Keefe

Terms of Reference

Independent Review Panel for Nova Scotia Fuel Shortage

Nova Scotia Emergency Management Office

BACKGROUND

On Sept 2nd 2015, Municipal Affairs Minister Zach Churchill announced an independent review on the fuel supply management system in Nova Scotia in the wake of failures in the gas supply chain at the end of August. This independent review will focus on identifying the reasons for the gas shortage as well as ensuring that the public safety of all Nova Scotians is maintained.

OBJECTIVES

The review will seek to:

- Determine the cause of the fuel shortage.
- Ensure that first responders, telecommunication providers and utility providers are able to deliver services to Nova Scotians without interruption.
- Identify improvements in communication with industry, government and the public to ensure that future risks are mitigated.

Specific activities to be undertaken include:

1. **Public Safety of Nova Scotians as it Relates to Fuel Supply**

- Summarize how the most recent fuel shortage impacted first responders.
- Description of emergency / contingency plans related to fuel shortage for first responders, telecommunication providers and utility providers.
- Identify factors in the system that may lead to a disruption in emergency services and public safety.
- Recommend viable options for improvements.

2. **Fuel Supply Management**

- Provide a complete and comprehensive description of Nova Scotia's fuel supply chain.
- Identify the cause(s) of the gas shortage that occurred at the end of August 2015.
- Identify factor(s) in the system that may lead to a fuel shortage.
- Develop recommendations to address the identified contributing factor(s) of a fuel shortage including communications between industry, government and the public.

REVIEW PANEL

Two review panel members will be appointed to lead the review.

DELIVERABLE AND DELIVERY DATES

Report with recommendations to the Minister of Municipal Affairs in November 2015.

ADMINISTRATIVE SUPPORT

MID-JULY 2015

- Imperial sets delivery window of Aug 17-21 for Alpine Hibiscus

AUGUST 10, 2015

- Hibiscus loading starts

AUGUST 13, 2015

- Imperial advised of specification issue with Hibiscus cargo; supplier will fix

AUGUST 14, 2015

- Imperial IDs alternate supplies: tankers Acadian and New England

AUGUST 20, 2015

- Imperial imposes 90% allocation on terminal customers

AUGUST 21, 2015

- Hibiscus certified "on spec" and sails from Gulf of Mexico
- Acadian sails from Europe – fuel sample sent to Texas for NACE test

AUGUST 24 and 25, 2015

- New England arrives and discharges “bridging cargo”

AUGUST 26, 2015

- Utility & Review Board invokes interrupter to drop price of RUL

AUGUST 27, 2015

- Imperial notifies customers of expected outage by email.

AUGUST 28, 2015

- 07:00 RUL outage begins
- 07:00 Imperial issues ODN to customers ¹
- (Morning) Imperial notifies DM of Energy
- 11:06 Alpine Hibiscus arrives dockside
- 13:49 Service NS contacted EMO re: Chronicle Herald Article re: potential fuel shortage
- 14:45 DM of Municipal Affairs (DMA) briefed about potential fuel shortage.
- 14:56 Notification from CNS (DMA) wholesalers rationing fuel; told ships due Sunday.
- 14:58 Question if Dept. of Energy is verifying status of potential shortage with Industry.
- 15:07 DM DMA asks to be notified if municipalities experience shortage.

¹ Imperial was to issue a total of 7 ODNs to customers during the course of the outage.

- 16:24 Alpine Hibiscus begins discharging cargo.
- (Late afternoon/evening) Acadian cargo fails NACE standard; additive ordered from Montreal.

AUGUST 29, 2015

- 01:00 Acadian moors in Halifax Harbour.
- 05:35 EHS first notice: ambulance pulls up to an Irving pump & finds they are out of fuel. Within a few hours similar issues being reported by a number of Units on pre-shift changes.
- 12:48 Discharge of Hibiscus suspended as tank fills, to allow testing.
- 14:25 Hibiscus Dartmouth sample off spec: silver corrosion.
- 14:43 Imperial issues ODN 4 estimates return to supply to 18:00 Saturday.
- 14:45 Test of Hibiscus cargo shows silver corrosion problem; attempt to treat begins.
- 16:30 EHS widespread challenges reported across mainland NS at all Irving stations.
- 17:45 Communications NS (SNS) informs of stations running out of gas in HRM, Shelburne and Cape Breton.
- 17:54 Imperial issues ODN 5 revises the estimated time for return of supply to 14:00 Sunday.
- (Late afternoon) Minister of SNS seeks status of key responders; staff call RCMP and others including TIR.
- 18:27 EHS Ops identifies sporadic reports of fuel shortages throughout the province. No compromise to operations or concern at that time.
- 19:30 Risk Manager at RCMP Operational Communications Center is advised by a representative of Service Nova Scotia that gas is running out across the province.
- 20:11 DM DMA (erroneously) informed that 2 tankers with fuel will be arriving this evening. Resolution of shortage anticipated tomorrow.
- 20:30 EHS having challenges finding reliable fuel supply at many “ traffic route “ suppliers.
- 20:48 Impacts of fuel shortage in the Valley (Kentville, Coldbrook) reported. Municipal REMO communicated with local law enforcement to discuss contingency plans for re-fueling as well as potential for stranded motorists.
- (Evening) Treatment of Hibiscus fuel with available additive fails, Imperial opts for Acadian.
- 23:20 Hibiscus sails to harbour mouth to make way for Acadian.

AUGUST 30, 2015

- 00:15 Acadian docks.
- 07:24 Acadian begins discharging cargo; additive mixed in during discharge.
- 09:40 Department of Health & Wellness reports that EHS is managing the fuel supply for their fleet. No requests for assistance made.
- 09:42 Fuel Shortage raised in EMO duty report. Law enforcement reduces patrols.
- (Morning) Government wide BB network outage disrupts email traffic
- 09:56 Email to health system organizations from H & W Emergency Management identifying the fuel shortage situation throughout the province.

- 13:57 EMO seeking update from Dept. of Energy re: outage
- 14:00 Email from EHS that fuel system is being managed. No other reports or requests received.
- 14:14 Email update to H&W from EHS Operations and request for Initial Ops Planning Group call on Monday Aug 31.
- DHW requests that EMO investigate the expected duration and severity of the fuel shortage
- EMO advised the RCMP that Mike MacDonald of Irving Oil is indicating they can point First Responders to service stations with fuel.

AUGUST 31, 2015

- 08:00 Imperial rack re-opens for RUL
- 08:54 Department of Energy advises DMA DM that fuel distribution trucks are now headed out to refuel bulk fueling stations and retail outlets.
- 09:18 Imperial Oil releases public statement: product being trucked to retail sites.
- 09:20 EMO PIO shares information with CI partners.
- 09:35 EM Bulletin #1 disseminated.
- 10:25 EHS indicates being close to needing EMO assistance if fuel isn't available in the south and western areas of the province. Awaiting a status update at 12:30 from EHS.
- 11:00 Public messaging developed for approval by CNS advisor
- 11:07 DHW send email to EMO re: potential impact to health system: 10 employees not able to get to work and concerns about EHS ability to fuel vehicles.
- 11:51 – RCMP and Justice indicate no issues related to fuel shortage.
- (Afternoon) Situational awareness solicited from CI partners included Imperial Terminal and Seaboard distribution
- 13:26 – DMA CNS advisors requests information re: Emergency Management Act for briefing with Minister of Business.
- 13:56 – EMO seeks status update from EHS
- 14:00 - Briefed EMO counsel
- 14:07 – EMO contacts EHS for status update
- 14:30 – EHS replies to EMO
- RCMP Criminal Operations Officer sends out an email to all detachments to request all cars be fueled if possible and to contact EMO if having trouble finding fuel.
- 15:04 – A random sample of stations in Bridgewater and Lunenburg by Emergency Management Planning Officer (EMPO) reports 5 of 9 stations with gasoline.
- 15:23 – EHS indicates that Operations continues to work on an afternoon assessment at the provincial level – no known delays to 911 calls. Losing significant unit availability in rural areas as units are redirected several communities away to obtain fuel. EHS is attempting to contact Irving to discuss options (contractual agreement with Irving for fuel).
- 15:30 EMO DM briefing
- EM Bulletins with SITREP distributed at end of business day

- 15:45 – Ops Call with EMPOs, EHS, DHW, Energy, and CNS to assess status of fuel shortage and potential impacts on first responders
- 16:06 – EHS advises that fuel availability is still an issue for many areas across the province. Pending deliveries overnight, the situation could improve. No specific ask for overnight.
- 18:45 – EM Bulletin #2 disseminated
- 19:41 – Lunenburg county EMC emails advising of impacts of fuel shortage
- 19:51 – Email from Queens county indicating no impact

SEPTEMBER 1, 2015

- 08:30 – EMO Ops call for situation awareness and assessment of potential impacts
- (Morning) Contacted representative from DCS to inquire about potential impacts to vulnerable populations. None reported
- (Morning) Contacted representative of Imperial Terminal about status of supply
- (All day) Contacted representatives from 3 fuel carriers for current status on supply of re-fueling to retail locations and prioritization
- (Morning) Telephone conversation with Department of Energy to confirm one point of communication with Mr. MacIsaac of Imperial Oil.
- (Afternoon) Contacted EMO counsel re: application of EM Act
- 12:21 – EM Bulletin #3
- 14:30 Ops call with EMPOs, EHS, DWH, Energy, CNS
- 16:20 Email reiterating the heightened concern to EHS Operations and that EHS BCM contingencies are being stretched.

SEPTEMBER 2, 2015

- 03:50 Acadian completes cargo discharge.
- 08:30 EMO Ops call with no issues identified.

IMPERIAL TERMINAL (gas/diesel)

