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Inside Geopolitics of Energy

- **Canadian Electricity Structure and the Impact on Pricing, Trade and the Environment**
by Pierre-Olivier Pineau

  In his original contribution entitled "Canadian Electricity Structure and the Impact on Pricing, Trade and the Environment", Pierre Pineau systematically applies the modern tools of applied economic theory and simple empirical analyses in order to identify pivotal institutional obstacles that hinder the proper functioning of electricity markets in Canada. Utilizing the so-called price-gap approach—the difference between the market price and the regulated price paid by consumers, Dr. Pineau concludes that market inefficiencies in Canada are gleaned from "over-consumption" of electricity on a per-capita basis with substantial adverse environmental impacts. More concretely, his analysis shows that as a result of existing subsidies and departures from market-based price signals, the total loss for shareholders (subsidy to consumers) is about $10 billion per year, before valuing GHG emissions. Trading electricity under market prices would allow CO_2-equivalent emissions to be reduced by up to 57,000 kilotonnes–which would represent almost a third of the Kyoto reduction effort (from 2005 emission levels).

  From the policy perspective, Dr. Pineau's paper concludes that Canada's fossil fuel resources are managed under a market system that works–if we ignore the absence of an adequate environmental framework to deal with greenhouse gas emissions. Specifically, incentives are mostly absent from Canada's electricity market, with a heavy reliance on inefficient average-cost pricing structures. This regulation maintains electricity prices at a low level and creates market distortions preventing significant economic and environmental gains to be made. First, current shareholders of regulated electricity companies do not obtain the full return on their investment because they accept much lower prices than what the market would bare. Second, these economic losses (taking the form of high electricity consumption in regulated provinces) create the need in other provinces to rely on more fossil fuel to generate electricity. He claims that under a Canadian system where market prices and trade would be used to their full extent, significantly more hydropower could be exported.

- **Forging Stronger Canada-GCC Economic Ties**
by Bessma Momani and Agata Antkiewicz

  In their article entitled "Forging Stronger Canada-GCC Economic Ties", the authors make the claim that in pursuit of forging economic and trade alliances and given the rising importance of the GCC economies in the global energy and financial sectors, the Federal government should pay more attention to further fostering the political, economic and trade ties with the six-member countries of GCC customs union. Applying a combination of institutional, political and economic frameworks, the authors conclude that a free trade agreement with the GCC would be beneficial and would be a welcomed signal for Canadian foreign investment. They make the claim that the challenges in advancing trade in the GCC are mainly political ones. The authors are of the opinion that there is a real need for enhanced political commitment on the part of the Canadian government to help the sustained growth of Canadian business activity in the GCC. Expanding embassy services to include more trade commissioners would similarly be valuable in many more GCC postings. The authors suggest that there is a greater need for personal involvement of senior government members in Canada's trade policy with the GCC. The prime minister, members of Parliament, and even Canadian senators could be useful in opening many doors to lucrative business opportunities that will effectively help Canada's economy grow and prosper, and improve relations between Canada and the GCC generally.

Canadian Electricity Structure and the Impact on Pricing, Trade and the Environment

*by Pierre-Olivier Pineau**

Introduction

A lot has been written on electricity market structure. Much less is discussed on integrating different electricity markets, on the kind of benefits it could bring, and–even more critically–on estimating these benefits. This paper shows that important differences in Canadian electricity markets create distortions that are economically and environmentally harmful. Important indirect subsidies are provided to electricity consumers in many provinces, which leads to inefficient consumption levels–and to missed environmental gains. An estimated total yearly subsidy of $10 billion is indeed offered to consumers in only four provinces (British Columbia, Saskatchewan, Manitoba and Québec), preventing a reduction of up to 57,000 kilotonnes of greenhouse gas (GHG) emissions to happen. Such a reduction represents almost a third of the Kyoto reduction effort required from Canada, based on the 2005 emission level.

The paper first presents the main features of the Canadian electricity sector structure, in terms of ownership, price, capacities and market outcomes. Section 2 provides an estimate of the indirect subsidy that electricity consumers receive in four provinces. This subsidy, if removed, would increase prices and lead to electricity consumption reductions. In hydropower provinces, the electricity made available could be exported and reduce GHG emissions. These steps are covered in Section 3. In Section 4, transmission issues to allow electricity exports are analyzed, and Section 5 identifies the five obstacles preventing a new electricity structure to emerge from the current situation.

The Canadian Electricity Sector Structure

Ownership, Price and Capacities

The Canadian electricity sector structure is characterized by two very strong features: public ownership and decentralization at the provincial level. Decentralization has produced ten different electricity sectors, with independent planning, pricing policies and environmental strategies. Public ownership, dominant in seven out of ten provinces,[1] creates incentives to keep a pricing policy based on costs, especially when costs are low, as is the case in provinces with high hydropower capacity. This is so because governments, although reaping public companies' profits, are under pressure from the electorate and industrial interest groups to sell electricity according to average cost principles, which maintains low and predictable prices. See Pineau (2007) for a detailed overview of the current situation in Canada. For an historical analysis explaining the development of the electricity sector in Canada, see Froschauer (1999).

Low cost electricity from hydropower in British Columbia, Manitoba and Québec results in higher per capita consumption than in other, higher cost, provinces. This can clearly be seen in Figure 1, where per capita consumption (total provincial electricity demand divided by total population) decreases as price increases (residential price is used as a proxy for provincial price level). Of course, many other factors contribute to electricity consumption, such as economic activity (GDP), industrial structure, temporal behaviour patterns and weather (Mazer, 2007). This explains why in Figure 1, despite a clear trend, there are significant variations. Table 1 shows the installed capacity by type of generating units for six of the ten Canadian provinces.[2]

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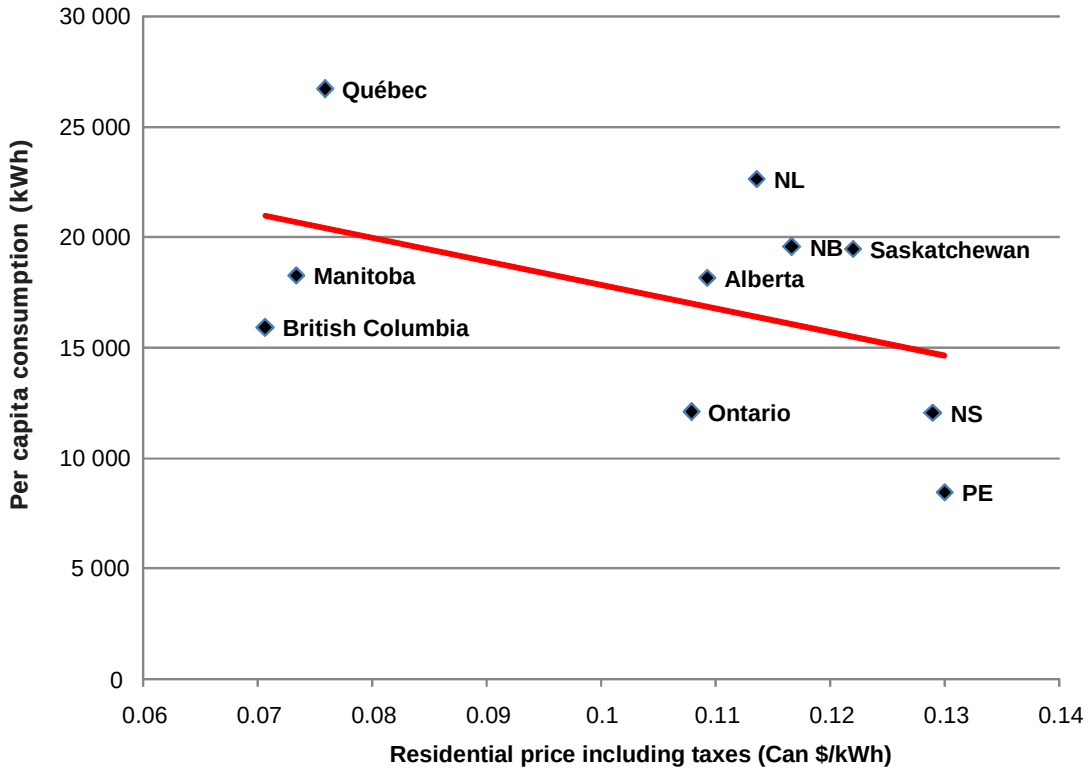
But strong public ownership does not necessarily entail price regulation, as Ontario and, to a lesser extent Alberta, prove. Both provinces have important provincial or municipal government owning electricity companies and an hourly spot market, fixing the electricity market price. All other provinces use a pricing policy based on average cost, including a return on investment, with very little concern for marginal costs (and consequently, for economic efficiency).[3]

Figure 1: Per Capita Electricity Consumption and Price, 2006



SOURCES: Statistics Canada, 2007, and Hydro Québec, 2006.

Table 1: Nameplate Capacity of Existing and Planned Electric Generating Units in Six Provinces, 2005
(MW)

Type of Electric Generating Unit (EGU)	AB	BC	MB	ON	QC	SK	Total
Hydro	815	12,369	5,427	7,627	37,238	849	64,324
Nuclear				12,278	680		12,958
Unscrubbed Coal-Subbituminous	5,225		100				5,325
Oil/Gas Steam	1,048	1,017	132	2,146	600	217	5,160
Unscrubbed Coal-Bituminous	145			5,013			5,158
Cogeneration - Combined Cycle	1,799	240		1,585	550	475	4,649
Combustion Turbine	421	205	269	286	1,004	162	2,348
Unscrubbed Coal-Lignite				525		1,716	2,241
Biomass - Wood and Wood Waste	278	568	23	271	261	63	1,464
Cogeneration - Combustion Turbine	911	110		308			1,329
Combined Cycle	460			580		150	1,190
Unscrubbed Coal (selective catalytic reduction bituminous)				980			980
Coal (selective catalytic reduction and SO2 scrubber)				980			980
Cogeneration - Oil/Gas	155	63		224		21	463
Wind	302			17	102	33	454
Scrubbed Coal	450						450
Combined Cycle	4	29		168			201
Pumped Storage				174			174
Other	27			104	29		160
Total	**12,040**	**14,601**	**5,951**	**33,265**	**40,464**	**3,687**	**110,008**

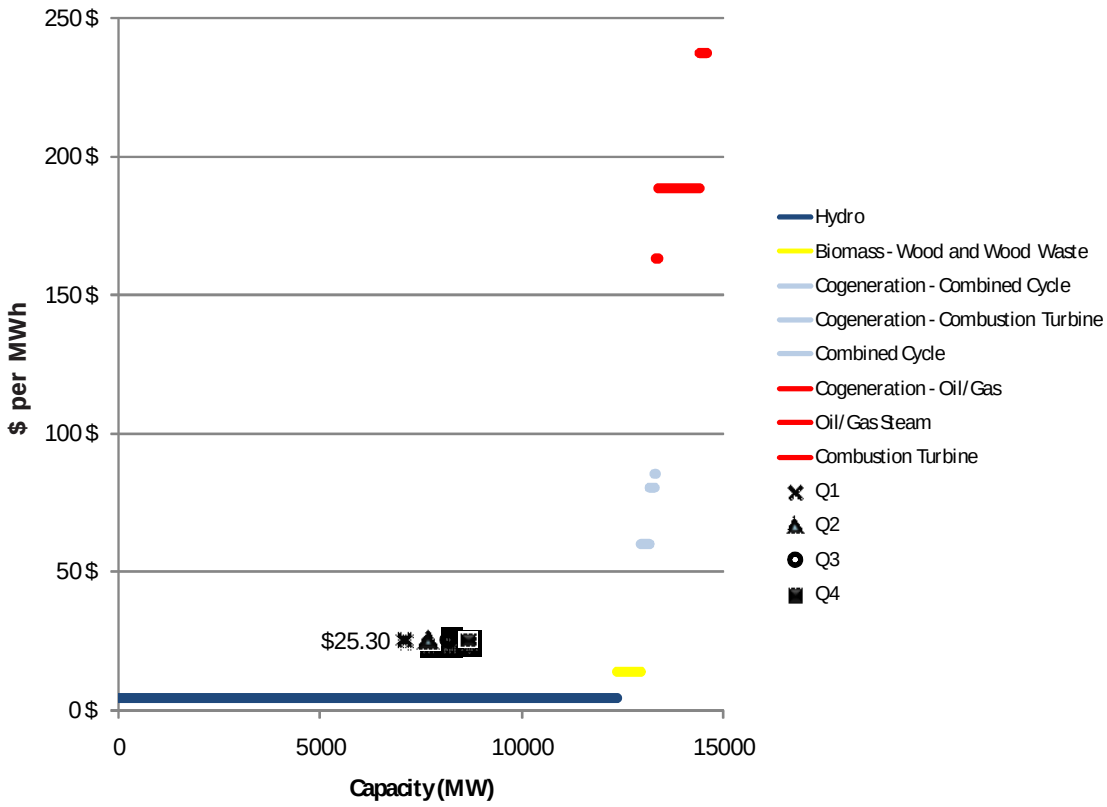
SOURCE: EC, 2005.

Market Outcomes

The different provincial electricity market structures allow very different market outcomes to be observed across Canada, as already seen in Figure 1. This is a unique situation in the energy sector, where, despite some regional differences, gasoline and natural gas prices follow similar trends. In electricity, electric generating units (EGUs) are specific to the province and are mostly dedicated to satisfy provincial electricity demands, because of regulation or lack of trading possibilities.

These very different market outcomes are illustrated in more detail in Figures 2 and 3, displaying the EGUs ordered by increasing marginal production cost in BC and Alberta. The actual market outcomes are displayed for the four "load quartiles". These load quartiles are four demand periods of equal length (one fourth of the year or 2,190 hours) with increasing demand. For each of these quartiles, the average load and average energy price can be obtained (more details on this in Section 2). In BC, the energy price is regulated and is $25.30/MWh.[4] It stays constant for consumers in all quartiles. That is, as the average load quartile increases from 7,073 MW (Q1), to 7,661 (Q2), to 8,159 (Q3) and finally to 8,645 MW (Q4), the energy price remains the same for consumers (see also Table 2 for these average load quartiles). Hydro EGUs can by used to meet demand most of the time, avoiding the use of more expensive EGUs.[5]

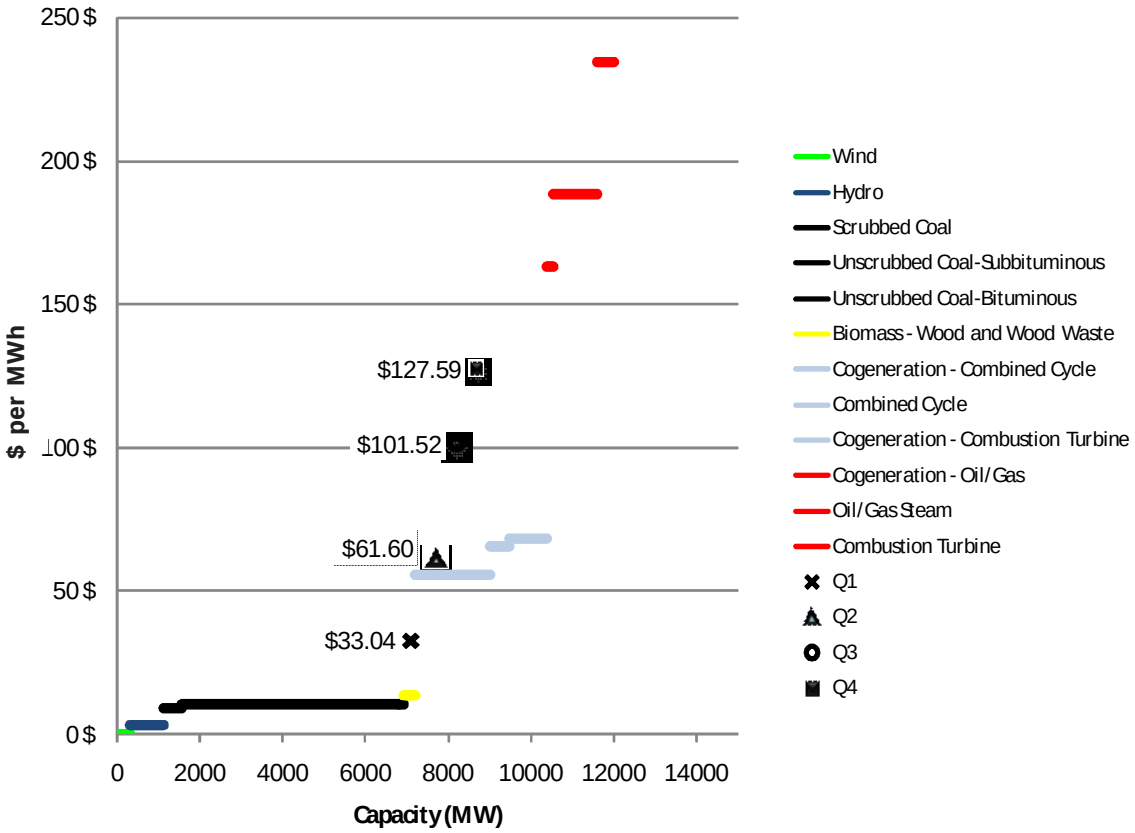
Figure 2: BC Electric Generating Units by Marginal Generation Cost and Demand Data, 2006



SOURCE: EC, 2005.

In Alberta, the market price for energy increases with demand levels: when demand is low (Q1: 7,104 MW on average), the average market price for this quartile is $33.04/MWh (2006 market price, see also Table 2). As demand rises to higher levels, price increases to reflect the higher marginal value of the product. In Q2 (average load of 7,695 MW), the average market price is $61.60/MWh. In Q3 (8,195 MW), the market price is $101.52/MWh, and during the peak quartile (Q4), an average load of 8,683 MW is sold at $127.59 per MW, on average, at each hour.

Figure 3: Alberta Electric Generating Units by Marginal Generation Cost and Demand Data, 2006



SOURCE: EC, 2005.

This situation perfectly illustrates the following economic paradox: while some consumers value a single megawatt-hour at $127, on average, during 2,190 hours in Alberta, BC Hydro is selling energy to its consumers at $25. Of course, at $127/MWh, some expensive EGUs are economic to operate in Alberta, such as natural gas power plants (cogeneration-combined cycle, combined cycle, cogeneration-combustion turbine) and therefore, they produce. Meanwhile, in BC, consumers facing the relatively low energy price of $25/MWh use the plentiful hydropower resources they have, indirectly ignoring the $102 they could make by selling in Alberta instead of using the electricity in BC. This is a very high opportunity cost.

This captures the core of the argument made in this paper:

1. Electricity prices do not reflect the value of the resource across Canada.
2. This situation accounts to a subsidy indirectly given to some consumers (those in low-cost, regulated-price provinces).

3. These low prices result in inefficient consumption levels, preventing "clean" hydropower to be exported to market-based provinces, becoming a substitute to diesel, natural gas and/or coal-fuelled EGUs.
4. With such exports (and adequate transmission capacity), important reductions of GHG could be obtained.

Electricity Subsidies in Canada

A subsidy in the energy sector is defined as "any government action that lowers the cost of energy production, raises the price received by energy producers or lowers the price paid by energy consumers" (UNEP, 2002). Similar definitions can be found in documents of various international institutions, such as the OECD's International Energy Agency (IEA, 2000) or the US Energy Information Administration (EIA, 2000). In many Canadian provinces, price regulation of electricity "lowers the price paid by energy consumers" because the price is based on the average cost rather than on the marginal value of the product. As Figures 2 and 3 show, not only the marginal production cost of electricity rises with quantity, but consumer's value electricity at higher levels during peak periods–they are ready to pay a higher price for it. Consequently, consumers in BC, Saskatchewan, Manitoba and Québec benefit from an indirect subsidy given by their provincial government through regulated, cost-based electricity prices.

Methodological Discussion

To estimate this subsidy, a reference price has to be found. This reference price can be a forecasted market price (with a market model), the price under an alternative technology, the export price or the long-run marginal cost (Banfi et al., 2005). The subsidy is estimated by the difference between the market price and the regulated price paid by consumers. This approach to estimate energy subsidies is also known as the "price-gap approach", used for instance in IEA (2000), EIA (2000), Koplow (2004) and OECD (2005).

Here, the reference prices chosen are the average quartile market prices in Alberta, for BC and Saskatchewan, and the average quartile market prices in Ontario, for Manitoba and Québec. These reference prices are not perfect, but no reference price can be ideal. In particular, these reference prices can over or under-estimate the actual market price that would be observed in the different provinces if market prices were introduced. But as introducing market prices comes with high uncertainty on price levels, there is an inherent uncertainty in the market price level that cannot be avoided. The choice of the Alberta and Ontario market prices is a compromise between using real market prices, alternative technologies and export prices.

In order to find the reference market price for each quartile of the year, the following procedure is followed. The year 2006 is divided in four "load quartiles". The lower quartile groups the 25% lowest loads of the 8,760 hours of the year (these loads are the smallest required capacities to meet demand). The second quartile groups hours that have a load above the 25% lowest but below the median. The third quartile groups those above the median but below the 25% highest. Finally, the fourth quartile groups hours with the top 25% loads. Each quartile contains 2,190 hours (one fourth of the 8,760 hours).

Hourly load and price data are only publicly available for Alberta and Ontario (AESO, 2007 and IESO, 2007). From these data, it is easy to compute the average load and price for each quartile. Table 2 provides this information for Alberta and Table 3 for Ontario. Based on the proportion of the peak load each of these "average quartile loads" represents, average quartile loads are estimated for BC and Saskatchewan (based on the Alberta values) and for Manitoba and Québec (based on Ontario values). The real 2006 peak load data are used when available for each province (when not available, 2004 peak load is used).

Table 2: Peak Demand, Average Quartile Demand and Energy Prices in BC, Alberta and Saskatchewan, 2006

	BC		Alberta		Saskatchewan	
Peak Demand 2004, MW	9,619		8,967		2,800	
Peak Demand 2006, MW	n.a.		9,661		n.a.	
	Average (MW)	Energy Price ($/MWh)	Average (MW)	Energy Price ($/MWh)	Average (MW)	Energy Price ($.MWh)
Q1	7,073.86	25.30	7,104.75	33.04	2,059.14	25.12
Q2	7,661.96	25.30	7,695.41	61.60	2,230.32	25.12
Q3	8,159.76	25.30	8,195.39	101.52	2,375.23	25.12
Q4	8,645.34	25.30	8,683.09	127.59	2,516.58	25.12
Average Energy Cost		25.30		80.90		25.12

SOURCES: NEB, 2004; BCUC, 2003; AESO, 2007; SaskPower, 2007.

The BC price is the "Forecast Heritage Reference Price" (BCUC, 2003). The Alberta price is the average hourly pool price (average System Marginal Price) for the four quartiles (AESO, 2007). The Saskatchewan energy "price" is the average fuel and purchased power costs for 2006 (SaskPower, 2007).

Table 3: Peak Demand, Average Quartile Demand and Energy Prices in Manitoba, Ontario and Quebec, 2006

	Manitoba		Ontario		Quebec	
Peak Demand 2004, MW	3,916		25,000		36,279	
Peak Demand 2006, MW	4,173		27,375		n.a.	
	Average (MW)	Energy Price ($/MWh)	Average (MW)	Energy Price ($/MWh)	Average (MW)	Energy Price ($.MWh)
Q1	2,206.26	16.44	15,422.99	27.89	20,439.48	27.90
Q2	2,534.05	16.44	17,714.40	40.52	23,476.19	27.90
Q3	2,772.49	16.44	19,381.21	50.92	25,685.15	27.90
Q4	3,097.90	16.44	21,656.05	66.21	28,699.90	27.90
Average Energy Cost		16.44		46.38		27.90

SOURCES: NEB, 2004; Manitoba Hydro, 2007; IESO, 2007; Hydro Quebec, 2007.

The Manitoba "price" is the average cost for water rentals and fuel and power purchases (Manitoba Hydro, 2007). The Ontario price is the average Hourly Ontario Energy Price (HOEP) for each quartile (IESO, 2007). The Québec price is the "Heritage Pool" price (Hydro Québec, 2007).

As Tables 2 and 3 show, energy prices are much higher in market-based provinces than in average cost provinces. The Alberta price is also much higher than the Ontario price. A few explanations can be given to explain the Alberta-Ontario differences. First, Ontario has access to more low cost EGUs than Alberta. As shown in Table 1, Ontario has important hydro and nuclear capacities, which allow the province to avoid using expensive EGUs as

often as in Alberta (most of these EGUs are fuelled by natural gas). Second, Ontario is currently more interconnected with its neighbours than Alberta (see Pineau, 2007, for more on this). This allows imports to limit the market price increase when demand is high, compared to a situation where there would be little or no import opportunities, as in Alberta. Finally, Ontario consumers may be more price responsive than Alberta consumers–although no specific empirical justification for such an hypothesis is known to the author.

Results

Using the real average quartile prices of Alberta and Ontario, the difference between these prices and the actual price paid in the four other provinces can be found (BC, Saskatchewan, Manitoba and Québec). Multiplying the consumption in these provinces, for each quartile, by the corresponding price difference, an estimation of the subsidy can be provided for each province. Table 4 shows these estimates.

The subsidy estimates shown in Table 4 simply reflect the amount "saved" by consumers, had they purchased the same amount of electricity at the market price of Alberta or Ontario. The total amount, about 10 billion dollars, indicates that this indirect subsidy (for 2006 only) is large. Two comparison points can be provided: the income of BC Hydro for 2006-07 was almost $4.2 billion (BC Hydro, 2007), and the income of Hydro Québec a little more than $11 billion (Hydro Québec, 2007). These companies would increase their income by 100% and almost 50% under this scenario, with a very large share of the additional revenue simply being profit. In economic terms, these companies would keep the rent that is now distributed to their consumers; see Rothman (2000) for more on rent apportioning.

Table 4: Estimated Subsidy in the Four Regulated Provinces

	Province used for the market reference price (average quartile price)	Approximate number of TWh sold during the four quartiles	Estimated subsidy (millions of dollars)
British Columbia	Alberta	69.07	4,027.49
Saskatchewan	Alberta	20.11	1,175.98
Manitoba	Ontario	23.24	735.83
Quebec	Ontario	215.28	4,350.68
Total		**327.70**	**10,289.99**

If these estimated subsidies are high, they simply reflect the high gap between the marginal value of electricity, as valued in markets, and the production costs on which the price is based in these provinces. To reach economic efficiency, however, there should be no such gap. In a world where consumers in regulated price provinces would face market prices, they would however not buy the same amount of electricity: they would reduce their consumption. The next section explores these consumption reductions.

Impact of Market Price: Power Saving and GHG Reductions

If electric energy in regulated provinces was sold at market price, the final price of electricity for consumers would increase by a significant amount, as illustrated in Table 5. This increase would in turn lead to a consumption decrease, depending on the *price elasticity* of consumers. Espey and Espey (2004) have surveyed a large number of studies estimating the price elasticity of residential electricity consumers, and have found that the average price elasticity is -0.35 in the short-run and -0.85 in the long-run.

Table 5 presents the residential price faced by consumers in 2006 (shown in Figure 1) and the average additional energy cost that would be added to these prices if energy was sold at the reference market prices (Alberta and Ontario). From these two price items, the price increase can be computed, and given some price elasticity levels, consumption decreases can be estimated.

Table 5: Price Increase and Consumption Decrease, According to Possible Elasticity Values

	Residential Price (including transmission, distribution and other costs and taxes) 2006, $/kWh (Hydro Quebec, 2006)	Additional Energy Cost ($/kWh)	Price Increase (%)	Consumption decrease *According to elasticity* (%)	
				Short Run -0.35	Long Run -0.85
BC	0.0707	0.0556	79	-27	-67
AB	0.1093				
SK	0.1220	0.0558	46	-16	-39
MB	0.0734	0.0299	41	-14	-35
ON	0.1079				
QC	0.0759	0.0185	24	-8.5	-21

As we can observe in Table 5, the price increase could be very high in percentage points, or could be relatively small: 24% in the case of Québec. Consumption reductions for electricity, a relatively inelastic product, would be of a much smaller scope, in percentage points. If market prices in Alberta were lower, then the price increase in BC and Saskatchewan would not be as important. One can also notice that the price increase in Manitoba and Québec would not even bring the residential electricity price to the Ontario level ... which is higher due to the different additional charges electricity consumers in Ontario have to pay (i.e. regulatory and debt retirement charges, among other).

Price increases, in percentage points, would of course be smaller for higher voltage consumers (mostly industrial consumers), because they face lower distribution costs. Their consumption reduction would therefore be more modest than the ones listed in Table 5. This is why more limited consumption reduction scenarios are explored from here: one with a 10% consumption reduction, and one with 20%. Table 6 shows these results.

Table 6: Estimated Power Consumption Reduction in Regulated Provinces
(TWh)

Consumption Reduction	British Columbia	Saskatchewan	Manitoba	Quebec
10%	6.91	2.01	2.32	21.52
20%	13.81	4.02	4.65	43.50

These electricity consumption reductions would be available in the export markets. By adding energy to the available supply in export markets, they would “push to the right” more expensive EGUs in supply curves such as the ones displayed in Figures 2 and 3. This means that these more expensive EGUs would be used less often. As these units use diesel, natural gas and coal as fuel, the associated CO_2-equivalent emissions would be avoided. Table 7 estimates how much of these emissions would be avoided if electricity consumption reductions were entirely exported. Only BC, Manitoba and Québec electricity is included here, as they produce almost only hydropower. Saskatchewan does not produce hydropower, so it could not export “clean” energy.[6] Table 7 also presents two possibilities: hydropower replacing natural gas-fuelled EGUs or coal-fuelled EGUs (diesel units have been ignored because they are only exceptionally used in Canada).

Table 7: Kilotonnes of CO_2-Equivalent Reduction from BC, Manitoba and Quebec Exports

	kt of CO_2-Equivalent Emissions per TWh (Hydro Quebec, 2003)	Electricity Consumption Reduction Scenario 10%	20%
If Hydro Replaces Natural Gas	422	12,980	25,960
If Hydro Replaces Coal	941	28,944	57,888

SOURCES: Statistics Canada, 2007; and EC, 2005.

Considering that 747,000 kt of GHG were emitted in 2005 (the latest year for which an inventory has been made, see EC, 2007), with 129,000 from electricity and heat generation, CO_2-equivalent reductions presented in Table 7 are non-negligible. Indeed, from 10% to almost 50% of electricity-related GHG could be avoided by simply introducing market based prices in four regulated provinces, and exporting the "saved" electricity to Alberta and Ontario.

With a Kyoto target of 563,000 kt, these GHG reductions represent between 7.05% and 31.46% of the reduction effort to achieve Kyoto. Indeed, a reduction of 184,000 kt is needed to reach the Kyoto target from the 2005 level, and a very conservative 12,980 (7.05% of the reduction) could be achieved simply by *increasing economic efficiency* through market prices. No carbon tax or tradable permit system are involved in these scenarios. Of course, such carbon tax or cap-and-trade systems would further increase the value of trading electricity across Canada.

Export and Transmission Issues

The export of electricity is only possible if enough interconnections exist between provinces. Table 8 shows that not only do these interconnections exist; they are already used to export *within Canada* between 12% and 69% of the total electricity exports. However, paradoxically, current interconnections to Alberta and Ontario only represent between 10% and 20% of the export capacity of the four provinces discussed here. This reflects the fact that very limited investment has been done to increase provincial trade. To some extent, these limited capacities "protect" high market prices in market-based provinces.

Table 8: Exports from British Columbia, Saskatchewan, Manitoba and Quebec, 2006

	Exports to All Canadian Provinces (TWh; % of total)	Total Exports (TWh)	Interconnection Capacity (MW; % of total)		Total Export Capacity (MW)
BC	1.05 (17%)	6.15	to Alberta	800 (20%)	3,950
SK	1.34 (69%)	1.94	to Alberta	75 (10%)	725
MB	2.19 (12%)	14.47	to Ontario	275 (10%)	2,800
QC	3.56 (23%)	15.28	to Ontario	1,372 (12%)	11,352

If only new transmission lines were built to export the electricity available through consumption reductions (10% reduction scenario), a total investment of less than $8.5 billion would be needed, as shown in Table 9 for the four provinces.

Table 9: Estimated Investment in Transmission Capacity to Export All Energy Saved to Alberta and Ontario

	Distance between "regional centroids", km (EC, 2005)	Additional possible exports under the 10% consumption reduction scenario, TWh (from Table 6)	Required transmission capacity if lines are used at 50%, MW	Estimated construction cost at $1,113/MW/km (EC, 2005)
BC (to AB)	620	6.91	1,577	1,104,878,578
SK (to AB)	543	2.01	459	281,676,619
MB (to ON)	1,155	2.32	531	692,427,775
QC (to ON)	1,155	21.52	4,915	6,414,858,850
Total			**7,482**	**8,493,841,823**

Results in Table 9 are based on standard assumptions made in transmission planning (see also EIA (2002) for similar transmission investment cost estimates). It is interesting to note that the total long-term investment is less than the total single year subsidy given to consumers in the four provinces.

Institutional Obstacles

Even if estimates presented in this paper could change for higher or smaller figures, depending on different assumptions, the economic and environmental gains would remain in all cases (unless transmission costs become extremely prohibitive or new, cheap, technologies become available). It is therefore interesting to try to understand which obstacles prevent the better outcome to be obtained. Five obstacles are identified, most likely in decreasing order of importance.

1. *Electricity is under provincial jurisdictions*. As there is no central leader or coordinator in Canada for electricity markets, no one feels responsible to implement an electricity sector structure that would generate economic and environmental gains in the society.

2. *Consumers in regulated provinces want to keep low prices*. As market prices would prevail in BC, Manitoba and Québec, consumers in these provinces would face price increases. This prospect creates high resistance.

3. *Electricity producers in market-based provinces want to protect their market share*. In Alberta and Ontario, increased trade would directly reduce the market share of current electricity generators, which could only lose in a more integrated market. The irony of this situation is that a Canada-wide competitive electricity market could be blocked by the initial promoters of competition in Canada.

4. *Lack of financial environmental rewards*. No adequate incentive to reduce GHG emissions exists, as no Federal plan creates economic rewards to export electricity from low-emitting power sources.

5. *Possible social opposition to transmission capacity upgrades*. As for any new major investment project, resistance of local groups complicates their implementation.

All of these obstacles could be removed with some political will and/or clever economic mechanisms to convince “losers” to accept change in the electricity sector. For instance, direct lump sum payments to electricity consumers in regulated provinces could be made, so that they could directly cash some of the benefits of the new structure (instead of seeing provincially-owned electricity companies suddenly multiplying their profits).

Conclusion

Canada is becoming a world leader in energy. Its fossil fuel resources are extremely important and managed under a market system that works–if we ignore the absence of an adequate environmental framework to deal with greenhouse gas emissions. In electricity, market incentives are mostly absent, with a heavy reliance on inefficient average-cost pricing structures. This regulation maintains electricity prices at a low level and creates market distortions preventing significant economic and environmental gains to be made. First, current shareholders of regulated electricity companies do not obtain the full return on their investment because they accept much lower prices than what the market would bare. Second, these economic losses (taking the form of high electricity consumption in regulated provinces) create the need in other provinces to rely on more fossil fuel to generate electricity. Indeed, under a Canadian system where market prices and trade would be used to their full extent, significantly more hydropower could be exported.

The estimate provided in this paper for the total loss for shareholders (subsidy to consumers) is about $10 billion per year, before valuing GHG emissions. Trading electricity under market prices would allow CO_2-equivalent emissions to be reduced by up to 57,000 kilotonnes–which would represent almost a third of the Kyoto reduction effort (from 2005 emission levels). Only reasonable transmission investments are involved in these scenarios.

If some important institutional obstacles have been identified, the scope of the benefit is too large to think they are insurmountable. Economic and environmental gains will hopefully be proven once again as strong incentives to induce change.

Endnotes

[1] These provinces are British Columbia, Saskatchewan, Manitoba, Ontario, Québec, New Brunswick and Newfoundland and Labrador. Alberta also has important publicly-owned companies (by municipalities), along with private companies. Nova Scotia and Prince Edward Island are the only two provinces solely relying on investor-owned companies in the electricity sector. See Pineau (2007) for more details.

[2] The Maritime Provinces (Nova Scotia, New Brunswick and Prince Edward Island) and Newfoundland and Labrador are not fully covered in this paper due to scope limitations.

[3] New Brunswick, however, has a bi-lateral contract system, where prices are not regulated and where there is no open hourly spot market (NBSO, 2007).

[4] This is the main forecast of the "heritage reference price" (BCUC, 2003), which serves as the reference energy price to bill electricity consumers in BC.

[5] Capacities shown in Table 1 and Figures 2 and 3 are "nameplate" capacities, not available 100% of the time. At any given moment, some capacity is unavailable, due to water level, maintenance or other technical reasons.

[6] However, if price in Saskatchewan was rising, electricity consumption would decrease and emissions would also decrease. This possible consequence is ignored in the analysis.

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Forging Stronger Canada-GCC Economic Ties

*by Bessma Momani and Agata Antkiewicz**

Canada–Gulf economic relations have clearly not been a top priority for the Canadian government and are never going to be under any reasonable scenario.[1] Still, Canadian business activity in the Gulf Cooperation Council (GCC)[2] has produced very worthwhile benefits to Canada's economy and to our trading partners. This article argues that there are significant potential benefits still to be had in promoting stronger Canada–GCC relations. To enjoy these benefits, however, there is a need for enhanced political engagement in the region, as well as a commitment on the part of the Canadian government to forge stronger economic ties. These formal and informal relationships, accompanied by enhanced strategic governmental contacts and more savvy efforts by Canadian businesses, would likely be rewarded by substantially higher levels of business activity, particularly with the Gulf States.

Canada-GCC Trading Patterns: Room for Improvement

With the Middle East as a whole representing approximately 1 percent of Canada's imports and exports, should Canadian officials be investing time and strategic efforts to furthering economic ties with the GCC? Indeed they should, as the GCC carries the potential of becoming a significant economic partner.

While the GCC might appear to be marginally important to Canada's economy, especially compared to the United States, closer examination reveals that Canada's overall trade with the GCC is perhaps of greater importance than initial assumptions suggest. For example, Canada's exports to the GCC are comparable to Canada's exports to India and greater than exports to Brazil or Russia. Specifically, the GCC ranks as equivalent to Canada's 15th export destination; in comparison, India ranks 14th, Brazil ranks 17th, and Russia ranks 20th (see Table 1). Canada's business community and trade bureaucrats would be remiss to suggest that Brazil, Russia, or India were insignificant trading partners. Moreover, trade with the GCC is growing at a steady, healthy rate. Accordingly, the GCC have been overlooked by Canada's trade officials.

Canada's trade with the GCC — a customs union of six Persian Gulf oil-producing states in the process of creating a common currency — has been on the rise in recent years. Remarkably, Canadian exports to the GCC have risen by 192 percent since 1999 (see Figure 1); in comparison, Canadian exports to China have risen by 188 percent. EDC estimates that Canadian exports to the GCC are expected to double by 2013. Similarly, Canadian imports from the Middle East have increased by more than 300 percent since 1990, mostly as a result of energy imports. Until 1999, Canada had enjoyed a consistent trade surplus with the Middle East, but subsequently Canada's trade deficit with the region has increased more than threefold to $1.5 billion (see Figure 2). Canada's growing trade deficit with the GCC is mainly attributable to rising oil prices.

An examination of the impressive growth in imports and exports to the GCC suggests that Canada should be interested in forging stronger ties to the region. Countries in the GCC are among the fastest growing economies in the world. Over the past ten years, growth rates in the GCC's gross domestic product (GDP) have averaged 4.2 percent per annum. Some GCC countries have shown outstanding GDP growth rates, comparable to China and exceeding India and other emerging market economies (see Table 4). Qatar's GDP, for example, has grown at 9.4 percent per annum over the past 10 years (Metz and Van Ark 2007, 10). The GCC's foreign reserves have also been accumulating significantly over a

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number of years (currently at US$1.6 trillion, compared to China's US$1.3 trillion), mainly due to increases in oil revenues. These petrodollars need to be recycled or spent and Canada can be considered a safe destination for Gulf investments. It is important to highlight that the GCC, especially the GCC as the main economic force in the wider region, has demonstrated that it is indeed an important driver of the global economy. The Middle East's GDP growth rate is double that of the Organization for Economic Co-operation and Development (OECD) member countries and significantly higher than the world average (5.4 percent, 2.5 percent, and 3.2 percent, respectively in 2006) (World Bank 2006, 4).

Canada has a trading presence in the GCC, however, Canada could vastly improve its economic relationship with the region. A comparison of Canada's trade performance with the GCC to other industrialized countries illustrates this point. Canada's exports to the GCC average only 11 percent of those of other OECD members. In other words, for every dollar exported to the GCC by France, Germany, or Italy, for example, Canada exports only 11 cents. In comparison, Canada captures nearly half (46 percent) of the average OECD member's trade with China and India (Lingenfelter, Azzam, and Mann 2005, 1). Thus, while Canada is a strong exporter to China and India, the GCC market is being overlooked.

Another indicative measure of Canadian trade potential in the GCC is to examine Australia's trade activity in the region. Australia has a similar economy to that of Canada (Ciuriak and Kinjo 2005). By way of example, both countries rank similarly in net exports in most product categories, with the exception of transport equipment and wood products where Canada is one of the top five exporters and Australia is a large importer of both (International Trade Centre 2007). Canada also has a clear advantage over Australia in terms of product diversification in fresh and processed food and chemicals (International Trade Centre 2007).[3] However, despite the similarities in export performance and competitiveness, Australia has consistently enjoyed a trade surplus with the GCC, whereas Canada's trade deficit with the region is increasing (see Figure 2). Australia is also negotiating a free trade agreement with the UAE and has been in free trade discussions with the GCC. Plainly, Australia appears to have put more effort into fostering strong trade ties with the GCC. The impression of Canadian government officials formerly stationed in the region is that Australia has made it a formal policy commitment to bring senior government officials into the region and to set up regional trade offices. The payoff has been extraordinary. In the past five years, Australia has increased its exports to the GCC by more than 500 percent (Subcommittee on International Trade, Trade Disputes, and Investment of the Standing Committee on Foreign Affairs and International Trade [SINT] 2005). In absolute terms, Australian exports to the GCC as a whole are almost double that of Canadian exports in recent years (see Tables 2 and 5). Canada, put simply, has a lot of room to grow in its trading relationship with the GCC.

EDC has also highlighted oil and gas, infrastructure, and environment as key sectors for strong Canadian investment and export potential. In this context, it seems that the market access priorities in the GCC as identified by the Department of Foreign Affairs and International Trade Canada (DFAIT) follow domestic developments in various sectors of the economy. In addition, the fact that the oil-rich economies of the GCC are working toward higher economic diversification, using the oil revenues to increase spending on infrastructure, construction, other non-oil industries, real estate, tourism, and finance is another clear sign that Canada needs to look to the region for potential commercial opportunities.

While Canadian energy companies have traditionally established their presence in the GCC and include, to name a few, Nexen, Petro-Canada, and BC Gas, companies from other sectors of the economy are becoming increasingly interested in the region. In aerospace, CAE – a Canadian manufacturer of flight simulators – has invested in a large flight training centre in Dubai; in infrastructure, SNC-Lavalin, Bombardier, and Gartner Lee are also well represented in the region. Canso and Cansult have provided engineering and project management expertise throughout the UAE on multi–million-dollar building initiatives. Canada

is also increasingly active in providing educational services, such as the College of the North Atlantic–Qatar, and health training such as InterHealth and training of Saudi medical doctors in Canada. A number of Canadian retailers also figure prominently in the GCC, including Aldo, CinnZeo, La Vie en Rose, and Second Cup.[4] The GCC stands out as a place where Canadian businesses can grow at remarkable rates.

Making the Case for Enhancing Canada-GCC Economic Ties

Canada has a positive image in the GCC. The importance of image cannot be overestimated. Canadian businesses are well liked by the people of the Gulf, in part owing to the perceived impartiality of Canadian foreign policy in the region and in part owing to the likeability of Canadians. Former parliamentary secretary to the minister of international trade Mark Eyking has even suggested that Canada gained added respect in 2004 for the government's handling of the Iraq crisis (Buchanan 2005). Peter Ventin, vice-president of Cansult — one of the most profitable Canadian engineering firms working in the Gulf — adds that Canadians have "got an incredible reputation ... Doors are open to us because we're a Canadian firm. That may not be the case if you're an American firm or a British firm, especially in light of the recent political environment in that part of the world" (SINT 2005). During the Gulf's unofficial consumer boycott of US and UK goods in the region, a former Canadian trade representative noted that Canada was an unintended benefactor, with many Arab consumers switching to Canadian-made goods (Seguin 2007). Moreover, Canada is favoured in the region because it is seen as having "no preset agenda" and being a country of diversity and compromise and are therefore considered good business partners (Seguin 2007). Yet, as the president of the Canada-Arab Business Council (CABC) noted, there is a longstanding misperception that Canadian businesses do not perform well in the region (Mann 2007).

Canada's business community has often assumed that US and UK businesses perform better in the Middle East, broadly speaking, because of their stronger political and historical ties to the region (Mann 2007). Canadian businesses are often surprised that the GCC has a high income per capita and generally have a misperception that the region is unfriendly to foreign business (Seguin 2007). The CABC president, however, has commented that Gulf businesses noted their preference in dealing with Canadian companies, particularly as opposed to US ones (Mann 2007). Canada, in some respects, has an edge over the United States.

Since 2005, the CABC has brought Canada's potential and growing level of trade with the GCC to the Canadian government's attention in a number of presentations to the Standing Committee on International Trade (CIIT). The Canadian government has also taken increased notice of the GCC market, in part owing to the attention raised by the CABC presentations (Mann 2007). In 2006, the government created a special committee to investigate potential opportunities for enhancing Canadian-GCC linkages. The most significant indication of this heightened interest came when Canada's trade minister David Emerson (2007) noted in a speech to the CABC that negotiations on a free trade agreement with the GCC might be launched. He stated that "bilateral trade agreements in key markets — markets like the GCC and North Africa — will become a major priority for us in the near term." The question becomes, then, if there is clear quantitative economic evidence supporting increased Canada–GCC trade and the GCC is eager for Canadian business, why has Canada underestimated trade with the GCC?

Challenges to Enhancing Canadian Business Interests in the GCC

This article uses 15 interviews with interested business leaders, stakeholders, parliamentarians, and past and present government bureaucrats to synthesize a number of factors that have presented challenges to enhancing business in the region. First, as the US monopolizes Canada's official and business interests, there is a declining interest for much else. A number of interviewees noted that while there is interest in DFAIT and EDC to exploit new markets, trade emphasis is more often placed on the better known emerging market economies called the BRICs: Brazil, Russia, India, and China. In a sense, Canada wears "blinders" when pursuing trade opportunities beyond the BRICs. Dwain Lingenfelter (2005), Chairman and CEO of the Canada-Arab Business Council and Vice President (Government Relations) of Nexen Inc., says that "it's much more difficult to get ministers to lead trade missions to

the GCC than I think it is to India or Brazil or China. At least the record would show that there are many more ministers going to those countries than going to the GCC. And so I think this is just one part of it, but I think we all have to do our part." This sentiment exists despite the EDCs observation, similarly echoed in many interviews, that it is relatively easier to conduct business in the Gulf than in India or China.

Second, part of the difficulty in selling the idea that the GCC is worthy of business and bureaucratic interest is that the GCC population is relatively small (Mann 2007). Business and the bureaucracy are more impressed by and interested in exporting to larger consumer markets, such as India and China. It is simply more impressive to boast that Canada has secured stronger ties with a market of more than 1 billion than to boast ties with a GCC market of 35 million.

Third, there are strong perceived political risks associated with conducting business in the region. Undoubtedly, business has been dissuaded by the news headlines about Iraq, Lebanon, and Israel and Palestine. The CABC has painstakingly reminded Canada's business communities that, apart from a few states, the region is relatively safe. Moreover, the region is relatively transparent and, compared to other emerging market economies, it is relatively "easy to do business" there. That said, some countries in the region make it difficult for business people to travel and visit. Saudi Arabia, for example, has cumbersome visa application processes that make it a challenge for Canadian business people to travel.

Fourth, in conducting business in the GCC, cultural nuances need to be respected. Gulf states can be highly image conscious. Because there is a strong involvement of royal family members in key portfolios in Gulf governments it is important for Canada to send senior ministers to the Gulf states; their trade talk counterparts will often be members of the royal family (Ligenfelter, Azzam, and Mann 2005; Mann 2007). Ambassador Bell emphasizes the importance of this issue in promoting economic ties, saying that "culture values face-to-face contact, but believe me, Arab culture puts a premium on it. We need the Prime Minister there, we need ministers there, and we need MPs [ministers of Parliament] there" (Bell, quoted in SINT 2005). Canadian business people involved in the region have picked up this theme. Paul Mariamo (quoted in CIIT 2007, 4), senior vice-president of SNC-Lavalin, states that "we would love to see our Prime Minister or minister there often, promoting our product. We can fight companies, but we cannot fight governments. We need you to fight the governments for us; we cannot do it ourselves". In other words, Canadian businesses need the political support of Canadian government officials to help promote strong bilateral economic relationships. Sending bureaucrats in lieu of ministers to important trade meetings in the GCC does not help trade negotiations with the region. This is something that the European Union has learned in its trade negotiations with the GCC (Saleh 1999).

Canadian businesses operating in the Gulf have asked for stronger involvement of Canadian MPs, but it seems difficult for MPs and politicians to travel without risking the potential criticism of the media. As Nexen's Lingenfelter (quoted in CIIT 2007, 8) commented, "no one wants to be on what might be determined as a political junket in the media. No one wants to be away when the House has a vote, but believe me, that's not helping us in the international world that we work in." Furthermore, in the current context of a Canadian minority government, it was noted that it has been difficult to arrange ministerial level trade negotiations in the GCC because of the possible call for an election (Mann 2007). Nevertheless, the CIIT's trade mission to the region in June 2007 was a promising step in the right direction.

Fifth, Canadian embassies need to be better represented in the GCC. Canada's embassies serve a vital function in promoting bilateral economic relations. While Canada has embassies in many GCC countries, there are a number of important posts remaining to be filled. Qatar, Oman, Yemen, Bahrain, and Iraq are still waiting for a permanent Canadian mission. A number of these countries have actively sought a Canadian embassy to help foster stronger bilateral trade (Lingenfelter, Azzam, and Mann 2005). According to Lingenfelter,

DFAIT has allocated a fixed budget to manage Canadian embassies and opening an embassy in a new post is rationalized only when there is a closing of another post (CIIT 2007, 11). While this is not effective government policy in any way, some argue that the government has failed to view embassies as investments in Canadian business and economic growth. Instead, it has rationalized embassies as a zero-sum cost (David Hutton, quoted in CIIT 2007, 50). A number of people interviewed for this article noted with frustration the closing of Canadian offices in Osaka and Fukuoka in Japan, Milan in Italy, and St. Petersburg in Russia, which are all key business markets abroad. The overarching problem, however, is the lack of DFAIT capacity in fulfilling competing and rising demands. Moreover, Canadian embassies in the GCC are overwhelmed with offering visa and immigration services, making trade and investment promotion a relatively low priority.

Finally, airline links between Canada and the GCC need to be improved significantly. Business travellers going to the Gulf, for example, must stop in Europe, adding significant costs in time and money. For a number of years, Canada had only three flights per week to the UAE via Brussels; in contrast, Australia had more than 60 flights a week to the country (Hutton, quoted in CIIT 2007, 5). Australian businesses also transit through the UAE to get to Europe, making business contact convenient even if incidental to Australian-European travel. This is an added advantage to Australian businesses. Providing Gulf airlines with enhanced access to Canadian airports via landing rights, called open skies agreements, is a policy decision requiring the attention of the highest levels of government. Canadian businesses may likely start pressuring the Canadian government, as had been the case with businesses dealing with China, to increase air services to the GCC as trade ties continue to strengthen.

In 2005, the UAE's Etihad Airlines started offering three direct flights between the region and Toronto and Emirates Airlines is scheduled to begin flying to Toronto in fall 2007. The Canadian government, however, has tried to protect Air Canada from Gulf competitors that can offer travellers, specifically those going to the Indian subcontinent, an alternate air route. Needless to say, however, business travel made cumbersome and difficult will deter bilateral trade and investment relations, and an integrated approach that considers industry, economic, and safety concerns needs to be considered.

Steps Forward in Strengthening Economic Ties

In April 2007, a *MacLean's* cover article entitled "Land of the Timid ... Home of the Careful" essentially argued that Canadian businesses have an aversion to international branding and risk (Mandel-Campbell 2007). This is far from the truth for those Canadian companies trying to expand business opportunities in the GCC. There are indeed real challenges to enhancing trade with the GCC, particularly when the business community and public at large have a misconstrued image of the region. However, the Canadian government needs to enhance its political commitments to pursuing closer ties with the GCC by initiating an integrated study of the issues that inhibit stronger economic ties.

In February 2007, the Harper government announced that it would make bilateral free trade agreements an important government policy by committing greater financial resources to trade negotiations. However, DFAIT cannot train individuals in complex trade negotiation fast enough to meet the demands of the business community. In June 2007, DFAIT concluded an agreement with the European Free Trade Association (EFTA) countries and is currently in negotiations with South Korea, Singapore, and four Central American states. Trade negotiations with Peru, Colombia, and the Caribbean Community and Common Market (CARICOM) are also on the horizon. DFAIT has argued that an agreement with Japan would be worthwhile as well. Simply put, the possibility of an advanced trade agreement being negotiated with the GCC anytime soon is unlikely. DFAIT has not yet begun a comprehensive exploration process with the region. The unprecedented amount of bilateral free trade negotiations recently undertaken by Canada indicates that the GCC cannot possibly be on the near horizon of the government's trade agenda. Moreover, due to DFAIT's limited

resources and capabilities in negotiating trade agreements, there is a greater need for Canada to pursue a commercial rationale as opposed to a geopolitical one.

If Canadian trade officials are stretched to the limit, what can be done in the short term? For now, Canadian trade officials can negotiate additional foreign investment protection and promotion agreements (FIPAs). It has been suggested that a free trade agreement, for example, can require 30 highly trained DFAIT employees to negotiate and manage at any given time, whereas, a FIPA requires only six, with some cooperation from the Department of Finance. To date, groundwork has been laid for FIPA talks with Kuwait.

Double taxation agreements can also help to promote stronger Canada–GCC business ties without committing a large amount of DFAIT resources. Cooperation on taxation agreements (also known as agreements on the avoidance of double taxation) have been signed with Kuwait, Oman, and the UAE. In addition to formal government-to-government agreements, Canadian agencies have also expressed interest in deepening links to countries in the GCC. EDC, for example, will open a regional office in Abu Dhabi in January 2008. This will be one of 11 regional offices placed in emerging market economies throughout the world. Strengthening EDC office resources in the GCC would also be a useful policy.

Conclusion

Canada–GCC economic relations are an under-appreciated dimension of Canadian trade and foreign policy. A free trade agreement with the GCC would be beneficial and would be a welcomed signal for Canadian foreign investment, but DFAIT's limited capacity makes this proposal less likely in the short term. The challenges noted in advancing trade in the GCC, however, are political ones. Indeed, there is a real need for enhanced political commitment on the part of the Canadian government to help enhance Canadian business activity in the GCC. Expanding embassy services to include more trade commissioners would similarly be valuable in many more GCC postings. Finally, it is clear that there is a greater need for personal involvement of senior government members in Canada's trade policy with the GCC. The prime minister, members of Parliament, and even Canadian senators could be useful in opening many doors to lucrative business opportunities that will effectively help Canada's economy grow and prosper, and improve relations between Canada and the GCC generally.

Endnotes

[1]The authors are grateful to Dan Ciuriak for his suggestions and comments on an earlier draft and to those interviewed in Ottawa, Toronto, and Guelph.

[2]Gulf Cooperation Council (GCC) is comprised of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

[3]***Editor's Note:*** trade surplus depends on several factors in addition to government policies regarding FDI and intervention in the exchange rate. Recently, heated discussions have surfaced about the so-called 'global imbalances where the U.S. runs trade deficits whereas the GCC, China, Russia and the EU run trade surpluses. Among the salient forces for the "current account surplus or deficit" are the race between savings and investments (the Chinese have excess savings), the robust U.S. economic growth and the high and rising oil prices among others.

[4]***Editor's Note:*** La Senza is no longer a Canadian company. They were bought by Victoria Secret.

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TABLES AND FIGURES

Table 1: Canada's Top Export Partners in 2006

	Exports in 2006 (C$ millions)	Rank in 2006	Share of Total Exports (%)
United States	359,258	1	81.6
United Kingdom	10,133	2	2.3
Japan	9,416	3	2.1
China	7,661	4	1.7
Mexico	4,385	5	1.0
India	1,677	14	0.4
Gulf Cooperation Council*	1,613	15	0.4
Brazil	1,338	17	0.3
Russia	870	20	0.2
Total Canadian Exports	**439,500**		

*Gulf Cooperation Council: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.
SOURCE: Adapted from Department of Foreign Affairs and International Trade 2007a.

Table 2: Canada's Exports to the GCC, Selected Years
(C$ millions)

	1995	1997	1999	2001	2003	2005	2006
Bahrain	17.6	10.8	12.6	13.6	17.2	28.1	31.1
Kuwait	64.8	55.4	38.3	62.3	82.3	118.1	90.2
Oman	24.3	14.8	11.6	19.3	49.2	22.7	55.9
Qatar	11.5	16.3	11.2	26.0	36.7	85.7	104.9
Saudi Arabia	521.1	557.7	296.9	339.7	469.0	439.2	543.6
UAE	200.9	260.4	181.1	208.8	343.0	587.7	787.3
Total Exports	262,266.6	298,072.0	355,420.3	404,085.0	381,071.4	436,225.9	439,500.4
Share of Total Exports	0.68%	0.74%	0.48%	0.46%	0.48%	0.61%	0.71%

SOURCE: Department of Foreign Affairs and International Trade.

Table 3: Canada's Imports from the GCC, Selected Years
(C$ millions)

	1995	1997	1999	2001	2003	2005	2006
Bahrain	1.47	2.39	5.10	11.82	11.24	7.61	101.95
Kuwait	0.04	1.97	3.10	18.86	51.33	60.41	63.78
Oman	1.00	0.84	1.59	2.70	7.00	4.66	6.13
Qatar	0.51	37.84	6.11	14.33	7.67	46.14	52.17
Saudi Arabia	501.83	647.78	429.46	800.44	919.28	1,701.35	1,706.15
UAE	5.99	13.65	29.01	72.19	30.22	66.27	93.93
Total Imports	225,552.9	272,946.3	320,408.7	343,110.5	336,141.3	380,809.6	396,442.9
Share of Total Imports	0.41%	0.63%	0.39%	0.75%	0.91%	1.09%	1.21%

SOURCE: Department of Foreign Affairs and International Trade.

Table 4: Gross Domestic Product Growth Rates of the GCC, Brazil, Russia, India, and China

	1995	1998	2001	2004	2005	Average 1995-2005
Gulf Cooperation Council						**4.0**
Bahrain	3.9	4.8	4.6	5.4	6.9	4.9
Kuwait	4.9	3.7	0.7	6.2	8.5	4.4
Oman	5.0	2.6	7.4	3.1	--	3.5
Qatar	--	--	--	20.8	6.1	9.4
Saudi Arabia	0.2	2.8	0.5	5.3	6.6	3.0
United Arab Emirates	7.9	4.3	8.0	9.7	8.5	6.8
Other Economies						
India	7.6	6.0	5.2	8.3	9.2	6.5
China	10.9	7.8	8.3	10.1	10.2	9.3
Brazil	4.2	0.1	1.3	4.9	2.3	2.4
Russia	-4.1	-5.3	5.1	7.1	6.4	3.2

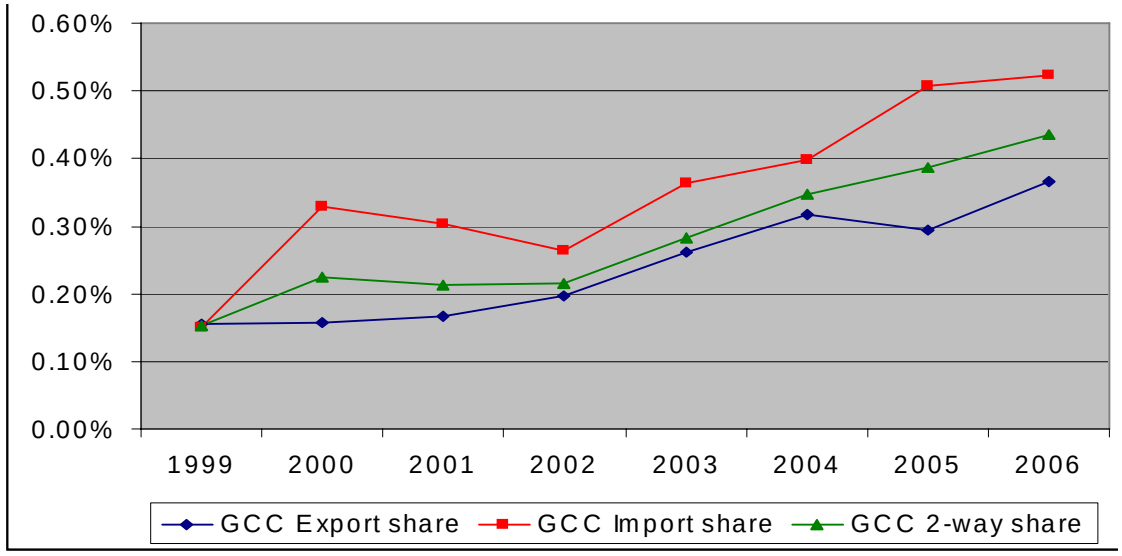
NOTE: Aggregates for the Gulf Cooperation Council are quoted in Metz and Van Ark (2007, Table 1, 10).
SOURCE: World Development Indicators Online, World Bank.

Table 5: Australia's Trade Balance with the GCC*, 2000-2005
(US$ millions)

2000	Import	2,197
	Export	3,221
	Trade Balance	1,024
2001	Import	1,701
	Export	3,986
	Trade Balance	2,285
2002	Import	1,460
	Export	3,825
	Trade Balance	2,365
2003	Import	1,872
	Export	3,333
	Trade Balance	1,460
2004	Import	2,256
	Export	4,375
	Trade Balance	2,119
2005	Import	2,360
	Export	4,109
	Trade Balance	1,749

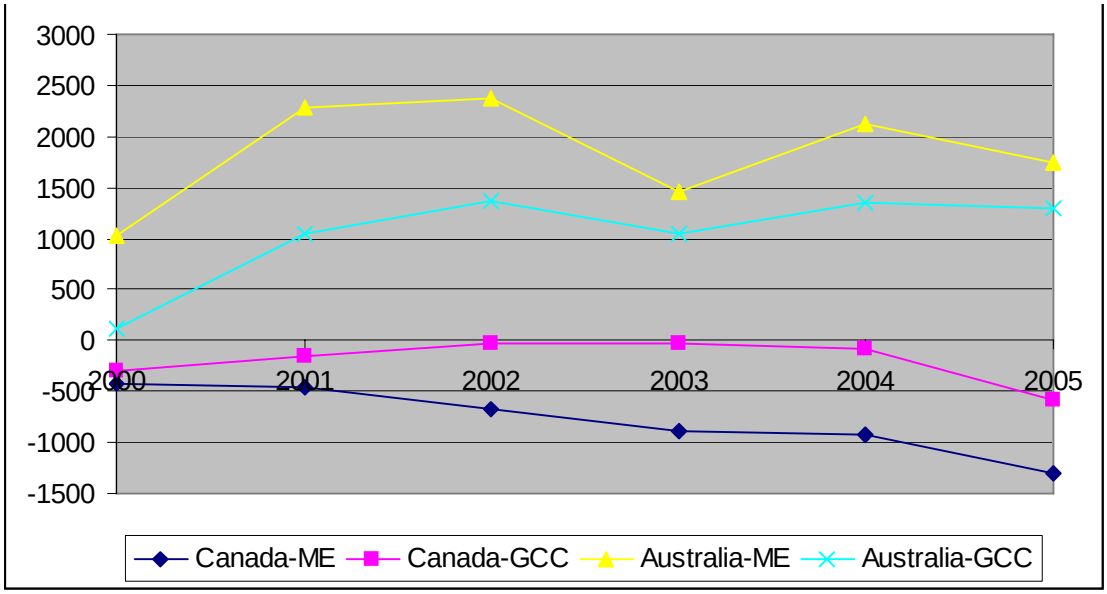
*GCC: Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates, Yemen.
SOURCE: United Nations Commodity Trade Statistics Database (COMTRADE).

Figure 1: Gulf Cooperation Council's Share of Canada's Trade 1999-2006



NOTE: Gulf Cooperation Council (GCC) = Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.
SOURCE: International Trade Canada.

Figure 2: Canada and Australia Trade Balance with Middle East and the Gulf Cooperation Council
($US millions)



NOTES: 1) Gulf Cooperation Council (GCC) = Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates; 2) Middle East (ME) = Egypt, Iran, Iraq, Israel, Jordan, Lebanon, Syria, and Yemen.
SOURCE: United Nations Commodity Trade Statistics Database (COMTRADE).

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