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Moving Toward Canada's "Green" Economy:

**Investing in Public Transit
and Intercity Rail**

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Table of Contents

Executive Summary.....	1
Introduction.....	5
Part 1: The Case for Investments in Public Transit and Intercity Rail	9
It makes economic sense: investing in public transportation creates more jobs.....	10
Taking cars off the road: confronting sprawl, traffic, smog, and bad health.....	13
Public transit and intercity rail is sustainable: tackling climate change	16
Improving democracy, meeting demand: Canadians want efficient public transportation.....	19
Public transit is equitable: building “just” Canadian communities....	21
Catching up with the rest of the world.....	24
The time is now: less reports, more action.....	25
Part 2: An Investment Plan for Canadian Urban Transit and Intercity Rail.....	27
Operations costs: largely covered by municipalities, over-reliance on fares	27
Capital costs: more funding needed.....	30
Federal and provincial funding for capital costs.....	32
Two capital investment scenarios.....	35
Intercity rail: investment plans for high speed trains.....	39
Future possibilities for High Speed Rail (HSR).....	49
How to fund investments in transit and intercity rail: green capitalization policies.....	51
A national investment plan.....	54
Part 3: Benefits of a “Green” Economy – Sustainable Communities and Green Jobs.....	55
Domestic procurement: Canadian manufacturing and technology....	55

A sample of the benefits of transit and intercity rail investment in Canada.....	59
British Columbia.....	59
Alberta.....	60
Manitoba and Saskatchewan.....	61
Ontario.....	61
Québec.....	63
Atlantic Provinces.....	64
Northern Canada.....	65
Part 4: Conclusion – Toward a Green Economy.....	67
A new political economy needed.....	68

Moving Toward Canada's "Green" Economy:
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Executive Summary

The transportation sector in Canada is responsible for 27% of Canada's Greenhouse Gas (GHG) emissions. Just over half of the energy used in this sector is specifically dedicated to transporting people. If Canada is to make the much-needed shift to a green economy, major investments will be needed to enhance our public transit and intercity rail capacity:

- \$53.5 billion are required by Canadian public transit systems over a five-year investment period (2010-2014), specifically for capital costs.
 - Of this figure, 33% (\$17.6 billion) does not fit within existing funding plans, and thus will require funding from federal and provincial governments.

- \$25.7 billion are required to build three key High Speed Rail (HSR) projects.
 - Of this figure, roughly 78% (\$20 billion) would go toward building the Quebec City–Windsor High Speed Rail Corridor;
 - 14% (\$3.7 billion) would go toward a high speed rail link between Calgary and Edmonton; and
 - 8% (\$2 billion) would go toward a high speed link between Vancouver and Seattle.

These investments will meet the expected short-term needs of public transit systems across the country, and enable efficient low impact rail

travel between the nation's most populous urban areas and along its busiest routes. However, a long-term, predictable investment plan, preferably falling under the auspices of a National Public Transportation Strategy, is ultimately required to ensure that intercity and intracity transportation services adequately meet the future needs of Canada's growing population in a sustainable, just, and equitable manner. A 2008 study by HDR Decision Economics,¹ for example, noted that \$71.3 billion (earmarked specifically for capital expenditures) was needed to bring Canada's transit systems up to an "optimal level" of supply and demand. While figures are yet unavailable for 2009 and 2010, it is unlikely that any more than 13% of this sum was invested.² This means that more than \$61.4 billion are likely still needed to optimize transit supply and demand in Canada.

Public transit systems can play a leading role in greening Canada's economy and facilitating the transition to equitable and sustainable communities in areas as diverse as improving public health, creating "green" jobs, lowering household expenses, and decreasing environmental footprints. As explained in this report:

- The use of transit systems reduces Canadian GHG emissions by more than 2.4 million tonnes from a "business-as-usual" approach each year.
- Every \$1 billion invested in public transportation infrastructure in Canada creates between 11,500 and 14,000 jobs.
- In 2007 alone, investments in urban transit saved Canadians \$115 million in related respiratory health costs, \$2.5 billion in traffic collision costs, and \$5 billion in household vehicle operating costs.

- Transit systems contribute some \$10 billion to Canada's economy each year.

Clearly, investments in public transit and intercity rail, especially when paired with good government policies on renewable energy production and domestic supply procurement plans, would continue to offer these benefits to Canadians. In fact, the HDR Decision Economics study mentioned above also notes that by investing enough funds to create an optimal supply of transit over a five-year period, Canada could acquire an economic benefit of \$238.6 billion over the ensuing 25 years (in the areas of affordable mobility, regional and commercial development, and congestion management). An investment of this sort would also generate nearly one million jobs across the country.

While the federal and provincial governments help municipalities pay for capital projects in public transportation, the current level of funding is not enough. Municipalities have borne the brunt of the combined operations and capital costs, despite the fact that all Canadians benefit from improved transit and intercity rail:

- Currently, most operations costs of municipal transit systems in Canada are covered at the municipal level. An average 60% of operating costs are covered through ridership fees; the rest is mostly covered by municipal property taxes.
- In recent years, municipalities have also covered an average of 23% of transit capital costs; provinces have covered an average of 46% of capital costs, and the federal government contributed an average of 26.5%.
- Aside from paying for repeated studies demonstrating the feasibility and practicality of implementing High Speed Rail (HSR) lines in major corridors, "zero" dollars have thus far been spent by

the provinces and the federal government for this important initiative.

By initiating a National Public Transportation Strategy that allocates major funds for these two important transportation initiatives, the federal government — in concert with the provinces and territories — could easily acquire the level of funding required to keep transit and rail public. In addition, tens of billions of dollars could be raised and channelled to public transit and intercity rail projects if the transportation strategy was paired with innovative green capitalization policies, such as a Carbon Pricing Initiative. As noted in a study commissioned by the Pembina Institute and the David Suzuki Foundation, prepared by M.K. Jaccard and Associates Inc., Canada is capable of meeting a 2°C reduction target by 2020 (in line with the Kyoto Protocol) by implementing a carbon pricing plan similar to other industrialized nations. Under their proposed model, carbon would start at \$50 per tonne in 2010, and increase to \$200 per tonne by 2020. New capitalization programs, such as a Carbon Pricing Initiative, would raise much needed funds that could be channelled to important projects that will help Canada build a green economy. In particular, the M.K. Jaccard and Associates Inc. study found that up to \$77 billion could be raised specifically for public transit and intercity rail between the years 2010 and 2020.

Canada is at a crossroads in history; the time to move toward a green economy is now. As this research paper suggests, the shift toward sustainability must include a commitment by the federal and provincial governments to invest tens of billions of dollars, as part of a long-term National Public Transportation Strategy, for urban transit and intercity rail. To optimize the benefits to Canadian communities, such a strategy would be best paired with a Domestic Procurement Plan, a Renewable

Energy Generation Policy, and green capitalization policies, such as a Carbon Pricing Initiative.

Introduction

Canadians will likely see revolutionary changes to the way citizens are transported within and between major urban areas in the coming decades. There are a number of reasons why this is so. First, 99% of the vehicles used to transport people in Canada today run on fuels derived from crude oil,³ a non-renewable resource that will likely be depleted within the next five decades.⁴ Second, because the global demand for petroleum is expected to continue growing far beyond the peak of worldwide production, the price of crude oil is likely to skyrocket, eventually making petroleum-based fuels unaffordable to the average citizen.⁵ Third, all forms of transportation use energy, and in turn, the consumption of energy is the leading cause of greenhouse gas (GHG) emissions.⁶ GHGs are responsible for significant changes to the climate system, and have thus far created a state of extreme vulnerability for many of Earth's ecological systems.⁷

When faced with these grim realities — climate change, declining resources, and a broken economic system which cannot allocate goods in a fair manner — Canadians are faced with a very important decision regarding our future. We can either choose to submit to feelings of resignation, continue to live unsustainably through a “business-as-usual” approach, and stand idly by as things get worse, or we can view our present political, economic, and ecological challenges as an opportunity — an opportunity to make the world a better place, to create hundreds of thousands of environmentally friendly jobs, to build a prosperous, sustainable, “green” economy.

This paper is part of a broader effort to take on the great Canadian challenge of building a green economy. It focuses on the potential benefits that could be brought to Canada through major investments in public transit and intercity rail. By implementing a National Public Transportation Strategy with long-term reliable funding provisions, this country could take a preliminary step toward building a green economy. Two other steps include making public investments in renewable energy production, and implementing a national program for building retrofits and energy conservation. For this reason, the Green Economy Network, an alliance of over 20 of Canada's most prominent civil society organizations, has come together to conduct research, consolidate policy agendas, and prepare campaign proposals in the three main areas of public transportation, renewable energy, and energy conservation. The Green Economy Network is an emerging social movement of labour unions, environmental groups, and social justice organizations brought together in recognition that we Canadians are living at a historical crossroad, where we must choose a path that will lead us to a more sustainable way of living.

As such, this paper builds upon much of the research prepared by member organizations of the Green Economy Network. In particular, it expands upon a working paper produced by Andrew Jackson, Chief Economist and National Director of the Social and Economic Policy Department at the Canadian Labour Congress, titled *Moving to a Green Economy with Good Jobs: Investment in Transit and Passenger Rail*. As Jackson notes, "a major medium- to long-term government investment in public transit would make a significant contribution to reduction of Canada's greenhouse gas emissions, and would also create literally tens of thousands of new jobs."⁸ Meanwhile, Jackson notes, such investments would be recovered as the expected economic returns far outweigh the costs. In addition, the social and environmental benefits of transit and rail investment in Canada make it an ideal option for government

funding. The following pages explore this assertion in more detail, making the case that Canada is in dire need of a national investment strategy for public transit and intercity rail.

The report focuses on two key areas: improving urban transit systems within Canada's major urban areas, and building the country's High Speed Rail (HSR) capacity within key corridors. As reported by the Canadian Urban Transit Association (CUTA), Canadian transit systems expect to pay \$53.5 billion in capital costs between 2010 and 2014, and yet one third of this amount is still outstanding. Similarly, in order to build three key HSR corridors (between Quebec City and Windsor, Calgary and Edmonton, and Vancouver and Seattle), an additional \$25.7 billion will be required — yet no funds have been earmarked for these projects at either the provincial or federal levels.

While the amount of capital required seems daunting, the two levels of expenditures would prove to be very wise investments given the expected financial and community-related benefits. As this report explains, investment in public transit and intercity rail will:

- create green jobs for Canadians, and billions of dollars in economic benefits;
- take cars off the road, alleviating traffic, smog, and respiratory illnesses;
- reduce our nation's unacceptably high carbon footprint;
- help us improve democracy, and enable us to meet the needs of all citizens;
- make transportation a right — affordable, accessible, and equitable for all; and

- enable us to “catch-up” to developments in other industrialized countries.

These benefits will be best achieved if the investments are made as part of a National Public Transportation Strategy, paired with a Domestic Procurement Plan (to ensure that jobs and economic spin-offs remain in Canada), a Renewable Energy Generation Policy (to ensure that the way we power new modes of transportation is sustainable), and green capitalization policies, such as a Carbon Pricing Initiative (to ensure that we raise enough public funds to make the transition to a post-carbon economy).

The decision to usher in an era of sustainability and high quality of life here in Canada is ours to make. Yet if we are to choose the path of a green economy, we need to start now. The shift to a green economy will require major changes to the way Canadians travel from place to place. In short, we will need to enact the right policies and allocate the funding needed to foment a green revolution in Canadian passenger transportation.

Part 1: The Case for Investments in Public Transit and Intercity Rail

This part of the report makes the case for large-scale investments in public transit and intercity rail. In recent years, both federal and provincial/territorial levels of government have increased their funding for urban transit. While this is a positive trend, the investment required to meet growing demand in the near future far outweighs the current and expected level of funding planned. For this reason, many organizations, including the Canadian Urban Transit Association (CUTA), the Federation of Canadian Municipalities (FCM), and the Council of the Federation (COF), have called for a long-term, predictable investment plan upon which transit systems across the country could rely. The Green Economy Network (GEN) has joined in this call.

The main reason why civil society groups across the country are calling for an investment plan falling under a National Public Transportation Strategy is that it is a fundamental component of a just and equitable green economy in Canada. The need to green Canada's economy is urgent. The United Nations Environment Program explains:

A green economy (GE) can be defined as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. A GE is characterized by substantially increased investments in economic sectors that build on and enhance the Earth's natural capital or reduce ecological scarcities and environmental risks. These sectors include renewable energy, low-carbon transport, energy-efficient buildings, clean technologies, improved waste management, improved freshwater provision, sustainable agriculture and forest management, and sustainable fisheries. These investments are driven or supported by national policy reforms and the development of international policy and market infrastructure.⁹

The important point to note here is that building a green economy requires “substantially increased investment,” and further, that such investments are made in areas which reduce environmental risks and ecological scarcities. Investments in low carbon transport, such as intercity efficient rail and public transit, meet these criteria. Ironically, in Canada, transport investments have not been forward-thinking: in the wake of the 2008 global financial crisis, tremendous quantities of government stimulus money went toward highway and road construction as a means to rehabilitate the economy, instead of green infrastructure investments. As part of Canada’s Economic Action Plan, a \$4-billion Infrastructure Stimulus Fund was implemented to help fund provincial/territorial, municipal, and community “shovel-ready” infrastructure projects. Unfortunately, a significant portion of this one-time funding went to highway and road projects instead of public transit and intercity rail infrastructure. There are a number of reasons why investing in public transit and intercity rail is a good idea — a far better idea than investing solely in highway expansions and road improvements. Let us explore these reasons in more detail.

It makes economic sense: investing in public transportation creates more jobs

Governments have long used investment in public transportation as a means to stimulate the economy in times of economic crisis. As explained by the Surface Transportation Policy Project (STPP), this works because the industries associated with transportation — heavy construction, building materials, and durable goods manufacturing — are often the hardest hit by an economic downturn. In addition, spending within the transportation sector permeates into other economic industries, affecting 80% of all job sectors.¹⁰ As a recent report on the economic impacts of transport investment explained, “transit investment reduces the amount of public money that must be spent on everything

from health care to municipal services such as water and wastewater.”¹¹ It is in this way that in 2007 alone investments in urban transit saved Canadians \$115 million in related respiratory health costs, \$2.5 billion in traffic collision costs, and \$5 billion in household vehicle operating costs. When social costs and parking costs are taken into account, transit is actually one third to one half as expensive as automobile use.¹² In addition, Canadian transit systems contribute some \$10 billion to Canada's economy each year. It is for these reasons that investments in public transit are expected to yield enormous economic benefits. A recent study by HDR Decision Economics found that an investment of \$71.3 billion over a five-year period would generate an economic benefit of \$238.6 billion over 30 years.¹³

Planning experts agree that public investment in infrastructure creates jobs. Yet *more* jobs are created by investing in public transportation than in repairing highways, roads, and bridges. For example, one study in the United States found that each 1.25 billion USD invested in public transportation creates 51,285 jobs, whereas similar investments in road and bridge maintenance yields only 47,073 jobs, and the same investment in new roads and bridges only creates 43,206 jobs. In other words, investment in new public transit infrastructure creates 18.7% *more* jobs per dollar invested than road construction, and 9% more jobs per dollar than road maintenance.¹⁴

In Canada, current levels of expenditure in transit *operations* directly employ over 50,000 people, and indirectly creates an additional 24,300 jobs. Further, billions of dollars in *capital* investments made every year create tens of thousands of additional jobs. In the last eight years, over \$10 billion have been invested in capital for transit systems in Canada, leading to the creation of 140,000 jobs.¹⁵

**Additional Economic Benefits of Transit Investment:
Beyond the Numbers**

- by the Canadian Urban Transit Association

The positive impacts of transit investment on vehicle operating costs, collision costs, air pollution, and improved respiratory health alone are valued at \$7.71 billion annually. This figure excludes other important benefits related to travel time, land use effects and improved physical activity... Future evaluations could consider an even wider range of benefits – for example, the economic value generated when transit helps people access jobs, schooling, and services that they could not otherwise reach; the money saved by families when they avoid purchasing a second or third automobile; and the wealth generated when successful transit systems help cities attract investors and visitors.¹⁶

It is impossible to say with exact precision how many jobs would be created as a result of major investments in public transit and intercity rail. However, a number of estimates are available:

- A low estimate by CUTA suggests that each \$1 billion invested in capital in 2007 created 9,266 jobs.¹⁷
- A medium-level estimate by the Federation of Canadian Municipalities puts the job creation figure at 11,900 jobs for each \$1 billion invested in transit.¹⁸
- An upper-end figure is provided by economic analysts at Metropolitan Knowledge International, who calculated in a recent study that each \$1 billion invested in transportation capital spending creates 14,000 jobs.¹⁹

Each of the above estimates predict the number of jobs created as a result of a base level of capital funding in transportation infrastructure. Yet not only does transit investment create jobs — it creates *green* jobs.

Robert Pollin and Jeannette Wicks-Lim refer to “green jobs” as “occupations that will play a central role in building the green economy” — that is, jobs that help society use energy more efficiently, reduce our pollution and GHG emissions, and use renewable sources of power.²⁰ In adding to this definition, David Thompson writes that “green jobs are high quality jobs that are saved or created by policies that will shift our economy toward greater sustainability.”²¹ In short, investment in Canadian transit doesn't just make better economic sense, it makes better green sense.

Representative Green Jobs in Public Transportation²²

Civil Engineers
Rail Track Layers
Electricians
Welders
Metal Fabricators
Engine Assemblers
Bus Drivers
Dispatchers
Locomotive Engineers
Railroad Conductors
Front-Line Transportation Supervisors

Taking cars off the road: confronting sprawl, traffic, smog, and bad health

Unfortunately, as the average commuting distance in Canada grows, and suburban areas expand, cars continue to serve as the method of choice for Canadian commuters. Nevertheless, the proportion of workers choosing public transit has slightly increased in recent years, even as the total amount of car use also continues to rise.²³ As Todd Litman has explained, when governments invest in urban highway projects, the result tends to be continued automobile use and urban sprawl.

Alternatively, when governments invest in public transit and viable transportation alternatives, the result is a reduction in the use of automobiles.²⁴ Amongst transit experts, this observed transit investment-related phenomenon is often referred to as the “vicious circle” in which *underfunding* leads to decreased ridership, lower revenues from fares, and decreased transit supply — all of which, in turn, results in less funding and higher automobile use.²⁵ This is in contrast to the “virtuous circle” of public transit, in which *increased funding* leads to higher transit use, generating more revenues and more investment in system upgrades, and therefore, more people choosing transit over private automobiles.²⁶ In achieving a virtuous circle through public investments in transit, we will simultaneously increase density and limit sprawl.

In the Wake of Urban Sprawl

- by the U.S. Environmental Protection Agency

In its path, sprawl consumes thousands of acres of forests and farmland, woodlands and wetlands. It requires government to spend millions extra to build new schools, streets and water and sewer lines. In its wake, sprawl leaves boarded up houses, vacant storefronts, closed businesses, abandoned and often contaminated industrial sites, and traffic congestion stretching miles from urban centres... As a result, we suffer from increased traffic congestion, longer commutes, increased dependence on fossil fuels, crowded schools, worsening air and water pollution, threatened surface and ground water supplies, lost open space and wetlands, increased flooding, destroyed wildlife habitat, higher taxes, and dying city centres.²⁷

There are many benefits that accrue from reducing the number of automobiles from our roads. Less vehicles means less traffic congestion and less smog. As BC Transit has pointed out, investment in transit reduces infrastructure costs, as less cars on the roads translates into less spending on roadways and parking facilities, traffic control, and enforcement costs.²⁸ Meanwhile, by reducing traffic, investments in

transit help to reduce the costs of congestion and lost time. A study by the Organisation for Economic Co-operation and Development (OECD), for example, found that traffic congestion costs the Toronto economy \$3.3 billion every year.²⁹ By investing in public transit and intercity rail, we take cars off our roads, reducing traffic, smog, and GHG emissions.

Transit helps to build healthier communities by reducing the amount of air pollution, making citizens more active, and reducing road accidents. In Ontario alone, air pollution carries a price tag of \$1 billion, due to the onset of respiratory illness resulting in hospitalizations, emergency room visits, and premature deaths — an incredible cost that could largely be avoided if we had more sustainable methods of transportation.³⁰ As Human Resources and Skills Development Canada (HRSDC) has reported, “although there has been a downward trend in air pollution emissions from the transportation sector since 1990, it continues to be a major emitter of air pollutants, producing nearly three quarters of carbon monoxide emissions, more than half of nitrogen oxide emissions, and more than one quarter of the volatile organic compounds affecting air quality.”³¹ Getting people out of their cars and into more sustainable modes of transportation is essential in reducing our environmental impact on the atmosphere.

Further, public transit use is associated with higher levels of physical activity (relative to automobile use), as passengers often walk or bike to and from transit stations.³² There are also additional benefits to the social and mental health of the community that accrue from the introduction of multi-nodal transportation systems. Studies dating as far back as the 1960s have consistently shown that those who experience difficulty accessing their places of work, education, or health care have a lower quality of life.³³ Access to transportation is thus considered a key indicator of community health and well-being, and as a result, it should be considered a *right* for all Canadians. In short, improving access to

public transit is certain to have positive effects on Canadian communities.

Public transit and intercity rail is sustainable: tackling climate change

Climate change is often spoken of as an abstract concept — a problem that will affect future generations unless we mitigate emissions by a certain amount before trouble “arrives.” The fact is, however, climate change is already here. Yet while changes to our climatic system are a constant reality, there is plenty of evidence suggesting that since the industrial era (and the concurrent rise in the usage of fossil fuels worldwide), humans have dramatically exacerbated and altered these processes. As such, the need to reduce our impact has never been greater. In its most recent comprehensive report, the world’s leading authority on climate science — the Intergovernmental Panel on Climate Change (IPCC) — confirms that “warming of the climate system is unequivocal.”³⁴

The IPCC has provided tools for policymakers so as to ensure that the world’s leaders are aware of the severity of this ongoing issue. Yet despite the worrisome nature of climatic trends, the Canadian Government has failed to take a clear stance on climate change, and failed to make a concerted effort to reduce Canada’s footprint. Rather, Canada has earned a negative international reputation at climate change negotiations, reneged on prior commitments made under international law, watered down plans to reduce nation-wide emissions, and continued a business-as-usual approach by backing large fossil fuel projects, such as the Alberta tar sands.³⁵

Climatic changes have had and will continue to have ecological, social, political, and economic impacts across Canadian communities.³⁶ While a

few may point to some “positive spin-offs” of a warming climate (such as longer growing seasons and higher agricultural productivity), the fact remains that the drawbacks appear to outweigh any indirect benefits, particularly within the economic sphere. As the famed Stern Review on *The Economics of Climate Change* has noted, allowing global warming to go unchecked could eventually result in annual declines of 5% of GDP, now and forever.³⁷

Behind anthropogenic climate change, of course, lies the use of fossil fuels as energy — and here is where the way we transport ourselves and our goods come into play. Between 2008 and 2030, the International Energy Agency expects worldwide demand for crude oil to grow from 85 million barrels per day to 105 million barrels per day. This incredible increase in oil usage is forecast to come almost entirely (97% of the expected growth) from the transport sector.³⁸ In Canada, approximately one third of all energy consumption is used to transport goods and people. Just over half of this energy is specifically used to transport human passengers.³⁹ In other words, *about 17% of all energy used in Canada is a result of human transportation.*

One way to measure the level of human travel is in “passenger kilometres.” Between 1990 and 2006, Canada’s total passenger kilometres (all human transport in the country) increased by 1.8% each year.⁴⁰ The problem is that much of this increase is due to higher rates of air travel and automobile use. As a result, GHG emissions from transportation continue to grow in Canada. Between 1990 and 2008, transportation-related emissions grew by 36.4%, to 198,000 kg CO₂ equivalent. In short, major changes to the way we fuel transportation and move humans and goods in this country can therefore significantly reduce Canada’s GHG emissions. Accordingly, investment in public transportation — and, in particular, forms of transportation that draw upon *renewable energy* — will help us to reduce a large portion of our

national net emissions. In fact, each year, the use of public transit in Canada helps to reduce Canadian GHG emissions by many millions of tonnes from a "business-as-usual" approach. In 2007, for example, transit capital investments to the tune of \$2.5 billion, and operations expenditures totalling \$5.5 billion, are said to be responsible for a 2.4-million-tonne reduction of GHGs that year.⁴¹

Pairing Electric Transport Systems with Renewable Energy Generation

If we take a train or other vehicle powered by electricity, our ecological price tag varies depending on how that electricity was produced. As acclaimed environmentalist George Monbiot has argued, this means that increased use of electric vehicles and trains in public transit will only decrease GHG emissions if powered through renewable energy.⁴² If the electricity we use in our transportation system is produced by firing coal, for example, then those emissions made at the power plant will counteract efforts to confront climate change. In France, HSR lines have played a pivotal role in reducing the country's GHG emissions, but that is because the nation's electricity is mostly generated with nuclear power. In Canada, while nearly 60% of electricity is generated through hydro power, a renewable source of energy with low GHG emissions, many regions do not have hydroelectric capacity. Thus, fossil fuels are still used to produce electricity in Canada, through coal (16.5%), natural gas (5.2%), and crude oil (1.2%). Nuclear power makes up 15.6% of Canada's electricity supply. Thus, in order to acquire the utmost level of benefit from new spending in public transportation and intercity rail, the strategy must be paired with good government policies aiming to increase the generation of electricity from renewable energy sources.

Rail transportation, in particular, presents incredible advantages over other methods of transport. As the Railway Association of Canada (RAC) reports, moving items by rail with current technologies available typically uses four times less energy than moving the same item over the same distance with a road vehicle. Canada's railways only account for 3% of all transportation sector-related GHG emissions despite transporting more

than 75% of overland freight and 72 million passengers per year.⁴³ Newer rail technologies running on renewable electricity will be able to move people with an even lower carbon footprint. When it comes to efforts to confront climate change, investments in public transit and intercity rail clearly pay off.

Improving democracy, meeting demand: Canadians want efficient public transportation

The polls show that Canadians overwhelmingly support the idea of investment in efficient public transportation, from all levels of government. Amongst Canadians with access to public transit:⁴⁴

- 73% feel that the federal government is not doing enough to support local transit systems;
- 66% feel that all three levels of government are not working together to implement long-term transit priorities; and
- 61% feel that their communities are outgrowing the level of government investment in transit.

In a 2002 poll featuring the public opinion of urban Canadians:⁴⁵

- 92% felt that public transit made their community a better place to live; and
- 73% felt that public transit personally benefited them.

Further, an EKOS poll conducted for the Railway Association of Canada found that:

- 86% of Canadians either "strongly" or "somewhat" support the introduction of High Speed Rail (HSR) in this country; and

- 68% of Canadians believe that all levels of government should be involved in funding HSR infrastructure.

Clearly, the polls speak to the majority of Canadians who want major investments in public transit and intercity rail. In part, this need for improved transit systems stems from Canada's changing demographics, as the country's population grows, relocates to suburban areas, and ages. According to Statistics Canada, the population is likely to surpass 40 million by 2038, and the average age is slated to increase due to the baby boom generation.⁴⁶ This is on top of demographic changes in recent years: between 2001 and 2006, suburban areas in Canada grew by 11%. As the National Energy Board has pointed out, increases in distances between residential areas and city cores result in increased automobile use. The average commuting distance in Canada continues to grow, up from an average of 7 km in 1996 to 7.6 km in 2006.⁴⁷ In turn, the number of people driving to work increased from 68% of commuters in 1992 to 74% by 2005. The percentage of people cycling or walking to work declined by 26% in the same period.⁴⁸ In short, more Canadians seem to be driving to get to work, less are walking and cycling, and only 11% use public transit.⁴⁹ As the Urban Transportation Task Force noted in a recent report, "there is a growing need for transit to operate within suburban areas, from suburban areas to central areas, and between suburban areas."⁵⁰ In this way, we can put a halt to the increasing growth of suburban areas, and offer alternatives to the polluting automobile.

However, despite the relatively low use of public transit as a method of commuting, the demand for public transportation has been growing exponentially. Urban transit ridership grew by more than 14% between 2004 and 2008.⁵¹ In 2008, there were 1.8 billion passenger trips on conventional transit services, equivalent to 55 trips per Canadian citizen. Also, the number of passengers taking the train between Canadian cities

is growing. Unfortunately, however, the number of people *flying* is growing at a much faster pace.⁵² As the Canadian Urban Transit Association notes, "sustainable growth needs to be matched with predictable and sustained investment" in public transit.⁵³ Otherwise, we will likely find ourselves inadequately prepared for fuel shortages caused by declining supplies or increasing fuel costs. As discussed below, Canada is nowhere close to its "optimal level" of transit supply. For this optimal level to be reached, an investment of \$71.3 billion in the next few years would be required.⁵⁴ While this would indeed qualify as a large expense, it is what is required to meet the transportation needs of Canadians.

Public transit is equitable: building "just" Canadian communities

In building a green economy, it is important that we do not reinforce the structures of inequality identified within Canadian society. Rather, a green economy must confront these social issues, and ensure that *ecological* sustainability is founded upon *social* sustainability, through the principles of equality, opportunity for all, and human rights. After all, access to clean and efficient transportation should be a *right* held by all Canadians, not just the privilege of those who can afford it. In Canada, income is one of the main determining factors in the use of public transit (the other key factor is population density). Those with higher incomes travel more, purchase additional vehicles, and make more discretionary trips.⁵⁵ Investments in public transit will thereby help to level the playing field, making urban areas more accessible to all citizens, and ensuring that all Canadians have the right to mobility.

In a study of transportation affordability, Barbara J. Lipman found that in many American cities, low income families spend more on transportation than on housing costs.⁵⁶

Generally, if more than 20% of a household's income is spent on transportation, then transportation is considered "unaffordable" to that household. Unsurprisingly then, transportation affordability is regressive relative to household income (the less a family earns, the less likely they are to be able to afford transportation).⁵⁷ In Canada, the average household spends 13.6% of its income on transportation, meaning that many low income families surpass the 20% threshold. Statistics Canada's latest *Survey of Household Spending*, conducted in 2008, found that average spending on public transportation had increased by 5.4% from the previous study, reaching \$1,020 per year.⁵⁸ Even still, it is surprising that North American families, especially those at lower income levels, continue to opt for the more expensive automobile than public transit alternatives. As Pollin and Baker explain, this is because "public transportation [at present] is much less convenient than driving – i.e. access is bad, off-peak hours' service is limited, and transferring is difficult. This makes public transportation particularly difficult for low income people who, as part of their regular routine, often need to commute between multiple jobs, as well as transport children to child care and school."⁵⁹ This is all the more reason to treat transportation as a right.

There is a number of Transportation Demand Management (TDM) solutions that could help to reduce the overall cost of public transit, making it more affordable, especially to those who need it most. Everything from promoting teleworking, to multi-nodal bike/transit integration strategies, to urban planning initiatives focused on affordable housing can play a role in making transportation more affordable to Canadians. Yet, perhaps, the most essential component in making transit more equitable (in attempting to achieve a "virtuous circle" of public transit) *is to invest in improved transit services.*

In order to make the most of our public investments, public transportation policies should be implemented with the aim of building just communities. Public transportation spaces should foster a recognition of the benefit of human diversity, and work toward social inclusion. In part, this can be done by ensuring that the employees of public transportation services have good jobs, thereby serving as a model of social justice for the broader community. All workers should be provided with fair contracts and adequate training. Employers should recognize prior learning and experience, and facilitate the entry of women and new immigrants into the workforce.

Transportation Demand Management and Affordability

- by the Victoria Transport Policy Institute

Many planning decisions affect transportation affordability. Modern transport planning responds well to demands of wealthy travelers but not to the needs of the poor. Current planning supports automobile, air and freight transport but does much less to improve affordable modes such as walking, cycling and public transit travel, or to ensure that affordable housing is available in accessible locations. This is unfair and exacerbates economic problems since many workers find it difficult to access education and employment, and because motorized modes require costly infrastructure, impose external costs, and are resource-intensive, leading to increasing dependence on imported oil... Automobile dependency tends to increase per capita transportation costs and reduce overall transportation affordability, while smart growth can increase transportation affordability by creating more accessible land use (which reduces the amount of travel needed for basic access) and improving affordable transportation options such as public transit, ridesharing, cycling and walking. Smart growth and 'Transportation Demand Management' (TDM) programs can help increase the prestige of affordable modes such as walking, cycling and transit, making it more socially acceptable for residents to use them. As a result, a greater portion of household wealth is devoted to mobility in automobile dependent communities than in communities with more balanced transportation systems.⁶⁰

Catching up with the rest of the world

The reality is that Canada has fallen behind other industrialized countries when it comes to revolutionizing our public transportation systems. In fact, as the Federation of Canadian Municipalities noted in 2007, "Canada remains the only OECD country without a long-term, predictable, federal, transit-investment policy,"⁶¹ and the "only G8 country without a national transportation program."⁶² Similarly, Canada is one of the only member countries within the OECD, and the only member of the G8 that has no concrete plans to develop High Speed Rail capacity (see Table 1: High Speed Rail Plans Compared).

Today, the fastest trains in Canada only travel 160 km per hour, about *half* the speed of Europe's high speed trains (the technical definition of high speed rail is 200 km/h). A new passenger train being tested in France can travel up to 574.8 km/h.⁶³ The Obama Administration in the United States recently demonstrated its support for HSR, kick-starting 13 high speed train corridors in 31 states through an investment of \$8 billion.⁶⁴ Similarly, China plans to invest an incredible \$730 billion between 2009 and 2012 to build the world's largest HSR network.⁶⁵

Country	Km of HSR track today	Km of HSR track planned for 2020
Canada	0	0
China	832	8,311
France	1,872	4,787
Germany	1,285	2,333
Italy	562	1,271
Japan	1,285	3,625
Russia	0	650
United Kingdom	113	113 ⁶⁷
United States	362	750

The most likely areas for HSR development in Canada include various "corridors" of high use, such as Calgary–Edmonton, Quebec City–Windsor, and Vancouver–Seattle. These three corridors alone would cover urban areas which together include more than 63% of the Canadian population. Yet while HSR lines may not make economic sense in less populated areas of the country, we are in severe need of rail upgrades in *all* regions of Canada, from the Maritime regions, to outposts of Northern Canada, to the Prairies, and Interior British Columbia. Those who take the train in Canada are all too aware of the typical waiting times spent on the side of the track as freight trains with the right-of-way slowly chug through. The reason for this is that now privatized freight companies own the tracks. A National Public Transportation Strategy would have to address this severe obstacle, and ensure that publicly owned dedicated tracks are set for quick and efficient passenger travel between cities. With public investment, intercity transportation networks between urban areas can easily be linked with intracity transit centres *within* Canada's cities. In this way, Canada could catch-up with HSR developments in other industrialized nations.

The time is now: less reports, more action

There are multiple reasons to invest in urban transit and intercity rail in Canada. By doing so, Canada will take a giant leap closer to building a green economy with tens of thousands of green jobs. Yet time is of the essence. Our federal and provincial governments have issued study after study highlighting the benefits of HSR, while no government has had the courage to put down the start-up costs required, believing that mass expenditures for the public good would be unpopular. The Quebec City–Windsor Corridor, for example, has been studied over 10 times since the 1970s.⁶⁸ One study in the 1990s found that this central Canadian Corridor could be built within a span of 10 years, and at a cost of \$20 billion.⁶⁹ The Calgary–Edmonton HSR Corridor has been of interest since

the 1970s, with provincial studies conducted in the 1980s, and an update in 1995. Most recently, the government commissioned yet another study released in 2004, which found that "high speed rail would bring significant benefits to the Calgary–Edmonton Corridor, and to Alberta as a whole, including between \$3.7 and \$6.1 billion in benefits to users in jobs and employment income, and additional tax revenues for Alberta and the federal government, as well as significant qualitative and other benefits in support of Alberta's future economic growth."⁷⁰ Yet despite these studies, not a single dollar has gone toward the implementation of any high speed rail line in Canada.

Similarly, the nation's leading authorities on public transit and the environment have consistently called for increased funding for the nation's urban transit projects. The Council of the Federation issued its call for a federal transportation plan, including "significantly more and predictable federal investment," in 2005.⁷¹ A similar plea was made by the Big City Mayors' Caucus of the Federation of Canadian Municipalities in March 2007. The Canadian Urban Transit Association has released findings of its study of member transit systems, which has outlined a shortfall in the order of tens of billions of dollars. The outstanding funds are required to improve public transit in Canada. In short, it is high time for the federal government to draft a National Public Transportation Strategy, complete with a high degree of continual funding for the two things that can truly help Canada make the transition to a green economy — public transit and intercity rail.

Part 2: An Investment Plan for Canadian Urban Transit and Intercity Rail

As explained above, wise spending in the areas of multi-nodal transport improvements (to increase walking, biking, public transit capacity, and public intercity rail) results in tremendous social, environmental, and economic benefits. While maintaining and building new transit and rail infrastructure is by no means *cheap*, projects ultimately pay off in multiple respects. However, in order to prepare a viable proposal for a National Transportation Strategy incorporating high levels of investment, it is first important to discuss potential sources of funding and offer a best estimate of the level of funding required. Canada's transit systems need funds for both *operations* and *capital* costs, and current levels of funding are far from the level required to optimize transit supply and demand. As detailed below, municipalities have borne an overwhelming share of the combined costs for operations and capital. While the federal and provincial governments have increased funds in recent years, the time is ripe for a significant, predictable, long-term investment from these senior levels of government.

Operations costs: largely covered by municipalities, over-reliance on fares

Operations expenses typically cover salaries, fuel, and regular fleet maintenance. In Canada, *operations* expenses are mostly covered at the municipal level, through ridership fees and local property taxes. In 2008, over \$5.4 billion was spent in direct operating expenses. Specifically, passenger fares help recover an average of 60% of operating costs; in most cases, the rest is recovered from municipal taxpayers.⁷² Some provinces help subsidize operating costs (in fact, a national average of 6% of urban transit operating costs are covered from provincial funds). The federal government, on the other hand, does not help municipalities

recover operations expenses.⁷³ Meanwhile, it is worth noting that in the United States, federal and state governments help to subsidize over 31% of transit operating costs.⁷⁴

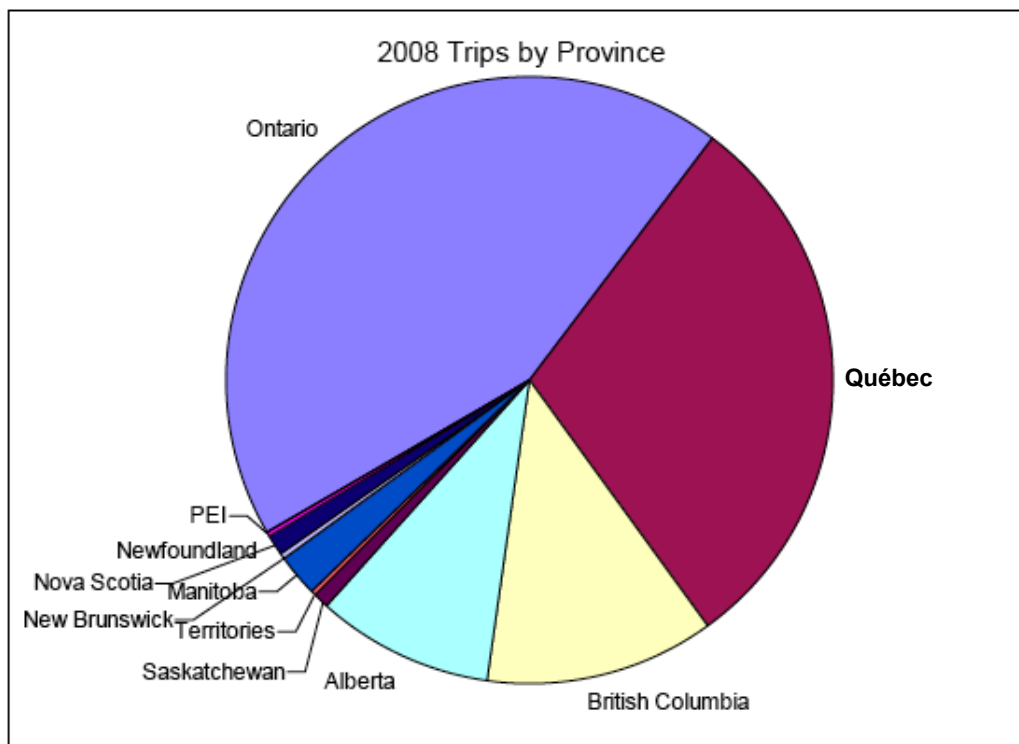
Table 2: A Snapshot of Canadian Transit Systems in 2008	
Number of Transit Service Routes	3,317
Ridership (Regular Service Passengers)	1,825,040,505
Total Transit Vehicle Kilometres	1,070,885,495
Total Direct Operating Expenses	\$5.46 billion
Transit Capital Investment ⁷⁵	\$3.3 billion
Total Employees	50,452
Diesel Fuel Consumed	378,000,000 litres
Electricity Consumed	736,800,000 kWh
Active Buses	14,161
Streetcars	250
Light Rail Vehicles	460
Heavy Rail Vehicles (Subway)	1,434
Commuter Rail Vehicles	691

As Table 2 shows, the year 2008 was a busy year for Canadian transit systems. Over 1.8 billion passenger rides were taken — averaging out to 55 trips per person (or just over one trip per week for each Canadian citizen). Canada's transit fleet includes over 14,000 buses and over 2,830 rail-based vehicles (including streetcars, light rail, heavy rail, and commuter rail vehicles). Transit systems employ over 50,000 workers across the country.

It is equally important to assess *where* transit use is concentrated in Canada. As Figure 1 suggests, Ontario and Québec accounted for 73% of the passenger rides in the country, with 790 million and 540 million passenger trips respectively. Of the remaining 490 million passenger trips across the country, over 80% occurred in Alberta and British Columbia. In other words, nearly 95% of all passenger trips occurred in the country's four most populated provinces. Under a National Investment Plan for public transportation, these provinces would be

expected to pay their fair share of the total capital costs, based on the relative level of transit use in their respective jurisdictions. Transit services are available to some 23 million Canadians (which is equivalent to 92% of the country's 25 million *urban* residents). On a per capita level, residents of Québec made the most use of transit services, with approximately 110 passenger rides per provincial resident.⁷⁶

Figure 1: Provincial Breakdown of Transit Passenger Ridership 2008⁷⁷



While most municipalities fund their transit system's daily *operations* expenses through fares and local property taxes, very little funding is left available for *capital* costs. Already Canadian cities are maxed out with extremely high transit fares and high property taxes, and it is simply not a viable solution to increase either of these. In fact, as a result of

inflation of key inputs (such as fuels), *operating* costs are on the increase (having skyrocketed by 40% between 2001 and 2006). The average 60% recovery rate for operations from passenger fares is exceptionally high relative to other OECD countries (higher than in France, Sweden, the United States, Italy, and the Netherlands, for example). This is a signal that Canadian transit fares are high compared to other industrialized nations — a fare structure resulting from a lack of alternative sources of funding. And yet, as Todd Litman has shown, transit fare increases are one of the main factors in reducing the elasticity of demand for transit: “Fare increases tend to cause a greater reduction in ridership than the same size fare reduction will increase ridership. A price increase, or transit strike that induces households to purchase an automobile may be somewhat irreversible, since once people become accustomed to driving, they often continue.”⁷⁸ Similarly, as the Big City Mayors’ Caucus (BCMC) of the Federation of Canadian Municipalities (FCM) notes, “Canadian transit riders pay a higher percentage of the total costs required to build, maintain and operate transit than do riders in almost all other Western countries. However, in spite of this (or perhaps because of it), meeting public transit’s capital costs remains difficult.”⁷⁹ Clearly, raising rider fares or property taxes is not a viable solution to procure funds for new infrastructure, given that municipalities (and their citizens) are already subsidizing transit systems to a high degree.

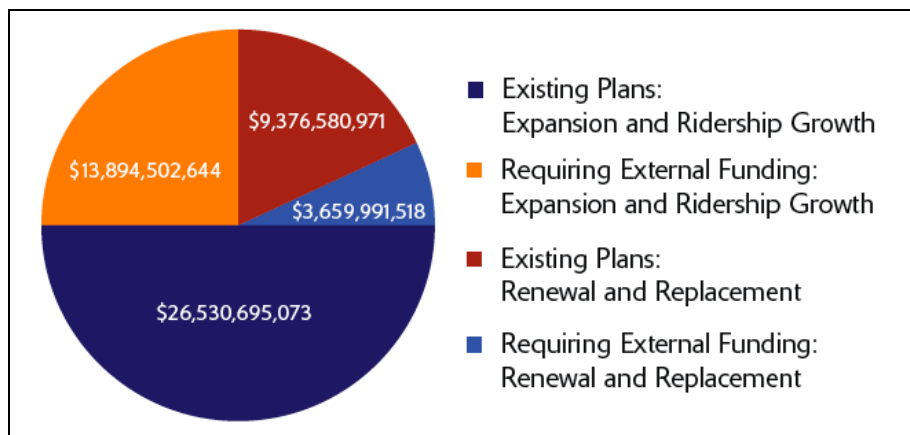
Capital costs: more funding needed

In addition to covering operations costs, municipalities also pay for a considerable portion of capital costs as well. Capital costs refer to expenses on infrastructure (vehicles, rapid transit lines, passenger terminals, park-and-ride lots, garages and maintenance shops). Capital costs are further subdivided into two categories:

- Infrastructure replacement and rehabilitation (which includes new upgraded or refurbished vehicles, and upgrades to existing facilities); and
- Infrastructure for expansion or ridership growth (defined as new infrastructure required to meet growth in demand or new services).⁸⁰

In Canada, there is a severe shortfall between the money *required* for new infrastructure and the money *available*. A recent report from CUTA notes that \$53.9 billion is required by Canadian transit systems for infrastructure costs between 2010 and 2014, of which only \$35.9 billion (67%) is already funded through recent investment commitments from various levels of government. Finding the required funds for *capital* expenses has proved to be extremely difficult in recent years, especially as demand for new infrastructure continues to grow (see Figure 2).

Figure 2: Transit Infrastructure Needs 2010-2014⁸¹



As CUTA's report explains, a shortfall of \$17.6 billion is forecast for capital costs in the 2010-2014 period.⁸² Here is where the federal government must step in and make major investment commitments to

public transit. In short, Canadian municipalities simply cannot afford a large portion of transit capital costs. These funds are needed to renew and rehabilitate transit systems, as well as expand the systems to meet expected growth in demand. In other words, funding is needed to buy new buses, streetcars, and rapid transit vehicles, to build rail tracks, to set up electrification and signal systems, build new infrastructure, and purchase equipment.

Paying the Lion's Share: Municipal Funding of Public Transit


- by the Federation of Canadian Municipalities

Municipal shares of both operating and capital subsidies derive primarily from property taxes, supplemented in some cases by special levies on gasoline sales, parking and hydro bills. Clearly, the property tax on its own is not sufficient to support public transit, given the estimated \$60 billion municipal infrastructure deficit, the limited revenue sources, the growing responsibilities of municipal governments and the already substantial municipal support for transit. Municipal governments need help to deliver the transit services that the nation's economy, quality of life and environmental sustainability rely on.⁸³

Federal and provincial funding for capital costs

Data on the allocations of capital funding in recent years show that provincial governments have provided a high percentage of funds, while the federal government has only recently begun to ramp up contributions. Table 3 shows the breakdown of how much each government jurisdiction has put into transit capital costs in recent years (including the percentage of the total capital sum for each year). The data show that by 2008, the federal government paid for 21% of transit capital costs across the country (approximately \$693 million). This is a noted improvement from 2000 and 2001, when its contributions totalled zero dollars. By contrast, provincial governments contributed 57% of capital

costs in 2008 — equivalent to \$1.88 billion. Looking at the four-year period (between 2005 and 2008), provincial contributions averaged out at 46%, while federal contributions averaged out at under 27%. Municipalities covered 23% of capital costs on average, an expense that is unsustainable given how municipalities also cover operations expenses (see Table 3).⁸⁴

	Total	Municipal	Provincial	Federal	Other
2005	\$1.6 B	\$480 M (30%)	\$640 M (40%)	\$288 M (18%)	\$192 M (12%)
2006	\$2.1 B	\$483 M (23%)	\$777 M (37%)	\$777 M (37%)	\$63 M (3%)
2007	\$2.5 B	\$433.1 M (19%)	\$1.22 B (49%)	\$747 M (30%)	\$74.7 M (3%)
2008	\$3.3 B	\$627 M (19%)	\$1.88 B (57%)	\$693 M (21%)	\$99 M (3%)
4-year Average 		23%	46%	26.5%	4.5%

It is evident that the federal government needs to step up to the plate when it comes to funding capital expenditures of Canadian municipal transit systems, and that provincial governments must maintain levels of capital funding reached in recent years. Not only is more funding needed from the federal government, but as CUTA notes, “federal contributions motivate complementary investments by provinces, territories and municipalities. They raise transit’s public profile, and confirm its vital role in building more sustainable communities with a better quality of life.”⁸⁶ The organization goes on to note that Canada is the only OECD country without a federal policy of predictable, long-term support for transit.

Presently, the federal government has allocated some funds that have been accessed by transit systems through a series of broad, short-term financing initiatives. These include:

- The *Infrastructure Stimulus Fund* (a \$4-billion initiative announced in the 2009 Budget which covered up to half the cost of the infrastructure rehabilitation projects that began construction in 2009 and 2010);
- The *Green Infrastructure Fund* (a \$1-billion, five-year project falling under *Canada's Economic Action Plan*); and
- The *Building Canada Fund* (an \$8.8-billion fund for which transit systems could be eligible, between 2007 and 2014), as well as a \$500-million sum available to smaller communities. Within the *Building Canada Fund*, provincial and territorial governments are expected to match federal contributions.

In addition to these three funds, the federal government transfers money from the *Gas Tax Fund* to municipalities on a per capita basis (as per an agreement made in 2005). Also, between 2006 and 2010, two *Public Transit Capital Trusts* provided \$1.3 billion to help cover transit capital costs. Finally, a number of other small funding programs at the federal level — such as the *Transit-Secure Program*, the *Urban Transportation Showcase Program*, and the Federal Tax Credit for public transit passes have contributed more than \$120 million to the nation's transit systems.⁸⁷

While these funds are certainly a good start — in that they have been founded in recognition of the growing need for investment from the federal government, and are helping to offset the shortfall experienced by Canadian cities — their effectiveness is limited because they are not

specifically earmarked for public transit. That is, while various transit systems are *eligible* and could *apply* for funding under any of the above funds, none of the funds listed above in themselves are considered predictable, long-term sources of financing specifically for transit. In addition, the allocated funding is not enough to bring Canadian transit systems to a level of optimal supply and demand. As such, it is essential that funding packages from the federal government are coordinated with those from the provinces, providing long-term, predictable, and adequate funding for transit systems across the country.

Two capital investment scenarios

Drawing from recent funding patterns and areas identified for improvement, we can therefore develop two capital investment scenarios for public transit based on the average contribution from these two levels of government in recent years:

Scenario One: Optimizing Transit Supply and Demand

- *\$61.4 billion between 2011 and 2015.*
- *Creating between 570,000 and 860,000 jobs.⁸⁸*

In this scenario, federal and provincial governments make optimizing transit supply and demand a key political priority by the end of 2015, and therefore significantly increase their respective contributions to transit systems over the next five years. This scenario is based on the estimated \$61.4 billion that is still required to optimize transit supply and demand in Canada (amounting to \$12.3 billion each year).⁸⁹ If we can expect the provincial government to sustain up to 45% of the annual costs of infrastructure and the federal government to *match* provincial contributions (thereby alleviating some pressure on municipalities), we arrive at the following funding breakdown (as identified in Table 4).

While the annual amounts of investment called for in Scenario One may seem like an extraordinary leap from 2008 levels, it is important to note that much of the funding required for capital costs over the next few years has *already* been committed by each jurisdiction. As explained above, for the 2010-2014 period, CUTA notes that \$35.9 billion has already been allocated by existing programs stemming from all three levels of government. In other words, of the estimated \$61.4 billion needed to optimize transit supply and demand, only \$25.5 billion is still outstanding. As such, the amount of *new* investment required for each budget year between 2011 and 2015 is actually *less* than the amounts noted in Table 4, once previous investment commitments are taken into account.

Table 4: Scenario One – Capital Investment Breakdown				
Note: This <i>includes</i> \$35.9 billion in funds <i>already</i> allocated for 2010-2014.				
	Total	Municipal	Provincial	Federal
2011	\$12.3 B	\$1.2 B (10%)	\$5.5 B (45%)	\$5.5 B (45%)
2012	\$12.3 B	\$1.2 B (10%)	\$5.5 B (45%)	\$5.5 B (45%)
2013	\$12.3 B	\$1.2 B (10%)	\$5.5 B (45%)	\$5.5 B (45%)
2014	\$12.3 B	\$1.2 B (10%)	\$5.5 B (45%)	\$5.5 B (45%)
2015	\$12.3 B	\$1.2 B (10%)	\$5.5 B (45%)	\$5.5 B (45%)
TOTAL	\$61.4 B	\$6 B	\$27.5 B	\$27.5 B
5-year Average	→	10%	45%	45%

Scenario Two: CUTA Identified Infrastructure Needs and BCMC Proposal


- *\$17.6 billion between 2010 and 2014 (plus \$36 billion already planned).*
- *Creating between 496,000 and 749,000 jobs.*

In this second scenario, the federal and provincial governments agree to each cover 48% of the expected capital costs of Canadian transit systems that have yet to receive funding. Again, \$35.9 billion in funding has already been allocated by various sources for the 2010-2014 period. These funds would remain in place. However, in addition to already committed funds, the federal and provincial governments would together contribute an additional \$3.16 billion per year. This funding scenario (as outlined in Table 5) would, at the very least, help Canadian transit systems cover the capital costs expected in the coming years. Each province would pay a portion consistent with the level of transit use and population (in other words, Ontario, Québec, British Columbia, and Alberta would continue to make significant capital contributions based on higher rates of transit use in those provinces).

In part, this funding scenario is based on the recommendations of the Big City Mayors' Caucus (BCMC) of the Federation of Canadian Municipalities in their 2007 report calling for a National Transit Strategy. Based on CUTA calculations showing that \$21 billion of new external funding was required between 2008 and 2012 (\$4.2 billion annually over five years), the BCMC explained that "while transit systems desperately require this kind of investment, [our organization] recognizes that the federal government at this time may not be able to commit \$4.2 billion per year, having already dedicated \$300 million per year. The Caucus therefore proposes annual funding of \$2 billion as a first step, an amount to be revisited later."⁹⁰ In other words, BCMC's 2007 funding proposal was based on CUTA's latest report on transit infrastructure needs; it recognized the funds *already* committed for the 2008-2012 period, and further assumed that levels of provincial funding would continue as before. In asking for a \$2-billion federal contribution, BCMC was asking the federal government to cover nearly 48% of transit system needs across the country as identified by CUTA for 2008-2012.

We can therefore apply the BCMC proposal to CUTA's latest assessment of transit infrastructure needs for the period 2010-2014. As explained above, CUTA notes that of the \$53.5 billion required for this period, with \$17.6 billion yet unfunded. This averages out to \$3.52 billion per year. If the government were to cover 48% of this external annual funding, it could expect to pay \$1.69 billion per year between 2010 and 2014, *in addition* to funds it has already allocated. In this funding scenario, it is assumed that the rest of external funding comes from provinces matching federal funds (at 48% of the total), allowing municipal funding to drop to 4% (see Table 5).

Both of the funding scenarios above rely on funds already committed to remain in place. While Scenario One would optimize Canadian transit systems, Scenario Two would ensure that basic plans for infrastructure rehabilitation and expansion would be met. For either plan to work, however, the federal government will need to significantly increase investments to match provincial commitments, and cross-jurisdictional planning would likely be required to ensure that investment financing is fair and adequately improving transit access for all Canadians.

Table 5: Scenario Two – Capital Investment Breakdown				
Note: This is <i>in addition</i> to \$35.9 billion in funds <i>already</i> allocated for 2010-2014.				
	Total	Municipal	Provincial	Federal
2010	\$3.5 B	\$140 M (4%)	\$1.68 B (48%)	\$1.68 B (48%)
2011	\$3.5 B	\$140 M (4%)	\$1.68 B (48%)	\$1.68 B (48%)
2012	\$3.5 B	\$140 M (4%)	\$1.68 B (48%)	\$1.68 B (48%)
2013	\$3.5 B	\$140 M (4%)	\$1.68 B (48%)	\$1.68 B (48%)
2014	\$3.5 B	\$140 M (4%)	\$1.68 B (48%)	\$1.68 B (48%)
TOTAL	\$17.5 B	\$700 M	\$8.4 B	\$8.4 B
5-year Average		4%	48%	48%

Intercity rail: investment plans for high speed trains

In addition to the funding required for public transit systems, three viable High Speed Rail (HSR) projects could help connect a large number of Canadians in an efficient and more sustainable manner, thereby reducing the number of cars and airplanes travelling on the nation's busiest highways. The following HSR projects — Windsor–Quebec City; Calgary–Edmonton; Vancouver–Seattle — were all proposed long ago. Multiple feasibility reports by various governments have shown time-after-time that introducing high speed trains in these three corridors could have tremendous environmental and economic benefits. The project between Vancouver and Seattle, for example, has been described by Vancouver's mayor Gregor Robertson as a "no-brainer."⁹¹ These three HSR projects are explored in more detail in the following pages:

Project One: Windsor–Quebec City Corridor

- *Up to \$20 billion in capital investment.*
- *Creating between 185,320 and 280,000 jobs.*

As one government study notes, "a very large portion of transportation activity within Canada occurs within an area known as the Quebec City–Windsor Corridor (QWC). This corridor... contains roughly half of Canada's population and about 85% of the Québec and Ontario populations, and nearly all of the major urban centres in these two provinces are located in the corridor. Consequently, any meaningful movement toward sustainable transportation [in Canada] will need to focus on this corridor."⁹² As noted above, "the governments of Canada, Ontario, and Québec... have commissioned over 10 commercial feasibility studies since 1970" on this corridor, "but have yet to commit" to any genuine proposal.⁹³

The high levels of upfront capital investment required for the project have tended to intimidate short-term-thinking political agents who know the benefits are long-term, and may not accrue until after their political term is over. This has prompted the federal government to propose small enhancements to the *existing* service provided by Via Rail within the corridor, rather than the construction of a new, dedicated, *electric* track with new trains using similar technology to that used in France and Japan. However, as Perrin Valli notes, the problem with this is that existing tracks are owned by freight companies:

Today, Via passenger services share the Corridor track with Canadian National's transportation of freight. This is one of the primary causes of Via's ubiquitous tardiness and infrequent service. Implementing high speed technology on existing track would, therefore, likely result in either a commercial failure due to tardiness and infrequency or a major reduction in transportation of freight by rail. Neither scenario is compatible with a reduction of air pollution nor traffic congestion especially as the latter would result in increased freight transportation by trucks and the associated traffic congestion and GHG emissions.⁹⁴

In short, a new rail system with dedicated passenger tracks is needed. That proposal is currently being studied (again) in a government-sponsored contract awarded to the EcoTrain Consortium — which includes the companies Dessau, MMM, KPMG, Wilbur Smith & Associates, and Deutsche Bahn International. The current plan covers 1,200 kilometres (most likely linking Windsor and Quebec City through London, Toronto, Kingston, and Ottawa, as well as four other stops). As Premier Dalton McGuinty explained in reference to the forthcoming final report, "I like it because it fights climate change, it fights traffic congestion, so it enhances our productivity levels, it creates jobs and it enhances our quality of life."⁹⁵ The EcoTrain study includes proposals for

the best route, updates on the expected costs, and more accurate estimates on the expected reduction in GHG emissions.

The last comprehensive government study on HSR in the corridor, commissioned by the governments of Ontario, Québec, and Canada, and conducted by SNC Lavalin in 1995, suggested that the project would cost between \$6.5 billion and \$9.5 billion (though the study made no mention of the reduction in GHG emissions that would accrue from reduced automobile and airplane travel within the corridor).⁹⁶ As a 1998 parliamentary report by the House of Commons Transport Committee noted, the amount of investment required from the public sector was seen to be too high at the time, despite the demonstrated benefits:

*This study concluded that high speed rail would be technically feasible and desirable from a number of points of view, but from a financial point of view, would not achieve a rate of return high enough to attract private sector investment for the whole investment required. In fact, the study concluded that 75% of the investment would have to be supplied by the public sector. In view of the economic circumstances at the time, the study suggested that the initiatives for the next stage of the project should lie with the private sector.*⁹⁷

The proposal to make the high speed rail project a *de facto* Public-Private Partnership (PPP) was problematic. By the end of the century, SNC Lavalin (who had written the 1995 study) partnered with a number of other companies to form the Lynx Consortium, which lobbied the government to introduce a high speed rail link between Toronto and Quebec City. The consortium expected the project to cost \$12.1 billion (of which the private sector was expected to invest \$3.5 billion, and governments would pay \$7.5 billion). However, because it was slated as a PPP, the various sectors became wary of the financial risks posed by working with each other.⁹⁸ For example, the parliamentary report that

evaluated the Lynx Proposal in 1998 noted that working with the private sector "has the impact of transferring the major part of any risk to governments" because it was expected that the private sector would require a guarantee on a minimum percentage of revenues.⁹⁹ Both the private sector and the public sector at the time, in particular the federal government, were thinking too much like business partners trying to make a profit. They failed to see the broader value of the wide array of non-economic benefits that would be provided by a high speed rail line in the corridor.

Today, with hindsight, we are aware of the many types of benefits that will accrue from investment in intercity rail. Further, we know from years of historical experience that privatization, and public-private alliances on large projects, such as HSR, are destined to fail. PPPs ultimately rely upon private interests whose primary goal is to profit. As such, PPPs are risky because secondary and tertiary goals, such as reducing GHG emissions and making transit affordable, will be trumped if they are in any way irreconcilable with making money. Further, private partnerships wrest control from those whom the project is ultimately supposed to benefit. When it comes to building Canada's High Speed Rail system, the passengers should be considered as benefiting citizens, not paying consumers. Similarly, as plans to build a HSR line in the Windsor-Quebec City Corridor move forward, Canadian workers should expect a fully *public* system, stemming from *public* investments, and creating *public sector* jobs.

As explained above, one of the most valuable benefits of HSR is its ability to reduce GHG emissions by reducing the amount of vehicle and airplane use in the corridor. It is very difficult to calculate exactly how much GHG emissions are likely to be saved by the use of High Speed Rail, because there are so many variables involved. It depends on the energy source of the train, the type of train technology used, how many passengers are on

each train, how many passengers are diverted from automobile and airplane use, etc. However, the Center for Clean Air Policy and the Center for Neighborhood Technology in the United States has released a study that analyzes the various technologies used by HSR trains, average sizes, and emissions, and has thus calculated that the *average* high speed train ride produces 0.26 lbs of CO₂ per passenger mile (equivalent to 0.16 lbs of CO₂ per passenger kilometre, or 0.07 kg of CO₂ per passenger kilometre).¹⁰⁰ With this information, we can calculate how much more efficient a high speed train trip would be than other modes of transit, such as automobiles and airplanes (see Table 6). The exception is intercity buses, which produce slightly less emissions than electric trains.

Table 6: Toronto to Montreal Compared¹⁰¹

	Travel Distance	Average Fare per Passenger	Average Travel Time	CO₂ Emitted per Passenger
Car ¹⁰²	543 km	\$30 – 40	6 hours	51.3 kg
Bus ¹⁰³	613 km	\$56 – \$63	9 hours	34.7 kg
Plane ¹⁰⁴	510 km	\$160 – \$200	2.5 hours	73.5 kg
Train ¹⁰⁵	542 km	\$125	5.25 hours	56.0 kg
High Speed Train ¹⁰⁶	542 km	\$81 – \$90	2.3 hours	37.9 kg

As Table 6 demonstrates, a high speed train would be the fastest travel option between major cities, such as Toronto and Montreal, despite the fact that an airplane has a more direct route and travels at a higher speed (this is due to the long check-in, security, and baggage-waiting times associated with air travel). Wikipedia notes that “there are roughly 90 flights between Montreal, Ottawa, and Toronto every workday, making it the busiest air route in Canada and 15th busiest air route in the world.”¹⁰⁷ While trains and buses typically take passengers to the centre of the city, where easy connections are made to local transit, most airports are located outside city limits, which often means additional

transportation to the passenger's final destination. Because high speed rail is fast and accessible, it is more likely that fares could remain competitively priced thanks to high demand. While automobile travel is presently cheaper than train travel, this analysis does not take into account the cost of vehicle purchase, ownership, maintenance, and insurance. Further, as the price of oil increases, the cost of automobile, bus, and air travel is likely to increase as well. In the final analysis, the relatively low cost of high speed train travel combined with incredible efficiency and extra perks, such as on-board wireless Internet and extra space and comfort, make high speed trains the way of the future when it comes to intercity transport.

Project Two: Edmonton–Calgary Corridor

- *Up to \$3.7 billion in capital investment.*
- *Creating between 34,300 and 51,800 jobs.*

Similar to the Windsor–Quebec City Corridor, the idea of an Edmonton–Calgary high speed train has been studied and debated for many years. Interest dates back to the 1970s. The most recent study was conducted by the Van Horne Institute in 2004. The study's final conclusions were as follows:¹⁰⁸

- High speed rail will bring \$3.7 and \$6.1 billion in benefits to users, in jobs and employment income, and additional tax revenues for Alberta and the federal government, "as well as significant qualitative and other benefits in support of Alberta's future economic growth."
- There is presently sufficient demand for a train which would take two hours to travel between Calgary and Edmonton.

- "Projected ridership and revenues are able to cover the system's operating costs and, depending on the route/technology chosen, repay all or most of the system's capital cost within 30 years."

According to the Van Horne Institute, a round trip fare in this corridor would cost between \$80 and \$100, and would originate in the downtown core of either Edmonton or Calgary, and stop at the Edmonton airport, Red Deer, and the Calgary airport. One-way, the trip between the two downtown areas could be as short at 1.5 hours. As for capital costs, the entire project is expected to cost between \$1.7 billion and \$3.7 billion, and these are considered "conservative assumptions" to "avoid under-estimation of costs."¹⁰⁹

Table 7: Calgary to Edmonton Compared¹¹⁰				
	Travel Distance	Average Fare Per Passenger	Average Travel Time	CO₂ Emitted per passenger per km
Car	300 km	\$42 - \$126	3.5 hours	130 grams
Plane	300 km	\$138 - \$164	3.25 hours	150 grams
High Speed Train	300 km	\$97 - \$115	2.5 hours	10 grams

The proposed service would go a long way to reducing vehicle use in Alberta. In fact, Albertans (and Saskatchewanians) travel more than others in the country, with the average citizen in these two prairie provinces accruing more than 17,000 passenger kilometres per year. This is understood to be a result of higher levels of disposable income as well as higher proportions of rural residents.¹¹¹ The problem is that travel between Calgary, Red Deer, and Edmonton is almost entirely in automobiles and airplanes. In fact, there are about 5.2 and 6.6 million one-way person trips between Calgary and Edmonton each year, and 2.4 to 3.7 million one-way person trips between Red Deer and either Calgary

or Edmonton. Experts believe that up to two million passenger trips could be diverted by high speed rail service.¹¹² This is a diversion rate of 22 to 28% of all trips, meaning that GHG emissions would be reduced by a substantial amount, given that automobiles typically produce between two and 13 times as much GHGs per passenger as high speed trains, and airplanes produce between 2.4 and 15 times as much.

Project Three: Pacific Northwest Corridor


- *Up to \$2 billion in capital investment.*
- *Creating between 18,500 and 28,000 jobs.*

The Pacific Northwest Corridor is the name of a large HSR line planned between Eugene, Oregon, and Vancouver, British Columbia, going through Seattle, Washington. Currently, conventional passenger rail service is available on this route from Amtrak, yet the train travels at speeds less than 130 km/h. Recently, as part of the *American Recovery and Reinvestment Act*, the Obama Administration provided \$8 billion for 10 American high speed rail corridors — the Pacific Northwest Corridor being one.¹¹³

Because plans are underway to implement high speed train service on the American portion of this route, the remaining portion between downtown Vancouver and the Canada–U.S. border (a distance of less than 50 km) is a natural fit. A study by M.K. Jaccard and Associates Inc. calculated that the Canadian portion of the high speed track could cost up to \$2 billion (as a high estimate), assuming that Canada would pay half of the expected capital costs of the Vancouver–Seattle link.¹¹⁴ Further, the mayors of Vancouver, Seattle, and Portland have signed a protocol agreement displaying their dedication to the high speed rail link. As Portland Mayor Sam Adams has said, “linking our region will mean increased trade and tourism, long-term manufacturing and engineering work, and a significant reduction in our collective carbon footprint.”¹¹⁵

Nevertheless, rail reporter Monte Paulsen has warned that plans for high speed rail are not likely to be activated in the Pacific Northwest Corridor unless the various governments involved (in particular, the Canadian government) are politically pressured to make it happen. Paulsen cites many officials who believe the new funding will merely go to various incremental railway improvements, but that rail service will remain at relatively low speeds, and service will remain somewhat infrequent.¹¹⁶ For this reason, it is important for civil society groups to continue to push for a genuine dedicated and electrified track if we are to make the most of massive public capital investments.

Based on the above information, we can determine the expected capital costs of these three high speed rail projects, and the expected numbers of jobs created (see Table 8).

Table 8: High Speed Rail Capital Costs		
	Capital Costs¹¹⁷	Job Creation
Windsor–Quebec City Corridor	\$20 B	185,320 – 280,000
Edmonton–Calgary Corridor	\$3.7 B	34,300 – 51,800
Vancouver–Seattle Corridor	\$2 B	18,500 – 28,000
Total 	\$25.7 B	238,120 – 359,800

We can also use the expected capital costs to determine an average annual level of capital investment required to complete the three HSR projects. The Edmonton–Calgary Corridor (ECHSR) is likely expected to take up to five years to construct, according to the Van Horne study. If the federal and Alberta governments split the cost evenly, each government can expect to pay \$1.85 billion for the project. Over a five-year period, this equals \$370 million per annum. Meanwhile, the 1995 study by SNC Lavalin expected the Windsor–Quebec City Corridor (WQHSR) to be completed within nine years. This amounts to an average of \$2.22 billion in capital funding each year. When divided between the

federal government and the Ontario and Québec governments (in a funding scenario in which the federal government paid half the capital costs), each provincial government could expect to pay \$555.5 million each year, and the federal government would contribute \$1.11 billion each year. Finally, the Canadian portion of the Vancouver–Seattle Corridor (VSHSR) is expected to cost \$2 billion. It is assumed that the project would be completed in five years, at a total cost of \$1 billion to the province of British Columbia, and \$1 billion to the federal government (see Table 9).

Table 9: \$25.7 Billion Capital Investment Breakdown for High Speed Rail					
	B.C. (VSHSR)	Alberta (ECHSR)	Ontario (WQHSR)	Québec (WQHSR)	Federal
2011	\$200 M	\$370 M	\$555.5 M	\$555.5 M	VSHSR: \$200 M ECHSR: \$370 M WQHSR: \$1.11 B
2012	\$200 M	\$370 M	\$555.5 M	\$555.5 M	VSHSR: \$200 M ECHSR: \$370 M WQHSR: \$1.11 B
2013	\$200 M	\$370 M	\$555.5 M	\$555.5 M	VSHSR: \$200 M ECHSR: \$370 M WQHSR: \$1.11 B
2014	\$200 M	\$370 M	\$555.5 M	\$555.5 M	VSHSR: \$200 M ECHSR: \$370 M WQHSR: \$1.11 B
2015	\$200 M	\$370 M	\$555.5 M	\$555.5 M	VSHSR: \$200 M ECHSR: \$370 M WQHSR: \$1.11 B
2016	N/A	N/A	\$555.5 M	\$555.5 M	WQHSR: \$1.11 B
2017	N/A	N/A	\$555.5 M	\$555.5 M	WQHSR: \$1.11 B
2018	N/A	N/A	\$555.5 M	\$555.5 M	WQHSR: \$1.11 B
2019	N/A	N/A	\$555.5 M	\$555.5 M	WQHSR: \$1.11 B
Total	\$1 B	\$1.85 B	\$5 B	\$5 B	\$12.85 B

Future possibilities for High Speed Rail (HSR)

In the future, changing demographics, depleting resources, and the success of existing rail projects may warrant additional expenditures in High Speed Rail, linking Canadians from coast-to-coast and to the United States. Possibilities include a high speed rail link between Montreal and New York City, between Calgary and Vancouver, between Edmonton and Winnipeg, and an East Coast train connecting the Maritime provinces with the Quebec City–Windsor Corridor. Presently, Amtrak's conventional train service between New York and Montreal runs at an average speed of 55 km/h, taking 11 hours to complete the one-way journey at a cost of 62 USD. This causes travellers to opt for the cheaper and quicker (though more polluting) option of driving, taking approximately six hours. In contrast, a high speed train between these two cities could bring travel times down to three hours, fostering new links with the United States.

A high speed corridor between Calgary and Vancouver would be essential in linking up the communities presently located along this part of the Trans-Canada Highway (as currently Calgary and many of these communities are inaccessible by passenger rail). Introducing a dedicated electrified right-of-way track, and implementing new train motorizing technologies, could significantly help speed-up VIA Rail's trans-Canadian journey. This would entice more passengers to consider rail as a viable method of long distance intercity transport in Canada (presently VIA Rail's transcontinental train, *The Canadian*, is conceived as a tourist land cruise rather than a genuine option of low impact passenger travel). Because of conflicting schedules with the freight companies that own the existing tracks, and because older, slower locomotives running on diesel are used, the current travel time for trains travelling from Toronto to Vancouver is nearly 87 hours, meaning the train averages a speed of approximately 52 km/h. With dedicated tracks and new train technology,

the trans-Canada trip could easily be reduced to 22 hours. The high cost of transcontinental train travel is also a deterrent, and inadequately reflects the carbon impact relative to air and automobile travel.

Forward-thinking Canadians are anxious to see key HSR projects take off in this country. If well-planned and implemented, the choice to take the train will come naturally over driving or flying. As the Martin Prosperity Institute suggests, high speed rail stations would be able to serve as "mobility hubs" by integrating connections with local transit systems, making intercity and intracity travel easy and efficient.¹¹⁸ As Valli writes, "there can be little doubt that if Canadians had access to fast, reliable, comfortable, and economic rail service between the Corridor's major cities, issues of traffic congestion and air pollution could be highly mitigated. However, as the cases of Japan and France demonstrate, modernizing rail transportation is about more than just speed. It requires new and more efficient station designs, easy ticketing, and on-board amenities making the passenger experience more comfortable than with air travel."¹¹⁹

Thus, to ensure that we maximize the proposed benefits of investments in HSR, to ensure interconnectivity between transit systems of various cities, to keep fares affordable, and to ensure that projects are built with the priorities of Canadians in mind, it is imperative that HSR links remain in public hands. This is why public investment is needed for these capital-intensive projects, despite the luring appeal of private financing. The reality is that a high degree of coordination will be needed to meet the new demand for intercity transportation. The needs of Canadian passengers are not always in concert with the needs of private corporations. For these reasons, a National Investment Plan, falling within a National Public Transportation Strategy, is proposed as the best way to keep Canadian passenger transportation public, affordable, and in line with the will of the people.

How to fund investments in transit and intercity rail: green capitalization policies

Naturally, the question of where governments will raise the required capital to publicly fund investment in transit and intercity rail comes to mind. As explained above, most *operating* costs are covered by rider fees and municipal property taxes, and as CUTA notes, "it is not reasonable to expect that transit fares or property taxes could *also* fund Canada's substantial future transit infrastructure needs."¹²⁰ For this reason, a National Public Transportation Strategy would have to find external sources of funding for new projects and system expansions. Already, the federal and provincial governments are able to contribute large amounts of money to help offset capital costs. Some of these funds (including the *Infrastructure Stimulus Fund*, the *Green Infrastructure Fund*, the *Building Canada Fund*, and *Public Transit Capital Trusts*) are discussed above. These funding mechanisms are essential to the success of much needed green infrastructure, and governments must keep their promises for funds already committed under these programs, and continue to offer up new funds for green infrastructure. However, according to the two public transit funding scenarios outlined above, more money will need to be raised. In addition, HSR projects could cost up to \$25.7 billion (though these projects will take longer to build, and thus the required capital funding would be spread out over a decade). It is, therefore, important to consider how new federal and provincial funds will be derived to help cover the additional expense. In short, what we need in Canada is a suite of innovative Green Capitalization Policies which raise needed funds while simultaneously working to reorient economic incentives to more sustainable modes of production and consumption.

One possible way to procure funding for the green economy is by putting a price on carbon. It is not the only option, but an important possibility that is explored in more detail as an important example. In 2009, the

Pembina Institute and the David Suzuki Foundation paired up to commission an in-depth economic modelling report on carbon pricing in Canada. The report, prepared by M.K. Jaccard and Associates Inc., details how revenues from carbon pricing can be used in areas such as public transit. As Bramley, Sadik and Marshall write, "the analysis by M.K. Jaccard and Associates Inc. shows that with strong federal and provincial government policies, Canada can meet the 2°C emissions target in 2020 and still have a strong growing economy, a quality of life higher than Canadians enjoy today, and continued steady job creation across the country."¹²¹ The 2°C emissions reduction target by 2020 is consistent with a 25% reduction of Canada's GHGs from 1990 levels by 2020. This target is recognized by the IPCC as an essential goal to be met in order for industrialized countries to do their part in reducing the global concentration of GHGs.

As the Pembina Institute and the David Suzuki Foundation have argued, meeting this target "requires governments to put a significant price on GHG emissions (a "carbon price") broadly across the economy, and to back it up with strong complementary regulations and public investments. In their analysis, to meet the 2°C target, a carbon price starting at \$50 per tonne in 2010 needs to rise to \$200 per tonne by 2020."¹²² There are two main ways put forward to implement a carbon pricing regime. One is to implement an auction-based "cap and trade" system, the other involves taxing all forms of combustion and processes which lead to carbon emissions. The revenue raised from this Carbon Pricing Initiative is then recycled back into the economy through public investments and income tax breaks, paired with new regulations and policies, in order to help foster the turn to a post-carbon economy. The researchers note that various portions of the carbon revenue would also be used for purchasing international emissions permits and domestic agricultural offsets. Similarly, part of the revenue would be used to compensate (low income) households for the new heightened cost of

home heating and electricity.¹²³ In the final analysis, the economic model found that up to \$77.1 billion in carbon revenue could be spent between 2011 and 2020. This amounted to an average annual expense of \$7.7 billion: "We found that \$7.7 billion per year could be valuably spent on urban and intercity transit by 2020, and modelled a public transit spending program composed of several investments to improve and expand urban and intercity transit."¹²⁴

To further explore the possibilities available in a Carbon Pricing Initiative, let us consider how such revenues could be used toward public transportation infrastructure in Canada: this green capitalization policy could be structured so as to distribute carbon revenues amongst federal and provincial governments. In coordinating the transfer of a fair share of the carbon revenues to the provinces, the latter governments could use the funds to help subsidize large transit and rail infrastructure projects. As noted above, the expected transit infrastructure costs in the next five years, *which are yet unfunded*, totals between \$17.6 billion and \$25.5 billion.¹²⁵ However, as Table 10 shows, the federal and provincial shares of these totals are only \$8.4 billion and \$11.5 billion, respectively.¹²⁶

Table 10: Federal and Provincial Shares of Capital Investments		
	Provincial Share	Federal Share
High Speed Rail, 2011-2019	\$12.85 B	\$12.85 B
Transit Scenario One, 2011-2015	\$11.5 B	\$11.5 B
Transit Scenario Two, 2010-2014	\$8.4 B	\$8.4 B
HSR + Transit S1	\$24.35 B	\$24.35 B
HSR + Transit S2	\$21.25 B	\$21.25 B

As Table 10 indicates, the combined cost of High Speed Rail investment and Transit underfunding, Scenario One is \$48.7 billion. This leaves \$29

billion in carbon revenue available to help cover transit capital costs between 2016 and 2020. Similarly, the table shows that the combined cost of High Speed Rail investment and Transit underfunding, Scenario Two is \$42.5 billion. This leaves \$35.2 billion in carbon revenue available to help cover transit capital costs between 2015 and 2020.

A national investment plan

The funding scenarios above are conceptual frameworks that serve to give a general idea of the level of funding required to improve public transit and implement intercity rail, as well as give an idea of how much revenue could be raised through green capitalization policies, such as carbon pricing. That is, they are not exact funding templates to be followed by government. However, what the two funding scenarios do suggest is that funding is more likely to work if there exists a high degree of coordination between provinces, the federal government, and municipalities. The potential funding structures above highlight the tremendous need for a coordinated investment plan for public transit, preferably falling under a National Public Transportation Strategy. A national plan is needed because of the difficulty and complexity in coordinating long-term funding from a variety of jurisdictions. When we consider that three government jurisdictions are involved in funding transit systems, that each urban area and province has its own particular needs, and that a national Carbon Pricing Initiative may be used as a source of revenue for two levels of government, and finally, that financing plans are more successful when considered over the long-term, the need for a coordinated national plan on investment is evident.

Part 3: Benefits of a "Green" Economy – Sustainable Communities and Green Jobs

Major investments in public transit and intercity rail will create numerous green job opportunities for Canadians, as well as improve the quality of life in communities across the country. These are essential components of building a green economy. To make the most of these investments, we need to ensure that our efforts to build a green economy results not just in the creation of green jobs, but *good* green jobs — secure jobs in which workers are protected through collective bargaining agreements, benefits, and decent wages. Through a domestic procurement policy, our investments in more sustainable forms of transportation will maximize the benefits to Canadian communities, and build up Canada's green manufacturing capacity.

Domestic procurement: Canadian manufacturing and technology

The best way to ensure that Canada's green economy is a strong economy is to incorporate policies of domestic procurement. For years Canada has lost good jobs and manufacturing capacity to other countries thanks to ideologies that have prevented governments from implementing sound domestic economic policies. Stephen Harper claims that domestic procurement plans are "protectionist" measures that will result in prolonged recession. But in fact, domestic procurement plans, such as the U.S. "Buy American" clause introduced by President Barack Obama as part of the American stimulus package, are common practice and should be considered sound economic policy. In fact, as a recent report by the Canadian Labour Congress notes:

'Buy American' policies go back many years, and Chapter 10 of the North American Free Trade Agreement (NAFTA), which

*deals with procurement issues, clearly states that governments are permitted to support national purchasing policies. The Procurement Chapter does not limit the use of 'any form of government assistance, including co-operative agreements, grants, loans, equity infusions, guarantees, fiscal initiatives, and government provision of goods and services to persons or state, provincial and regional governments.'*¹²⁷

Indeed, there is tremendous capacity in the public spending of tax dollars and government revenues. In Canada, public spending accounts for 21% of all domestic wages, and 29% of other income earned by workers (through benefits and pensions). Further, government spending is equivalent to 23% of the value of all goods and services produced in Canada. Policies which call for Canadian financing to stay in Canada just makes sense.

A "Made-in-Canada" procurement policy would ensure that Canadians reap the benefits of their own tax dollars at work. When municipalities buy transit stock, or when provincial governments procure materials for high speed rail projects, they should consider the tremendous impacts that could accrue from domestic procurement. As the CLC notes, for every \$1 million we decide not to spend abroad, we create three new jobs here in Canada in the manufacturing sector. The CLC cites the example of \$694 million spent on importing new buses and other public transport passenger vehicles from other countries in 2007. Had we chosen to buy those buses from domestic suppliers, we could have created 2,000 new jobs for Canadians!

Ironically, Canada has a rich history of transportation rolling stock production. In fact, this country once was a global leader in the development of high speed rail technology. In the 1960s and 1970s, Canadian National's TurboTrain broke records in North America. Developed by Montreal Locomotive Works (MLW), the TurboTrain was capable of travelling over 210 kilometres/hour. However, it never

travelled at high speed during regular service runs. While MLW built rail stock for many projects in Eastern and Central Canada, the Vancouver Skytrain was designed and built by Urban Transportation Development Corporation (UTDC) — a subsidiary of Bombardier. As noted by Industry Canada, “as a direct result of progressive development in manufacturing sophisticated rail systems, Canada has become a major player in the international rail and urban transit market.”¹²⁸ Six principal firms dominate the railway equipment manufacturing sector in Canada (in addition to 250 major component and track material suppliers): Bombardier, the Diesel Division of General Motors (DDGM), National Steel Car Ltd., Procor Ltd., Trenton Works, and AMF Technotransport. Both Bombardier and National Steel Car are Canadian-owned companies.

Also, as CUTA notes, “Canada is one of the world’s leading centres for transit vehicle manufacturing,” and home to some of the most active and successful transit consulting firms, which help to plan, design, and evaluate transit projects. Among transit vehicle manufacturers are Bombardier, New Flyer, Nova Bus, and Orion which employ almost 3,000 workers in facilities in Ontario, Québec, and Manitoba. Transit consulting firms, which would likely be involved in helping Canada’s transition to a transit-friendly economy, include AECOM, Delcan Corporation, Dessau, Dillon Consulting, ENTRA Consultants, Hatch Mott Macdonald, IBI Group, iTRANS Consulting, McCormick Rankin Corporation, MMM Group, Morrison Hershfield, Roche-Deluc, Stantec, and Tecsalt.¹²⁹ In addition, there are Canadian firms like Eastway and MTB Truck & Bus Collision, which specialize in bus refurbishment, bus parts suppliers, such as Amobi, Baultar Concept, Lucerix International, T-Ji Talfourd-Jones, and the Electronics Control Division of Parker Hannifin’s Hydraulics Group. Finally, Canadian-based companies, such as Axion, Daytech, and Ensicom, design and produce transit passenger amenities, such as shelters and signs, and then firms like GIRO,

Trapeze, Grey Island Systems, Infodev, Novax, Seon Design, and Thales Rail Signalling Solutions help to develop software and systems for smooth transit operations and security. This all spells great news for Canada's prospects of developing an entire network of green transportation services across the country which are designed in Canada, sourced with domestically procured stock, and produced by hard-working Canadians.

Yet Canada's manufacturing sector has additional capacity to green the economy provided by the auto industry. It is true that the auto sector was hard hit by the 2008 global financial crisis — as was the U.S. auto industry. Yet the North American auto sector has the potential to play a leading role in greening both the Canadian and American economies. As Robert Pollin and Dean Baker explain in a recent report titled "Reindustrializing America: A Proposal for Reviving U.S. Manufacturing and Creating Millions of Good Jobs," the revival of the auto manufacturing industry could increase the number of public transit buses by 50% over five years, provided "at least some auto manufacturers see the opportunity to convert a portion of their production lines from private cars to public buses."¹³⁰ This option would further "make public ground transportation a much more practical day-to-day commuting option, especially for lower income people for whom auto transportation costs currently place a major burden on their family budgets."¹³¹ Clearly, the best way to encourage this green turn is to implement sound economic policies on procurement that guarantee a certain level of domestic production, paving the way for the creation of green jobs here in Canada.

A sample of the benefits of transit and intercity rail investment in Canada

If we take a look at some of the short-term and long-term strategies of transit systems across the country, it is evident that plans are underway to increase transit ridership by improving and increasing services. In doing so, Canadian transit systems are playing a lead role in ushering in a new era in which transit demand is optimized and the negative social, health, and environmental impacts of auto use are minimized. This era will be reliant upon the creation of good green jobs (such as those related to transit). In addition, when we consider the manufacturing capacity and technological knowhow of various Canadian firms located throughout the country, it is evident that we can complete our shift to the green economy entirely within Canada. That is, the materials can be acquired here in Canada, as everything from buses to heavy rail (subway) cars can easily be manufactured domestically. Further, literally hundreds of thousands of Canadians could be employed to keep the system running. The following paragraphs briefly consider some of the concrete transit initiatives that are being implemented across the country, as well as the various manufacturing capacities available in different provinces, in order to highlight some of the potential benefits that various Canadian communities will see as a result of increased investment for public transit and intercity rail.

British Columbia

The South Coast British Columbia Transportation Authority (or TransLink) delivers transit services to the Metro Vancouver area (accounting for 80% of the total provincial ridership, with 181 million trips in 2008). The rest of the province is serviced by BC Transit (a provincially owned corporation). A 2007 transit plan from the provincial government called for \$14 billion in capital

investment by 2020, to improve the service and capacity of provincial transit systems in hopes of doubling ridership. Similarly, the province hopes its major investments in new buses and LRT expansions will help to meet its target of a 22% reduction in GHGs by 2020. Some of the benefits to be expected in the Vancouver area include the new Evergreen, UBC/Millennium, and Expo SkyTrain lines, as well as nine new routes for RapidBus BC, in addition to 1,500 new clean energy buses. Further, a high speed train connecting Vancouver to Seattle, Washington, will serve as a boon to tourism and trade in the province. Translink's proposed Evergreen Line is expected to produce up to \$937 million in financial benefits to the local economy from a Northwest Corridor, in addition to up to \$845 million from a Southeast Corridor.¹³²

Alberta

The Green Transit Incentives Program (Green Trip) announced in Alberta in 2008 is a good step forward for the province. The government offered \$2 billion to help fund transit investments and promote the use of local, regional, and intercity public transit. Funding has helped provide improvements to Calgary's C-Train platforms and improve travel times. Calgary expects to accommodate 1.3 million new citizens in the next six decades. As such, the city's transit strategy focuses on improving service capacity and efficiency, requiring new levels of investment. Similarly, in Edmonton, funding for transit has seen expansions to the city's LRT lines. As discussed above, a high speed train connecting Calgary, Red Deer, and Edmonton would offer enormous benefits to the province, quantified in billions of dollars expected in the form of regional development.

Manitoba and Saskatchewan

The province of Manitoba is expected to benefit from the presence of New Flyer, a company based in Winnipeg which happens to be one of the leading manufacturers of heavy-duty buses used for transit in North America. Its lines of diesel-powered, hybrid, and electric buses are best sellers throughout cities in Canada and the United States. The transit bus-making company has a manufacturing facility in Winnipeg, and a servicing centre in Arnprior, Ontario. A domestic procurement policy would likely see large numbers of green jobs created in Winnipeg, as Manitoba takes on the role of a transit-manufacturing centre in Canada.

Winnipeg is also expecting to benefit from investments in a new Bus Rapid Transit system (BRT). A 2004 cost-benefit analysis of the plan found the ratio of benefits to be 2:14, with a payback period of seven years. The plan is already underway, and includes 3.7 km of designated bus roadways, new stations, signal priorities, and smart scheduling systems. At a cost of \$47.7 million, the BRT is expected to accrue \$17.6 million in annual benefits.¹³³

Meanwhile, in neighbouring Saskatchewan, investments will also help to meet the expected increases in transit demand that may come from the successful implementation of Saskatoon Transit's new Eco Pass Program — an initiative that sees annual bus passes sold to city employees at up to 20% discounted rate. If the program is successful, Saskatoon Transit hopes to incorporate other businesses and employers into the program.

Ontario

As a recent study by the Martin Prosperity Institute notes, Ontario's economy is healthy because of its diversity. Despite

recent problems in the auto sector, manufacturing still accounts for 14.4% of the province's workforce of 6,593,800 employees. The province also has an impressive electricity-generating capacity, at 31,214 Megawatts.¹³⁴ Orion International, a leading bus-making company in North America, has a manufacturing plant located in Mississauga, Ontario. The company's buses have been featured in nearly 300 North American cities and provided hundreds of hybrid-electric buses to Canadian cities. The Greater Toronto Area has the capacity to build parts for large transit vehicles, and as such would benefit greatly in the area of green job creation as a result of domestic procurement. The province is also home to 50% of Canada's railway manufacturing capacity. Bombardier has urban transit vehicle and rail car manufacturing plants in Kingston and Thunder Bay. DDGM assembles locomotives in London, Ontario. National Steel Car makes freight cars in Hamilton, while Procor manufactures and leases special rail cars at a plant in Oakville.

Various cities in Ontario are seeing major improvements to transit services. Ottawa has plans for Light Rail Transit (LRT) construction and Bus Rapid Transit (BRT) expansion, while the Greater Toronto Area (and Hamilton) will see an incredible multi-billion dollar initiative as part of the Metrolinx Regional Transportation Plan (in conjunction with MoveOntario 2020), calling for a rail link from Union Station to Pearson Airport, various subway line extensions, and expansion to GO transit lines. In addition, there are plans for Light Rail Transit inside Toronto, as well as the procurement of 204 new streetcars.¹³⁵ In their cost-benefit analyses of rapid transit plans in the GTA, including the Scarborough Rapid Transit line, the Metrolinx plan (mentioned above), and the VIVA Next transit plan, Metropolitan Knowledge Corporation expects between \$4.4 billion, and \$5.7 billion in economic benefits over a period of 30 years. Similarly, the proposed expansion to the Spadina–York

Subway is expected to reduce traffic congestion, accommodate an additional 124,000 commuters and 28,000 residents, reduce greenhouse gases and noise levels, and improve the community's health. Meanwhile, a GO Transit Lakeshore Corridor Express Rail plan (in which trains will switch from diesel-powered to electric-powered engines), is expected to produce from \$3.6 billion to \$5.8 billion in regional economic benefits over 30 years. Looking elsewhere in Ontario, one notes an extensive rapid transit plan in the Kitchener–Waterloo area, which is expected to produce \$296 million in user-benefits over 30 years, reduce greenhouse gas emissions by some 14,000 tonnes annually by 2031, generate over 6,000 jobs, and reduce health care costs in the region by \$10 million.¹³⁶

Québec

Forty per cent of Canada's railway manufacturing capacity is centred in the province of Québec. The province is also the birthplace of Bombardier, the world's leading railway manufacturing and servicing company. However, while Bombardier is headquartered in Montreal, Québec, its transportation division is headquartered in Germany. In fact, Bombardier Transportation employs 33,800 employees, most of whom are located in Europe. This is because the company has been involved in a large number of high speed rail projects there. With a high degree of investment into high speed rail here in Canada, and clear intentions to introduce domestic procurement policies, it is likely that the company would set up shop in Québec, and create thousands of jobs in the process. Currently, the company has over 100,000 train vehicles in operation around the world, and has been involved in every European HSR project to date. As noted on Railway-technology.com, "In 1987, Bombardier acquired the North

American manufacturing and marketing rights for the North American version of the French-developed TGV ... An early proposal for 320 km/h TGV-style high speed train operation by Bombardier in 1991 found the Quebec–Windsor Corridor could make a profit if there was a great deal of government subsidy to start up. As this was against political will at the time, little progress was made.”¹³⁷ Perhaps with a change in political will, the historic Canadian company will be involved in new HSR projects in this country.

Bombardier does build guided urban transit vehicles and passenger rail cars in La Pocatière, Québec, and another company by the name of AMF Technotransport rebuilds locomotives and rail cars at their plant in Montreal. Some of these transit vehicles are procured by Québécois transit systems, which are investing heavily in transit improvements. In Montreal, for example, a proposed LRT project along Highway 10 to the downtown core is expected to produce a net economic benefit of millions of dollars, thanks to creation of over 9,750 person-years of employment (resulting in \$13.7 million in taxes for the Government of Québec and \$6.2 million for the Government of Canada).

Atlantic Provinces

In New Brunswick, both Fredericton Transit and Moncton's Codiac Transit are undergoing strategic planning initiatives to improve transit service and meet the needs of the expected growth in demand. As part of its planned improvements, Codiac Transit recently made transit more accessible by bringing in new, low floor buses and by installing WiFi Internet services on all vehicles. In Nova Scotia, Halifax's Metro Transit has recently unveiled a five-year transit plan, which is designed to meet growing transit

demand while simultaneously avoiding the need for the construction of another harbour crossing for vehicles (which would likely come with a \$1.4 billion price tag). Metro Transit is also planning to make "transit only" corridors on the busiest sections of Barrington Street and Spring Garden Road, and expects the city to eventually introduce a Light Rail Transit line: "Overall," notes the Metro Link strategic plan, the "recommended service improvements are targeted to increase transit ridership by 18% over the next five years and to increase service hours, the transit fleet and staff resources by about 20%."¹³⁸ Meanwhile, new investments in Prince Edward Island could help see an Island-wide transit system come to fruition in the small province. A feasibility study has been conducted, noting the tremendous benefits associated with the reduction of car travel between towns such as Summerside and Charlottetown. In St. John's, Newfoundland, a strategic plan is currently being prepared for Metrobus. The study is being conducted by Dillon Consulting, and aims to identify key issues and ridership growth opportunities, which in turn could be serviced by new investments in public transit.

The Maritime provinces also serve as a home to transit-based manufacturers. For example, Nova Scotia is responsible for 5% of Canadian railway manufacturing capacity. A plant owned by Trenton Works in Trenton, Nova Scotia, builds freight cars (for grain and fluids). Similarly, a company named GIRO, with an office in Halifax, produces transit system-planning software named HASTUS, used in transit systems all over the world.

Northern Canada

Canada's Northern Territories must be incorporated into the green economy as well. While transit is unlikely to play as large a role in

transitioning to sustainability in the Canadian territories (due to the relatively small size of Northern communities), there are transit needs in the territories' largest municipalities. In particular, transit services in communities, such as Whitehorse and Yellowknife (and eventually Iqaluit),¹³⁹ if well-planned and well-funded, can help to reduce the amount of cars on the roads. For example, Whitehorse has recently unveiled "Test Drive" — the city's proposed transit plan for 2011, which will see a five-line transit system connect passengers to various areas throughout the city.

The preceding paragraphs offer a brief regional breakdown of some of the potential benefits that could accrue from major investments in public transit and intercity rail. This is not meant as an exhaustive list. Rather, a comprehensive list of benefits to Canadians would literally go on and on. What is important to note, however, is that transit investment helps communities large and small across Canada, in a wide number of areas — ranging from health, to GHG reduction, to the alleviation of traffic, to job creation, and economic growth.

Part 4: Conclusion – Toward a Green Economy

The preceding pages have attempted to demonstrate the following:

- Investment in public transit and intercity rail is a wise investment, because of a host of expected social, environmental, and economic benefits.
- As an example of two potential funding scenarios, the level of capital investment required for public transit over the next five to six fiscal years ranges from \$53.9 billion to \$61.4 billion; \$35.9 billion have already been committed for transit capital infrastructure costs over the next five years.
- The level of capital investment for intercity rail over the next nine fiscal years totals \$25.7 billion.
- A capital investment of this magnitude for public transit and intercity rail over the next decade would create between 734,120 and 1,219,800 jobs (see Table 11). This is in addition to over 50,000 jobs that result from existing *operations* expenditures, and tens of thousands of indirect jobs that would be created from improved efficiency and productivity resulting from improved transportation services.

Table 11: Green Jobs from Investment in Transit and Intercity Rail	
High Speed Rail Projects	238,000 – 359,000 jobs
Transit Investment Scenario One	570,000 – 860,000 jobs
Transit Investment Scenario Two	496,000 – 749,000 jobs
HSR + Transit S1	808,000 – 1,219,800 jobs
HSR + Transit S2	734,120 – 1,108,000 jobs

- In addition to existing short-term funds allocated by the federal government, a comprehensive set of green capitalization policies could go a long way in helping to raise the required funds for public transit and intercity rail capital costs in the ensuing decade. As an example, a recent plan proposed by the David Suzuki Foundation and the Pembina Institute has found that \$77.1 billion could be raised specifically for public transit and intercity rail projects through a Carbon Pricing Initiative.
- Finally, when we review the technological knowhow and manufacturing capacity already in place across the country, it is clear that a domestic procurement policy could easily be enacted in which new transit vehicles would be developed and built in Canada. Along with the jobs brought through this policy, the increased investment in the procurement of new transit stock will inevitably improve transit services in Canada's urban areas, benefiting communities across the country.

A new political economy needed

Unfortunately, the prevailing political economic ethos in Canada today — or “neo-liberalism” as political economists have termed¹⁴⁰ — is working against the implementation of public transit and intercity rail in a number of capacities. In a neo-liberal capitalist system, profit reigns supreme, regardless of how the public interest may be impacted. In this way, private corporations that stand to lose profits from the rise of a green economy (through a decline in the use of fossil fuels, automobiles, airplanes, and highways, for example) have attempted to warn politicians against investing in public transportation. As an example, the National Airlines Council of Canada has stated that it “remains concerned with the overall concept of billions of dollars in public funding potentially flowing to the development of high speed rail.”¹⁴¹ Yet these billions of

publicly funded dollars are essential to making Canada a better place — a country playing a leading role in ushering in the age of the post-carbon economy. Nevertheless, the neo-liberal ethos continues to prioritize the individual consumer's choice over the collective needs of Canadian communities.

Those against the idea of investments in public transportation consistently use a market fundamentalist argument — that governments should not regulate markets because it will scare away private and foreign investment, or that there is not enough demand for public transit. Such neo-liberal arguments are severely flawed, and reflect the desires of vested interests, not the Canadian public. Further, they have only served to increase our reliance on fossil fuels and dehumanized Canadians merely as “consumers,” not “citizens”! In our attempts to build a green economy, it is not enough to shift our focus from one sector to another. Instead, we will need to help create a new *political* economy, centred around meeting the needs of Canadian communities in a just, sustainable manner. This means ensuring that investment for transit and rail comes from public sources, that we have a say in its use, and that it leads to the creation of good jobs that stay in Canada.

The ability to achieve a green economy is ours for the choosing; the time to choose it is now.

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- 122 Matthew Bramley, Pierre Sadik and Dale Marshall, *Climate Leadership, Economic Prosperity: Final Report on an Economic Study of Greenhouse Gas Targets and Policies for Canada*, (Pembina Institute and David Suzuki Foundation, 2009): 3.
- 123 Though compensation does not cover increased transportation costs as a result of carbon pricing. The idea is to make fossil fuel-based transportation more expensive (and therefore less economically desirable) than public transit and rail, which emit much less carbon.
- 124 M.K. Jaccard and Associates Inc. Final Report, *Exploration of Two Canadian Greenhouse Gas Emissions Targets: 25% below 1990 and 20% below 2006 levels by 2020*, (Vancouver: M.K. Jaccard and Associates Inc., October 2009): 23.
- 125 These figures represent calculated infrastructure costs noted in funding Scenarios Two, and One, respectively. As noted in the report, Scenario Two is based on CUTA's identified \$53.5 billion in expected infrastructure costs, of which \$35.9 is already accounted for (leaving \$17.6 billion). Scenario One, based on optimizing

transit supply by 2015, is expected to cost \$61.4 billion, of which \$35.9 billion is already accounted (leaving \$25.5 billion).

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