

## SHORT SEA DEVELOPMENTS IN EUROPE: LESSONS FOR CANADA

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### **Introduction**

There has been considerable public discussion about short sea shipping as a means of addressing highway congestion and, at the same time, reducing GHG emissions. In spite of this, however, the growth in short sea business activity in Canada has been slow to develop. It is now five years since Canada, Mexico and the U.S. signed a *Memorandum of Co-operation* that many thought would accelerate the adoption of short sea shipping by North American businesses. To date, however, there has been no significant impact in terms of either new service provision or diversion of traffic from truck to ship.

Meanwhile, in Europe, there has been considerably more effort to develop the short sea sector, and substantial investment by the European Commission aimed at promoting the use of short sea shipping and facilitating service development. While the results are still inconclusive as to whether these activities have been successful, there is at least a track record to examine as there is five years worth of promotion program activity to on record. This paper explores the European experience from two perspectives: (1) it looks at both public and private sector investment in new short sea services, and in short sea service design and vessel deployment; and (2) it discusses the regulatory environment and the EU-wide promotion programs put

in place to support this investment from a public policy perspective. The paper will close with conclusions that may be drawn for Canadian public policy developers.

### **The European Market**

In Europe, short sea shipping is well established, both in terms of container feeder, transshipment and regional short sea services as well as more traditional bulk operations. In the North Europe container feeder market, Antwerp, Bremerhaven, Hamburg and Rotterdam all processed more than one million TEUs of feeder traffic in 2006; in the case of Hamburg and Bremerhaven, feeder containers accounted for 43 and 55 percent, respectively, of their total container traffic that year (Dynamar, 2007). Container feeder is even more prevalent in the Mediterranean, where Algeciras, Gioia Tauro, Freeport (Malta) and Port Said topped one million transshipment TEUS and 11 ports had well over 50 percent of traffic as transshipment cargo (Dynamar, 2007).

It has been argued that geography in these two regions favours short sea shipping solutions more so than in North America. For example, the difficulty of transporting cargo from Scandinavia through Russia to markets in Europe has led to the growth of trans-Baltic shipping lanes. In many respects, the Baltic is like the Great Lakes, with a similar climate, relatively small populations on the north and large populations in the south. What is critical, however, is that with ice-breaking the Baltic is open year round while the Great Lakes are not.

More important, however, are three developments: (1) North European companies have developed some unique technical and service solutions that cater to different segments of the short sea market, (2) Europe has implemented a wider area for free trade in shipping services, and (3) the European Commission has instituted programs to encourage short sea shipping development. The next sections discuss each of these developments..

### **European Investment in New Short Sea Services**

The Europeans now have more than five years of experience with funding short sea shipping development under the Marco Polo program umbrella. In our investigation of the programs, the funding decisions were reviewed from their first year, beginning with the 2003 Call for Proposals (CFP) through to the 2008 CFP, which closed April 2008. The 2008 program funded 22 new feeder, short sea and rail intermodal projects including a new, scheduled container service between Rotterdam, Gdansk/Gdynia and Bremerhaven; a new ro-ro service between Santander, Spain and Poole, UK; an upgrade of service between Rome and Barcelona, a new feeder between Antwerp, Rotterdam, Bremerhaven and Riga, Latvia; and a new ro-ro service from Zeebrugge, Belgium and Bilbao, Spain. Each year's budget sets aside the amount of funding for the program and the programs are operated on an annual CFP basis, with the CFP is issued in the fourth quarter of each fiscal year for approval in the first quarter of the following fiscal year. The 2007 to 2013 period has a global budget of EUR450 million of which EUR 59 million has been set aside for the 2008 budget year (EC Call for Proposals 2008).

### **The Marco Polo Program for Short Sea Shipping Promotion**

Of particular importance to understanding the European approach is the concept that the funding for short sea shipping among other Marco Polo programs is driven by the desire to remove trucks from congested freight corridors and address environmental issues. The philosophy is detailed in the mid-term program review of the 2001 EU Transport Policy (Communication from the Commission, 2006), and drives the current 2008 CFP structure. This means that the 'Motorways of the Sea' program, one of the five Marco Polo programs (Table 1), focuses on short sea and related infrastructure (like port infrastructure), but is not the only program that can be used to support short sea development. For example, the Modal Shift program could conceivably support short sea development even though its target is "services" that would remove trucks from the road. This program, however, cannot be used to support ancillary infrastructure investment like ports, which may be funded under the Motorways program.

Most important, the Marco Polo programs are not just about supporting trade corridor development but have a more holistic view of the relationships between transport, energy consumption, GHG emissions, and supply chains. The critical element is to remove trucks from the road, and doing so is seen as not just a transport issue but also one of industrial location and market incentives. Traffic avoidance is an environmental solution.

The five Marco Polo programs focus at an international level within the EU. They do not apply domestically; however, they do offer insights, if the instruments are viewed in the context of what they are intended to achieve.

**Table 1: Goals and Structure of the Five Marco Polo Programs**

A. Modal Shift (from road to a new or existing non-road service)	Aid allocated as subsidy per tonne-km removed from road; cargo-related with a modal shift threshold minimum and a cap on the percentage of costs subsidized and years of subsidy. Ancillary infrastructure investment not supported.
B. Motorways of the Sea (shift from road to short sea)	As for A. above but threshold minimum is half and years of subsidy may be longer. Includes ancillary infrastructure investment.
C. Removal of a structural impediment	The supported action must not distort competition. Has cap on the percentage of costs subsidized but allows a longer subsidy period. The recipient of the aid is required to disseminate its results.
D. Disseminate information on learning	The amount of the subsidy is higher and the duration of the subsidy is shorter. Training is seen as a form of dissemination.
E. Restructuring of production logistics (so as to reduce road usage)	There is a subsidy to take tonne-kms out of the manufacturer's distribution network. Avoidance of road transport is the focus. There are minimum thresholds for traffic removal, and the subsidy rates are similar to A. Both

	ancillary infrastructure and preparatory measures are eligible; duration of subsidy is maximum length of other programs. There is a high traffic reduction threshold to meet.
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Some of the programs are quite specific on what constitutes acceptable service provision. A key consideration is that the funding provided must demonstrate that it will bring about service offerings that meet the market requirements of cargo interests.

Several of the programs require dissemination<sup>1</sup> so that there is shared learning. While the exact wording is not critical, the ability to bring universities, colleges, and community learning centres into the promotion strategy would bode well for improving the effectiveness of any program proposed.

Because two of the program types are new in 2008, it is too soon to determine if they will succeed in gaining the modal shift desired as part of the EU's environmental policy of reducing greenhouse gas emissions. What is clear is that short sea is seen in a more holistic manner than it is in either Canada or the U.S.

### **Vessel Requirements and Service Characteristics**

Regional short sea and feeder services use vessels that are much smaller than those seen in deep-sea intercontinental trades. The sizes of feeder ships vary, but they typically carry less than 1,500 TEUs. Average sizes can range from 510 TEU in the Middle East to 920 TEU in the Indian sub-Continent. In North Europe, the average is 620 TEU for common carriers and 1,060 TEU for dedicated vessels. Typical speeds for a feeder-type vessel are 15.5 knots. It is important to note that the time savings with faster vessels often does not justify the additional fuel costs in this type of service.

Most European feeder operators charter their vessels, which allows for maximum flexibility and effective capacity utilization since

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<sup>1</sup> [http://ec.europa.eu/transport/marcopolo/calls/docs/2008/call08\\_full.pdf](http://ec.europa.eu/transport/marcopolo/calls/docs/2008/call08_full.pdf), page 3.

vessels can easily be downsized or upsized according to market conditions. Where cabotage is not an issue, this is easily done because vessels are “traded” on an open market, and are readily available. In the Canadian context, imported vessels are subject to duty, going through the process of obtaining a coasting trade license, and making vessel modifications to suit Canadian Coast Guard and Transport Canada regulatory requirements. These requirements limit the number of vessels available for use; more important, the costs for duty and vessel modifications cannot be recovered on the international market. In Europe, ships are typically chartered for 3, 6, or 12-month periods and vessels are transferred in and out of specific services according to market conditions and even seasonality. Some well-established operators even charter in new vessels built to their own specifications on this basis, as there are no sunk costs that cannot be recouped on resale. (This would be very difficult in the Canadian context, except for non-cabotage routes such as Halifax-New England, or across the Great Lakes.)

A good example of a short sea ro-ro operator (as opposed to a feeder service) is Finnlines. The company views the two segments (feeder and short sea) as quite distinct, and decided to strategically focus on the short sea ro-ro and ro-pax traffic segment of the market. This is because feeders tend to operate from a transshipment hub and their service patterns are built around the needs of the mother ships while regional short sea services tend to operate on an end-to-end basis with the service pattern derived from the needs of the customers (CPCS Transcom, 2008).

Finnlines, the market leader in the northern Baltic, operates 40 vessels, of which 15 are owned and the others chartered on a long-term basis. The average age of the company’s fleet is 8 years old. In 2007, the company took delivery of five large ro-pax vessels, worth a total of US\$500M. (These 25-knot vessels have capacity for 500 passengers and 4,200 tonnetres (or 4.2 kms) of cargo.) The company’s ro-paxes are owned, while the ro-ros are chartered. The company operates in the Baltic, North Sea and Bay of Biscay. The biggest growth has been seen in the Russian market. Traditionally, they earned most of their revenue on southbound movements of industrial and manufacturing shipments like newsprint from Finland

to the rest of Europe. A downturn in the Finnish and Swedish paper industry has been offset by a surge in Russian consumer spending, fuelled by petroleum exports. Because of congestion in St. Petersburg, however, much of this cargo moves via the Finnish port of Kotka.

The largest European feeder line is Unifeeder, owned by Montagu Private Equity since 2006. It has 40 vessels under 3-5 year charters, ranging in size from 580 to 1,400 TEUs. The business is designed around the hub-and-spoke concept and purpose-built chartered tonnage, which allows for maximum flexibility. In 2007, the company handled 1.5 million TEUs. In the fall of 2008, feeder shipping represented 90% of the company's business and short sea just 10%.

The largest feeder operator in the Mediterranean is United Feeder Services Ltd (UFS). It handled close to 1 million TEUs in 2006, down from a peak of about 1.4 million TEUs in 2004. The company has a fleet of about 55 vessels, 27 chartered and 28 operated jointly with other feeder companies. (Most are 700 TEUs or less, but it also has five ships of more than 1,000 TEUs.)

The last European illustration is the entry of cargo owners into the short sea market. StoraEnso's short sea solution to delivering paper products from Finland to Europe and the UK is the most ambitious project, which was fully implemented by 2007 comprising eight ships and 2,750 specialized Stora Enso Container Unit (SECU) containers fully integrated with mills in both Sweden and Finland. Direct shipping from southern Finland to the UK and Belgium was replaced beginning in 2005 by the hub-and-spoke Northern Europe Transport Supply System (NETSS). In Gothenburg, the cargo is transhipped to Zeebrugge, Belgium and both Tilbury and Immingham, in the UK, on board vessels provided by DFDS Tor Line and Coblefret under long-term charter. The concept was predicated on the SECU, a much larger than standard ISO container with extraordinary tare weights. Overall supply chain savings of 15% have been achieved for the movement of some 16 million tonnes of cargo, combined with a vast improvement in terms of damage claims and overall quality (StoraEnso, 2008).

In the Canadian context, the use of non-standard containers and purpose-built vessels can only be justified by large volumes shipped by a very committed client.

### **What Can Canada Learn from the European Experience?**

Based on the analysis of international and domestic short sea services, a number of key success factors can be identified. These include: 1) the cabotage regime plays a large part in the development of short sea services. For example, Europe has a very open cabotage regime, and enjoys a dynamic short sea sector as a result; 2) most short sea feeder operators charter their vessels rather than own them, to ensure maximum flexibility and ability to respond to market conditions and demand.

Canada's cabotage restrictions and duties on the purchase of non-Canadian vessels significantly increase feeder and regional short sea start-up costs. These are, literally, sunk costs and thus not recoverable in the event the service is unsuccessful. In areas of the world with a thriving short sea sector, operators typically charter, rather than purchase, ships. This provides the ability to change ships to better respond to the market and to limit market entry risk given the implicit lower capital costs. This would be difficult to do under Canada's duty and cabotage regime, as there are few such vessels sailing under Canadian flag. These deterrents provide a solid explanation for the sorry state of the Canadian-flag shipping fleet, a fleet with strong evidence of little incentive to buy replacement vessels (see Table 2). It is not that there is not the opportunity; it is just that the sunk capital costs and inability to be flexible in chartering-in to meet market conditions means established operators have difficulty competing against road or rail interests and little incentive to invest in the fleet. MariNova Consulting Ltd. (2005) found that short sea cannot compete against rail under current conditions.

Not included in this discussion is the pre-cursor to all improvements in the short sea regulatory environment. While in the early 1990s, a number of northern European States (the UK, Denmark, and to a large



extent the Netherlands, Germany and Belgium) had open or mostly open cabotage regimes, the major southern European countries (Greece, Italy, France, Spain and Portugal) had closed regimes. The liberalization of Europe's cabotage policy, with Council Regulation 3577/92, started the process, which was subsequently extended to all European Economic Area countries on 4 October 1997 (Hodgson and Brooks, 2004). This liberalization enlarged the region in which short sea services could operate and gave vessel operators access to longer routes. What we cannot say is whether such enlargement in North America would work, given the current state of the industry and the existing regulatory impediments.

**Table 2. Age and Average Size of the Canadian Flag Fleet**

<b>Canadian Registered Vessels Suitable for Short Sea Operations</b>	<b>N. of Vessels</b>	<b>Avg GRT</b>	<b>Avg Age</b>
<b>East Coast (EC)</b>			
Tankers - (35000 GRT and over)	5	74,460	8.0
Small Tanker (1000 - 34999 GRT) & Tank Barge (EC, GL & St. Lawr.)	17	8,493	20.0
Ferries - EC, St. Lawrence, Great Lakes (roll-on/roll-off)	9	5,565	31.0
Barges - EC, St. Lawrence, Great Lakes (1000 GRT and over)	34	4,518	43.0
Tank Barges - EC, St. Lawrence, GL	2	5,088	24.5
Cargo vessels - EC, St. Lawrence, GL (1000 GRT and over)	79	15,381	38.0
<b>Pacific Coast</b>			
Cargo barges - Pacific (1000 GRT +)	79	1769	31.0
Cargo vessels - Pacific (1000 GRT +)	6	4044	35.0

Note: Contains only those vessels on the Canadian registry (as of September 2008) suitable for short sea operations and of greater than 1000 GRT.

### **What Can Canada Learn from the European Programs?**

The five Marco Polo programs are distributed through a Call for Proposals (CFP) process seeking CFPs from private companies, and,

in the case of learning activities from a broader audience; in other words, they are initiated by the private sector. As well, the EU provides a modal shift calculator (spreadsheet) as part of its supporting documentation for bidders. Both of these elements are excellent ways to seek superior bids, particularly if placed in the context of an aspirational funding program that could be offered by the Government of Canada.

Second, the funding proposal must demonstrate that service offerings will meet the market requirements of cargo interests. If such a program offering were made in Canada in support of short sea, it should meet the same condition. Rather than reinvent the wheel, it would be useful to require testimonial support from potential users of any new service offering as part of an application process.

Third, the five Marco Polo programs also have a built-in geographic bias for addressing congested road corridors and particular short sea regions. In Canada, imposing limits on geographic scope would ensure better governance of the decision process and de-politicize it.

In conclusion, the EU sees modal shift from road as part of a larger restructuring of European demand for freight transport services. Only two of the five programs focus on infrastructure funds that could be drawn from the Build Canada funds. One of these two is focused on proposals from manufacturing enterprises to assist in relocation of production facilities to reduce demand and so the program is as much about 'greening' the transport demand as 'greening' the transport supply. Furthermore, one of the programs is entirely focused on ensuring that industry does not reinvent the wheel by making funds available for dissemination of learning, with this as a feature of three of the remaining four. Such a requirement would be useful from a public taxpayer perspective regarding the use of government funds.

#### **What should a Canadian short sea promotion program look like?**

Brooks, Hodgson and Frost (2006) first mooted the idea of a Canadian Marco Polo-type program based on their study of short sea shipping opportunities between Atlantic Canada and the eastern seaboard of the U.S. and the policy impediments that exist to frustrate

service development. This was followed by two studies, one by Brooks and Trifts (2008) on what would be needed to induce shippers to switch from truck to short sea on the corridor, and another by CPCS Transcom (2008) on the competitive environment for short sea in eastern Canada, which included the requirements of ship operators. These three studies in particular have laid the foundation for any development of a Canadian short sea shipping program, and for the thoughts that appear below.

There are a number of ways that the Government of Canada, and in particular Transport Canada, might seek to support the development of short sea shipping. This section raises a number of possibilities for consideration.

#### *Develop a Financial Support Toolbox*

The financial instruments available to government are far greater than those open to the private sector, as governments are able to offer tax holidays and other tax incentives, financial support programs in return for targeted benefits, duty remission programs, loan guarantees, financial support for business case development, and the like. Clearly, there is a need for further research on the development of the right instrument(s) to achieve the desired goals, but the critical issue is that there be a balance of interests such that the goal of GHG emission reduction as a public benefit is achieved in a way that reduces the risks currently faced by the private sector investing in new services. The risks that need to be addressed are:

- The cargo owner's risk in using an untried new service option over the short-term.
- The new service operator's start-up risk prior to right-sizing his/her fleet for the market demand.

One particularly difficult area to address from a financial perspective is the issue of duty on foreign-built vessels. The existence of duty protects incumbents, many of which have made investments in vessels and have such duty capitalized into their charter or mortgage payments. If these vessels are to be cost-competitive against other modes, the capital cost must be reduced to level the field against new

entrants and other modes. Remission of duty on vessels should be made available to incumbents or tied to a willingness to remain on a route during off-peak periods so as to develop competitive alternatives to land-based transport modes. Such a remission or perhaps even refundable tax-credit program could support right-sizing efforts by shipowners as they try to find the optimal sized asset to deploy on a particular route.

*Infrastructure investment*

Where there is adequate demand for transportation services, but not adequate port facilities to offer the service such support is valuable in this age of tight credit. Recent port investments in BC fall into this category of support.

*Marketing development funding*

Such funding could finance part of the first year marketing expenses of a new service so that the costs of educating the market about the service may be undertaken. A related example would be the financing of promotion costs of a new air service to a previously unserved area as is done by some airports. Such funds would improve the possibility of up-take of the new service by users who might otherwise wait to see if the service develops as expected.

*Support for Short Sea Operators During Ramp Up of Any New Program*

Here the most critical component is protecting market incumbents from foreign shipowners who set up a nominal office in Canada, bring in ships for part of the year under waiver, and operate on a hit-and-run basis. The Single Voyage Permit process in Australia is often abused, and so such an approach does not resolve the problem faced by Canadian ship operators who attempt to provide consistent service throughout less-than-peak demand periods.

Existing operators face onerous Canadian Coast Guard requirements to operate in domestic trades. The capital investment this represents must be recognized in the development of any new program. One alternative could be the adoption of a high quality international

regime, such as that for one of the Scandinavian flag countries, which have very similar operating conditions as well as impeccable safety records.

#### *Education and Training*

It is interesting to note that the Marco Polo program views education, training and dissemination of learning as key elements in short sea shipping promotion. They have financed short sea shipping promotion centres, and make available funding to support this type of activity. The building of a vibrant maritime community through program development at universities, colleges, community colleges, CEGEPs and the Coast Guard College in Sydney are certainly worth contemplating.

#### *Pilot or Demonstration Projects on New Technologies*

Canada currently has a number of new technology development programs that might be made available for the piloting of new vessel technologies in Canada. In fact, this might be an area for further collaboration with our U.S. neighbours as they too seek to develop marine highway initiatives.

#### *Incorporate Social Costs into Modal Pricing*

Finally, the toughest of all options to secure support for: making modes pay their true costs. Trucking does not pay its full cost from a social cost perspective; highways are provided without charge in most cases. As fuel prices rise, short sea becomes more competitive from a cost perspective against truck. García-Menéndez et al. (2004) found that shippers' choice of short sea transport is more sensitive to changes in road transport prices than to changes in sea transport costs, and concluded that modal switching to short sea could be induced by imposing an 'ecotax' on road transport. Carbon taxes and cap and trade schemes have been implemented in Europe as a means of incorporating greater modal equity into the market.

If such an option is not palatable, a fuel subsidy on marine fuels is worth examining. A higher subsidy on low sulphur fuels would address air pollution concerns at the same time.

### **Conclusions**

There are a number of components of the European approach that provide insights for what a Canadian short sea promotion program might look like.

1. Any program should be implemented via a Call for Proposals. It is the private sector that should see the opportunity and develop it.
2. Any program should be a matching dollar program. There is no incentive to get it right without a financial stake in the activity.
3. Many possible operators are unlikely to take the risk of making an investment in a new, risky short sea service under existing conditions. Working with industry to mitigate risks through guarantee programs or mortgage support is worth considering. There needs to be a counterweight to the duty deterrent on vessel replacement. A reduction in duty needs to be of a phased-in nature so as to protect the investment decisions already taken by existing operators. Refundable tax credits could accomplish this for those that stay in the market. This would discourage sniping by foreign owners who set up Canadian operations that offer temporary 'hit and run' operations.
4. More than anything else, port lift costs make hub-and-spoke operations uncompetitive. A program that realigns port costs in support of feeder development will be an important factor in modal switching.
5. Shipper education can overcome inertia and image perception in modal switching. A shipper education program would be a useful addition to the toolbox of support initiatives.

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