Short Sea Shipping in Canada
Regulatory and Policy Issues

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EXECUTIVE SUMMARY

Rising truck volume on Canadian highways adds to deteriorating infrastructure, urban gridlock, and adverse environmental implications. Short sea shipping (SSS) is considered an ideal alternative mode choice to alleviate congestion and other problems caused by trucks. Unfortunately, SSS faces serious challenges hindering its development, such as marine policy barriers in Canada and US, and deteriorating port infrastructure.

This paper provides an extensive review of domestic and international marine regulatory policies in the US and Canada to determine how they support the development of short sea shipping in North America. This review focuses on the challenges facing SSS. The paper's conclusions lead to recommendations and a list of actions to be taken by Canadian and US governments separately and or jointly within the NAFTA framework for promoting a commercially viable SSS.

RESUME

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1. INTRODUCTION

Canada is a maritime nation with 2 million lakes and rivers covering 7.6% of the total land which makes it the world's top fresh water system. Also, Canada has access to three oceans, the Pacific, Atlantic, and Arctic. The Great Lakes and St. Lawrence Seaway is the world's longest inland waterway system. Canada's 300 commercial ports and harbors make the country a shipping nation. The 2006, marine freight traffic was 408.4 million tons, up 2% from 2005. Ferry services carry about 40 million passengers and close to 17 million vehicles in Canada annually. Thus marine transportation is an integral part of the Canada's transport system.

Continuing economic growth caused an increase in truck-based freight in Canada and to/from US. In 2006, the exports from Canada shipped by trucks were 50.7% of the country's total exports. Imports from the United States shipped by trucks were about 77% of the total imports. In 2008, trucking accounted for 54% of the value of trade with the USA, while marine was at 6%. By volume, marine cross border movements are a higher percentage as this freight tends to be high volume, low value bulk commodities. Also more than 75% of Canada/U.S. trade (by value) carried by trucks took place at six border crossings. With this continued growth in truck freight more attention was given to SSS as a means of reducing dependency on trucks. Trucks caused congestion, pollution and increased road construction and maintenance expenses. On average one sea vessel can replace about 870 trucks or 225 rail cars. SSS can be a mode of choice for moving goods and people with many advantages. Some of these advantages are: (Perakis and Denisis, 2008; Paixao and Marlow, 2002; and Blonk, 1994):

- SSS is considered to be an environmentally safe operation by reducing road congestion, improving road safety, and consuming less energy.
- SSS operations add transportation system capacity by utilizing the underused water capacity.
- SSS operations add accessibility to existing population centers by contributing to the development of coastal communities, and employment.

- SSS fleet can be used for national security purposes when needed.
- SSS encourages continuing regulatory reform reviews.
- SSS creates opportunities for technological advances in the marine sector and port infrastructure improvement.
- SSS reduces the number of trucks on highways saving the infrastructure from expensive maintenance costs.
- SSS encourages cabotage liberalization between countries.

In spite, of these advantages, SSS has been disadvantaged by operational weaknesses including: (Perakis and Denisis, 2008; Paixao and Marlow, 2002; and Blonk 1994):

- SSS makes the concept of just-in-time and door-to-door delivery a challenging one.
- SSS is a multi-modal operation which encounters an extra inventory cost due to double cargo handling (loading/uploading). Shippers tend to prefer a unimodal transport choice over multimodal ones.
- SSS lacks departure/arrival flexibility, which leads to added costs due to the use of expensive infrastructure.
- SSS is influenced by port infrastructure such as the number of berths, quay length, adequate cargo handling equipment, and misuse of handling equipment. The shippers' poor image of SSS comes from such lower service performance.
- Marine cargo has high insurance requirements due to the risk factors on large cargo quantities.
- SSS lacks statistics data, and documentation to strengthen its viability.

Moreover, short sea shipping in Canada faces serious policy and regulatory challenges. These hinder its promotion and development.

This research paper reviews the literature on state-of-the-art practice of domestic and international marine regulatory policies in US and Canada to determine how they interact in the promotion and development of SSS. The paper then highlights the main challenges and obstacles facing SSS in North America. The conclusions lead to recommendations for actions to be taken in the North American

context to promote SSS as an economically viable and environmental friendly alternative to trucks.

2. LITERATURE REVIEW

Paixao and Marlow (2002) noted that defining short sea shipping is not an easy task, and often the definition varies from one study to another. Therefore, there is no uniform and standardized definition that defines and describes what short sea shipping is. According to Transport Canada (2006) short sea shipping in North American context refers to "a multi-modal concept involving the marine transportation of passengers and goods that does not cross oceans and takes place with and among Canada, the United States, and Mexico". The US Maritime Administration (MARAD) defines short sea shipping as: "… commercial waterborne transportation that does not transit an ocean. It is an alternative form of commercial transportation that utilizes inland and coastal waterways to move commercial freight from major domestic parts to its destination" (MARAD, 2005). In general, short sea shipping refers to "the movement of cargo and passengers by water along coast lines, to and from nearby islands, or within lakes and rivers systems, but without crossing an ocean" (Materials Management and Distribution, 2003). It is mainly domestic shipping over relatively, short distances, but can also be cross border (e.g. Canada-US). Simply, SSS involves moving people and cargo on water bodies other than oceans.

Paixao and Marlow (2005) examined the competitiveness of SSS in comparison with other modes of transportation in relation to the level of services that SSS provided to customers. The study showed that SSS's low quality of service, and its poor image caused the problems for its promotion. The study suggested that SSS operators should change their attitude and integrate their operation to just-in-time logistics to improve the SSS image. The US Government Accountability Office, GAO (2005) conducted an extensive independent study about SSS and its role in the national transportation system. The report cited numerous benefits from SSS services such as reducing congestion, but also noted obstacles and challenges such as shipper's reluctance to change modes. The I-95

Corridor Coalition is composed of 12 US East Coast State Department of Transportation (DOTs), port authorities, private and public groups. Also, the Coalition includes Canadian affiliated members such as the Province of New Brunswick. Promoting SSS was their main goal in reducing freight traffic congestion on the I-95. A study conducted by Cambridge Systematic (2005) on behalf of the coalition showed a positive attitude towards the SSS in the east coast, which could result in a modal shift.

Brooks et al. (2006) studied the potential of SSS on Atlantic Canada and the North-Eastern Coast of US. The author's investigated the demand for SSS service in the study area. They concluded that four markets along the eastern seaboard appear to have sufficient demand for SSS service. The service was perceived to be reliable by the shippers with concerns about tight delivery windows and transit times. The authors concluded that the government should play an active role in promoting SSS by introducing policy initiatives. The US Harbor Maintenance Tax (HMT), cabotage, and custom clearance were all perceived as obstacles in promoting SSS. The authors suggested that Canada and its NAFTA partners move to introduce a harmonized marine transportation regulatory policy which promotes the SSS.

3. SHORT SEA SHIPPING: STATE-OF-THE-ART

Before introducing SSS state-of-the-art in North America it is worth mentioning the European Union (EU) SSS experiences. The EU showed an interest in exploiting the SSS potential as they are surrounded by seas with highly active shipping and ports sectors. Shipping in Europe is reliable, has tremendous capacity, environmental impact is minimal, and has a very low accident record. Almost, 90% of the EU external freight trade is sea borne. SSS represents 40% of all tonne-kilometers while road transport carriers transported 45%. In 1992, the European Commission (EC) introduced, the Pilot Action for Combined Transport (PACT) program. The (PACT) program which was implemented from 1992-2000 financed 167 projects with a total budget over than €3 million (European Commissions, 2001). The EU's Marco Polo program

superseded the PACT in 2001 and now provides financial assistance for SSS. The EC's 2001 White paper on European transport policy for 2010 introduced the concept of "Motorways of the Sea". The White Paper looked at SSS as a mean of coping with road congestion and constraints on railway infrastructure. It suggested building sea motorways within the framework of the master plan for the Trans-European Transport Network (TEN-T). Motorways of the sea were defined as a limited number of strategic connections between ports aimed at directly shifting freight from road to short sea shipping or a combination of SSS with other modes of transport in which road journeys are as short as possible.

Increasing freight volume coupled with reduced capacity on various freight modes (rail, roadway, and port) caused the US Department of Transportation (USDOT) to explore other options to improve freight volume accessibility. One of the options proposed was waterborne utilizing the approximately 25,000 miles of inland and coastal waterways and channels. The DOT considered SSS a public benefit by reducing traffic congestion in an area with a high concentration of truck freight movement. Therefore, USDOT identified the acceleration of SSS development as one of six high priority freight initiatives. Moreover, USDOT developed a set of federal policies aimed at promoting the marine sector. These policies are included in a proposal entitled SEA-21 initiative. The initiative considers SSS as a central component and increasing investment funds for marine system. Also, the US Maritime Administration (MARAD) has played a role in funding research studies and sponsored conferences in order to understand SSS and its potential benefits to the US transportation system.

Despite the positive environment surrounding the SSS industry the US domestic shipping policy still has two regulatory obstacles facing its promotion. These obstacles also play a role in developing SSS in Canada. The first policy restriction requires all commercial cargo (international or domestic) transported by vessel using US ports to pay a Harbor Maintenance Tax (HMT). This tax, which is assessed at a 0.125 % of the commercial cargo value is not applied on cargo transported by trucks or rail. The HMT is considered to be one of the

policy issues negatively affecting SSS, not only in the US but also in North America. This is due to the fact that some of the SSS is shifted to moving passengers rather than freight. Also, shippers will use other modes such as trucks and railroads to avoid paying the tax. The US cabotage Law is another policy challenge to the promotion of SSS in North America. The US Merchant Marine Act of 1920 is commonly referred to after its sponsor senator Wesley Jones, as the "Jones Act". It is the world's longest surviving protectionist legislation. The Jones Act is a cabotage law which restricts the carriage of American domestic waterborne cargoes or passengers between US ports to US-built, US-flagged and US-crewed (at least 75% are US citizens) vessels. Also, the Act restricts American ship-owners from refurbishing their ships at overseas shipyard. The Jones Act is believed to be part of the US national security system.

The European and American SSS research and programs opened the doors for Canada's interest in exploring and promoting the concept. This interest was clearly revealed in the Transport Canada's policy documents, "Straight Ahead, a Vision of Transportation in Canada." (2003) as follows:
"The exploration of possible opportunities to promote short sea shipping as a means to help alleviate highway congestion and facilitate trade, improve utilization of waterway capacity and reduce greenhouse gas emissions."

Transport Canada (2006) in the "Making Connections" document stated that:
"Transport Canada's ultimate vision to help realize the benefits that short sea transport offers to Canadians, to the shippers of goods and to the various elements of Canada's transportation system, and to do so while respecting the relations of the competitive market place".

Also, the document highlighted SSS operations in various defined regions in Canada, presented challenges facing SSS in Canada, the initiatives undertaken, and a proposed future framework for enhancing an integrated SSS in the national transportation system. The document noted that SSS activities in Canada can be seen coast to coast. On the west coast most of the coastal shipping is deep sea,

while SSS transport is growing slowly. Domestic SSS is active in transporting forest products, gravel, and crushed stones. International coastal shipping is mainly with the US and consists of petroleum products as well as the domestic shipping products.

A Memorandum of Cooperation (MOC, 2003) expressed Transport Canada's commitment to developing a nationally integrated approach to SSS, to work with US and Mexico to promote North American SSS, and to enhance SSS in the areas of policy marketing, trading, and technology. In order to achieve the goal of exploring opportunities to promote SSS, Transport Canada organized a series of eight workshops across Canada.

The Great Lakes and the Seaway Region have about 2% of Canada's domestic marine activity. The region has an active domestic SSS services in moving wheat and agricultural products. Iron is shipped from Quebec North Shore to steel mills in Ontario and US. The potential of ferry services between Canada and US across the lakes is being studied. The Laurentian Region, which consists of Gulf of St. Lawrence and St. Lawrence River east of Montréal has quite active SSS. Domestic shipping consists of iron ore, and salt. A freight ferry service is active between Sept-Iles and Quebec City. Iron ore is also shipped to US steel mills. The Atlantic Canada Region has an active SSS operation dominated by Irving crude oil shipments, which are transferred into small faster vessels for shipments to the US and the rest of the region. Gypsum, in bulk vessels is shipped from Nova Scotia to destinations at the east coast of the US. Finally, in the Arctic Region SSS occurs during the ice-free season and consists of petroleum products from Montreal to the Eastern Arctic and via the Mackenzie River to the Northwest Territories and the Western Arctic.

Despite acknowledging and the presence of SSS as a cost-effective, environmental friendly way of transporting goods and people it faces serious challenges hindering its promotion. These challenges can be identified from the state-of-the-art in both US and Canada as follows:

- Lack of documented data and statistics to support the mode as a viable one.

- Image barrier as SSS viewed by shippers as slow, unreliable, and isolated. This is due to the lack of true SSS intermodal service, which cannot compete with trucks and rail on the concept "just-in-time".
- SSS is susceptible to inclement weather conditions. The weather adds extra operating cost in ice breaking, and winter maintenance.
- Due to security concerns complex documentation and border clearance procedures can cause delays making it difficult to compete with trucks and rail.
- Deteriorating port infrastructure affects cargo handling operations and the time spent on the port.
- The greater carrying capacity of SSS compared to trucks makes its less frequent. This built in market bias works in favor of truck service.
- SSS service is sometimes dependent on seasonal commodities which make it unsteady and less reliable.
- Marine policy barriers in USA and Canada play a negative role in developing and promoting SSS.

4. SSS REGULATORY AND POLICY CONSIDERATIONS

The 1992 North American Free Trade Agreement (NAFTA) created a trilateral trade bloc consisting of US, Canada, and Mexico. Maritime transportation policy issues were never discussed under the agreement. Since then some US and Canada marine shipping policies have affected SSS services in a negative way such as cabotage provisions preventing vessels from carrying domestic cargo and passengers in each other's country. It should be noted that NAFTA paved the way for emphasizing the North American dimension of SSS through the Memorandum of Cooperation (MOC) on short sea shipping which was signed on July, 16 2003 between US DOT and Transport Canada. The two departments agreed to:

- Share knowledge and information on SSS technology.
- Support research and development through exchanging experience.

- Aid in each other's effort to promote SSS.

The MOC was extended to include Mexico shortly after. Unfortunately, the MOC did not open doors for discussing the controversial SSS marine issues in both US and Canada which impacted SSS. The following sections examine both domestic and international marine policies in both countries to see how they hindered the promotion and development of SSS in North America.

4.1 CANADA MARINE ACT (CMA) OF 1998

The CMA led to the commercialization of ports and St. Lawrence Seaway for the purpose of improving the overall efficiency of the port system. The following policy issues in the CMA impacted the SSS operations:

- Conditions imposed by the Crown on Canadian Port Authorities (CPA's) by reducing borrowing levels, disposition of lands, and imposing fees by various levels of governments. This put CPA's at a competitive disadvantage with their competing US ports. Also, this added operational costs presenting a real challenge to the ports deteriorating infrastructure.
- The Coasting Trade Act, which is the Canadian domestic shipping policy restricts domestic shipping to Canadian-flagged, Canadian-owned, Canadian-crewed, and Canadian-built vessels. If the vessel is built abroad a 25% import duty is levied on the full vessel price.
- The Canadian Coast Guard charges user fees on commercial vessels for navigational aids, dredging, and ice breaking.
- The Shipping Conferences Exemption Act (SCEA) 1987, grants an exemption from the Competition Act to shipping lines that belong to shipping conferences. The SCEA protects members and allows them to set shipping prices independent of market demand. Shipping lines that are not members of SCEA (such as SSS vessels) are disadvantaged by subjecting them to the Canadian Competition Act.
- The Canadian Vessels Safety Standards are stringent making Canadian flagged-vessel undesirable when competing against other international vessels.

4.2 US MARINE POLICY

The key regulatory barriers to SSS embedded in the US marine policy are the US cabotage policy governed by the chapter 24 and 27 of the US Merchant Marine Act of 1920 (Jones Act) and the US Harbor Maintenance Tax (HMT). Both policies were discussed above. It is evident that the Jones Act results in higher shipping cost, causing shippers to choose trucks over SSS. Moreover, southbound Canadian vessels will usually operate under capacity due to cabotage restrictions. Also, the Jones Act requires the vessels to be built in a US shipyard, which are not competitively priced. The SSS fleet will encounter an extra operating cost, which will be transferred to the shippers.

The US HMT imposes an extra cost on marine cargo, which will result in the SSS market being lost to trucks. Surprisingly, the US HMT does not apply to passenger vessels so this will limit a possible cost-effect option to run a mixed (passenger/cargo) vessel for SSS operations. Also, the HMT applies to both shallow and deep-sea vessels, which does not make sense as the two different operations vary in most aspects.

4.3 OTHER RELATED ISSUES

US Maritime Advanced Electronic Notification import rule requires the submission of an electronic manifest 24 hours prior to loading at foreign ports. The time required for trucks to arrive for fast carriers is only 30 minutes and 1 hour for non-fast carriers prior to arrival at US border. The 24 hour advance notification requirements works against promoting SSS operations. The Canadian Border Services Agency (CBSA) established a similar program in 2004 entitled “Advance Commercial Information (ACI)”, which is almost similar to the US. Also, marine customer clearances are more complicated than for trucks. These customer clearance complications pose serious concerns to shippers on both sides of the boarder.

Under the (CBSA) cost-recovery program fees are charged for new operations. This implies an extra forced cost on SSS service, impacting its competitiveness. Also, the (CBSA) extended hours of operation at existing facilities are cost-recovered. This will affect efforts to improve services at off-peak operation and optimize utilization of border crossing facilities.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUDING REMARKS

The intent of this research paper has been to highlight on both the-state-of–the-art and the state-of-the-practice of SSS in Canada. In addition, the paper presented an overview of policy and regulatory issues, which hinder the promotion and operation of SSS in North America in general and in Canada in particular. The following conclusions are drawn from the research paper:

- The growing truck-based freight on North American highways has led to traffic congestion, deterioration of highway infrastructure, and environmental concerns. The marine mode is seen as a viable solution.
- There is an opportunity to use SSS as an attractive strategy to mitigate the effects of both pollution and congestion, and increase the efficiency and the capacity of freight cargo from origin to destination.
- SSS in Canada is perceived by Transport Canada as a beneficial operation to all Canadians and to the transportation system.
- SSS in Canada is facing challenges such as lack of data, negative image, seasonal demand, deteriorating port infrastructure, extra fees, and policy barriers.
- SSS has difficulties in how it is defined and classified.
- The European Union (EU) showed early interest in SSS with many successful active initiatives
- SSS in the US was given attention by the USDOT, the US Maritime Administration (MARAD), and transportation stakeholders.

- The Memorandum of Cooperation (MOC) between US, Canada, and Mexico established an agenda for enhancing the SSS in the areas of policy, marketing, trading, and technology.
- Transport Canada provided a list of activities to promote and develop SSS such as workshops, conferences, and website.
- Cabotage regulations in Canada and US create a major obstacle to SSS because they lead to a protectionist policy, hindering the promotion of the SSS. Implementing policy changes is required for the development of truly intermodal fully integrated SSS.
- SSS can offer Canada benefits to the transportation system, the society, the national economy, and the environment.
- SSS can be an efficient, reliable, and environmentally friendly option for relieving highway congestion in Canada.

5.2 RECOMMENDATIONS

The following recommendations outline a list of actions needed to be taken by Canadian and US governments separately and/or jointly within NAFTA framework. The recommended actions from this research paper include:

- The US Jones Act and similar cabotage restrictions in Canada should be removed to ensure a more liberalized SSS regime.
- The US Harbor Maintenance Tax (HMT) should be removed for NAFTA flag countries.
- The Canadian cost-recovery policy should be removed immediately because it is unfair policy and makes it difficult to develop new SSS services. Also, customs is a federal responsibility, which should be provided as a service at no cost.
- The Canadian 25% import duty on foreign-built vessels should be carefully removed. The interests of ship-owners who already paid the amount should be fairly looked at.
- The time requirements for maritime advanced electronic notification should be reduced for NAFTA-flagged countries to be at least similar to truck requirements.
- Cross-border documentation should be more efficient and simple.
- The Canadian Coast Guard should remove user charges for SSS related to navigational aids, dredging, and ice breaking.

- The Canadian government should consider defining SSS feasible routes as a strategic national corridor for Canada making them eligible for federal funding. The SSS strategic routes are the motorways of the sea for North America similar to those in European Union (EU).
- Implement a North American SSS promotion program similar to the one European Union (EU) implemented such as creating short sea focal points and short sea promotion centers.
- Emphasize Canadian SSS initiatives in cross Canada workshops, regional roundtables, promotional websites, research agenda, technological advances, and a National Marine Conferences.

Although, some of the recommended actions are challenging and need more research to identify and mitigate their tangible and intangible impacts, now is the right time to promote SSS as a feasible alternative to freight trucking.

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