

## IAPR POLICY BRIEF

### LIVING ON BORROWED TIME: ALBERTA AT THE CROSSROADS

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## **Living on Borrowed Time: Alberta at the Crossroads**

In 1999 the province of Alberta announced a plan to eliminate its debt by the year 2025. Recent increases in the price of oil and natural gas have enabled the province to eliminate its debt far ahead of schedule; Premier Klein announced in June that Alberta now has sufficient funds put aside to enable the province to eliminate the last of its debt. This announcement, plus the fact that high energy prices mean the province is heading toward a surplus the government conservatively estimates will be in the neighbourhood of \$4 billion in fiscal year 2004/2005, has prompted a political free-for-all from those demanding a piece of the provincial government's surplus. Supporters of spending on health care, education, and a "new deal" for cities are battling for the premier's favour and the electorate's blessing.

In an effort to direct the debate, the provincial government recently circulated a pamphlet to Albertans asking for their opinions about what to do with the surplus revenues flowing into the provincial treasury. The results of this (non-scientific) survey of Alberta residents, released on October 19, were, perhaps, predictable. The top five high priority areas were, in order of decreasing priority: health care, education, environment, reduced taxes, and spending on infrastructure. On the question of what to do with "windfall money", the number one priority was to make long term priority investments, followed by a one time payment to all Albertans, with saving more money in the Heritage Fund a distant third.

The purpose of this policy brief is to inject some economic reasoning into this important policy debate. In this regard, we do three things. *First*, we revisit some important lessons from economics on the role of non-renewable natural resources in economic development and public finances. *Second*, we consider Alberta's approach to dealing with revenue from natural resources within the context of these lessons. *Third*, we provide recommendations on what the government of the province of Alberta should do in the future.

Our maintained assumption throughout the discussion is that fiscal policy should be sustainable in the long run. By this we mean that government policy should be geared towards at least maintaining our current standard of living into the indefinite future. From this perspective, some (most) of the priorities identified in the government survey are, in our view, short sighted and amount to financing current spending, or spending that primarily benefits current generations, by selling off our capital assets – our oil and gas reserves. This is not sustainable, and amounts to sacrificing the well-being of future generations for the well-being of the current generation.

While we offer several recommendations, one of the most important is that a sizable portion of the government revenue arising from oil and gas royalties, and not just recent windfalls, should be saved in a revitalized Heritage Fund. The income generated by this growing fund can then be used to finance spending on the type of high priorities identified in the government's survey.

### *1. Lessons from the Dismal Science*

A starting point for any discussion of government finances has to be to identify the goal of public policy. We think it is important to stress the importance of goals that are firmly grounded in *long-term* considerations. This is worth stressing because long-term goals often differ quite

considerably from short term goals, for example from goals whose purpose is to ensure that politicians get re-elected.

So, for the sake of argument and clarity we state from the outset that our long-term goal is to ensure that *all current and future Albertans enjoy at least the standard of living we enjoy today*. By standard of living we mean real per capita income. We think that this is a pretty modest goal. It says simply that we value the livelihood of our children, grandchildren and future generations equally to our own. There is nothing in the field of economics, or philosophy, to tell us that this is necessarily the right way to value the future or the well being of other individuals. It is purely a value judgement, but one we think most people would accept as being a reasonable standard upon which to base decisions regarding the sustainability of fiscal policy.

Nonetheless, we recognize that not everyone may share this view. In this case, this notion of sustainability can serve as a useful benchmark against which to evaluate the intergenerational trade-offs inherent in different policy choice. In other words, if policies are adopted that are inconsistent with this goal, e.g., which raise the standard of living of the current generation at the expense of future generations, then those policies should be explicitly recognized as such.

The problem for Albertans is that so much of our current standard of living is based on non-renewable resources. For example, over the past two decades exports of non-renewable natural resources (primarily oil and gas) have accounted for over 20 percent of GDP in Alberta. In Saskatchewan and Newfoundland this figure is around 10 percent, while the rest of the country is clustered around 2 percent.

What's more, Albertans currently pay the lowest taxes in the country; and we are the only province in the country with no sales tax. But what enables us to enjoy these low taxes? High royalty revenues do. Non-renewable resource royalties accounted for 31% (\$7.1 billion) of the provincial government's total revenues in fiscal year 2003/04. That is a greater percentage than accounted for by personal income taxes in Ontario.

So what's wrong with that? Why shouldn't Albertans enjoy the benefits of oil and gas endowments? The problem is that when we choose to spend the royalty revenue collected on a barrel of oil (or mcf of natural gas) pumped out of the ground today, that royalty revenue is no longer available to future generations. Once that barrel of oil is pumped out of the ground, it is gone forever. Oil and gas are *non-renewable* resources, in finite supply.

Economists have been studying the role that natural resources play in fostering economic growth and well-being for at least 200 years. An early examination of the role of natural resources in determining economic growth was by Thomas Malthus in 1798. Malthus observed that the world's population was growing at a geometric rate (increasing at an increasing rate) while the production of resources – food in particular – was growing at a linear rate (increasing, but at a constant rate). He noted that this pattern must one day lead to widespread starvation. A dismal outcome to be sure, and one of the reasons that economists have been described as purveyors of the “dismal science.” Over the past 200 years, developments in economic theory – and the notable lack of widespread world starvation – have radically changed our view of the role of natural resources in guiding economic growth.

Four powerful results in economics lay the framework for our discussion. The first is a result demonstrated by Nobel Prize winning economist Joseph Stiglitz, now at Columbia University. Stiglitz showed that, under certain conditions, perpetual economic growth – a rising standard of living even in the face of a growing population – can be achieved in a country (or province) heavily dependent on a finite non-renewable resource.<sup>1</sup> This is in stark contrast to the dismal Malthusian view that these three things – perpetual growth, a growing population, and a finite resource – are incompatible.

This is good news on two fronts. First, it means that the fact that we have a finite amount of a non-renewable resource does not mean, as Malthus' analysis suggested, that Alberta's population needs to shrink in the future to maintain our standard of living. Perhaps the outlook isn't so dismal after all. Second, and this is important, it also means that we don't need to necessarily actively diversify our economic base away from natural resource extraction in order to achieve sustained economic growth. While diversification is well and good, there is nothing in Stiglitz's argument that requires governments play a role in actively promoting diversification through industrial policies such as tax holidays, subsidies, direct government investment, or other ways of encouraging diversification.

As might be expected (this is the dismal science after all) there is some bad news as well – sustained economic growth in the presence of a finite resource – can be achieved only “under certain conditions.” The conditions identified by Stiglitz are quite technical and boring to all but academic economists, but they boil down to one simple lesson – technological progress in the resource sector must be fast enough to outstrip population growth. This gives us our first key lesson:

**Key Lesson #1:** *Diversification of Alberta's economy is not necessary for maintaining or raising living standards. Ensuring technological progress in resource industries is.*

The second result comes from a Canadian economist, John Hartwick of Queen's University. Hartwick's concern was to determine how much of existing oil revenues should be saved and reinvested for future generations in order for future generations to be at least as well off as we are. Hartwick's result, which has subsequently (if not imaginatively) been dubbed the Hartwick Rule, is that an economy dependent upon the extraction of non-renewable resources must transform the declining resource stock into a new, productive, capital stock that will produce a perpetual stream of pay-offs to future generations.<sup>2</sup> This can be achieved by saving government revenues generated by oil and gas royalties and spending the income generated by this saving. Hartwick also calculated the amount of savings required to leave future generations no worse off than current generations. He showed that the government must save all of the “economic rents” generated by the resource. The concept of economic rents is a bit complicated – it is essentially the income over and above the cost of extracting the resource including an adequate return to

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<sup>1</sup> Stiglitz, J. (1974) "Growth and Exhaustible Natural Resources: Efficient and Optimal Growth Paths." *Review of Economic Studies* 41:123-38.

<sup>2</sup> Hartwick, J. (1977), “Investment of rents from exhaustible resources and intergenerational equity”, *American Economic Review*.

investors – but the bottom line is that a large portion of the revenues collected by the government needs to be saved.

This gives us our second key lesson:

**Key Lesson #2:** *A government of an economy dependent upon the extraction of non-renewable resources must save a substantial portion of the proceeds it collects from that extraction.*

The third lesson comes from the field of public finance, a branch of economics dedicated to examining the impact of taxes on economic activity and the role for government intervention in markets. Government has a responsibility to provide programs that address certain well-defined problems in markets that operate poorly or in unattractive ways. Thus, in Canada for example, it has been deemed appropriate for government to be heavily involved in the provision of health care because the free market solution – medical care to those most able to afford it – has been judged unattractive. As a first approximation, these expenditures are more or less invariant to the state of the economy. Expenditures on health care and education, for example, are mainly driven by demographics; the size and the age distribution of the population. Thus, on a real per capita basis, provincial spending responsibilities are more or less constant.

Of course governments also have a responsibility to raise revenue to pay for these important programs. Unfortunately, revenue collected from income taxes and from energy royalties tend to be highly sensitive to the state of the economy; they are high during economic booms and low during economic slowdowns. Indeed, Alberta has the most volatile revenue stream of any province in Canada.

With spending responsibilities more or less constant on a per capita basis but revenues sensitive to the state of the economy, the obvious implication is that governments must plan for ways to accommodate revenue shortages (during busts) and have a plan to deal with revenue excesses (during booms). This gives us our third key lesson:

**Key Lesson #3:** *Good government requires a more or less constant level of government spending per capita. Government revenues, particularly royalty revenues, tend to be highly volatile. Governments that rely heavily on energy royalties must therefore have a plan to deal with times when revenues have fallen below expenditure needs and times when revenues exceed what is needed for expenditures.*

Our fourth and final result may come as a surprise to Albertans. It turns out that many countries with large natural resource endowments do rather poorly in terms of generating high standards of living on a sustainable basis, while countries with very limited natural resources often do much better. This observation, called the “resource curse,” is not fully understood and its existence and cause is hotly debated in academic circles. To an Albertan the idea that more oil is worse than less oil seems ludicrous, but in many countries large resource revenues creates very poor outcomes in the long run, for a variety of reasons. Think, for example, of natural resource-poor Hong Kong and South Korea versus natural resource-rich countries like Nigeria and Venezuela.<sup>3</sup>

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<sup>3</sup> See Sachs, J. and A. Warner (2001), “The curse of natural resources”, *European Economic Review, Volume 45, Issues 4-6, May 2001, Pages 827-838.*

The possible reasons for the resource curse are many, but two are most often mentioned. The first is that in many resource-abundant countries the resource sector offers relatively high pay and draws individuals away from higher education. To the extent that a highly educated citizenry is required for ongoing technological progress, these countries are ensuring a short-lived resource boom today but a permanent bust over the long term. Interestingly, the share of the university age population enrolled in universities is lower in Alberta than the Canadian average. This despite the fact that per capita income in the province is well above the Canadian average.<sup>4</sup>

The second reason often mentioned for the resource curse is that large resource revenues attract demands by special interest groups, often create kleptocratic governments, and sometimes lead to civil war as competing groups vie for control of resource revenues. In such a situation poor public policy results and growth is hurt. While there is unlikely to be a civil war in Alberta over resource revenues (though to listen to the provincial government you never know), this second point emphasizes the importance of an appropriate institutional environment and government processes to deal with competing interests clamouring for a piece of resource revenue.

**Key Lesson #4:** *Being resource-rich is not a guarantee of a high standard of living. Without careful planning and a wise use of the revenues collected from natural resources, short-run resource riches can lead to long-term poverty.*

Putting these four lessons together we obtain the following set of guiding principles for managing public finances in a resource based economy:

- (a) A sizeable portion of government revenue from oil and gas should be saved in the form of financial assets for the benefit of future generations. Spending non-renewable resource revenue means the current generation consumes at the expense of future generations. Saving non-renewable resource revenue, and using the income generated from those savings to finance government spending, allows *all* generations to benefit from Alberta's endowment of non-renewable resources.
- (b) Savings should not be used to fund projects that aim to diversify the economy. Industrial diversification will occur in the private sector when and if it is profitable. This process need not, and should not, be an activity of government.
- (c) Technological advances, especially in the non-renewable resource sector, are important for future standards of living. The government can play a role in fostering technological advances by maintaining a high-quality education system that provides a highly-trained, highly-motivated and highly-productive workforce. The resource curse threatens future prosperity by encouraging an under-investment in education. An important role for government is to ensure this does not happen.
- (d) Government has a responsibility to spend in areas of health, education, and social assistance. The fact that spending responsibilities are more or less constant in real per capita terms, while revenues (particularly royalty revenues) are volatile means that government must have a plan to deal with periods when revenues are insufficient to meet spending needs and

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<sup>4</sup> In 2001 enrolment in university undergraduate programs as a percentage of the population from 18 to 24 was 16% for Alberta and 17.18% for all of Canada.

periods when revenues exceed spending needs. Volatility of revenues must not result in volatility in spending.

## 2. *Alberta's Approach to Dealing with Resource Revenues: The Past and Present*

In this section we review how the government of Alberta has dealt with non-renewable resource revenue in the past and how it is dealing with it currently. We do so in light of the set of broad guidelines for public finances in a resource based economy listed above.

*The first guiding principle* is that a very sizeable portion of government revenue from oil and gas should be saved in the form of financial assets for the benefit of future generations. How have we done with respect to this first guiding principle?

Prior to 1976, energy royalties simply entered government coffers and were spent. In 1973, oil prices skyrocketed in response to OPEC production quotas, and the government of Premier Peter Lougheed faced a “problem” eerily similar to our present situation; the province was enjoying very large budget surpluses as a result of booming energy prices and a flood of royalty revenue. In response, the Lougheed government created the Alberta Heritage Saving Trust Fund (AHSTF) in 1976. The stated objectives of the fund were to save for the future and to provide funds to be used to diversify the Alberta economy away from too heavy a reliance on oil and gas. At the initiation of the fund, 30 percent of royalties from oil and gas were allocated to the fund. Moreover, all income earned by the fund was retained in the Heritage Fund.

The initiation of the Heritage Fund in 1976 was truly inspired, and prescient of the Hartwick Rule. Without quibbling about the adequacy of the percentage of oil revenues saved (which may have been too small), putting aside a proportion of resource royalties in a saving fund was a significant move in the right direction and a step towards long run fiscal sustainability.

By 1983 the government's commitment to the Heritage Fund began to wane. The annual contribution to the fund was reduced from 30 percent of royalty revenues to 15 percent, and the income generated by investments of the AHSTF was now no longer saved but annually transferred to general revenues and spent. In 1987 the value of the AHSTF peaked at \$12.7 billion and, in the face of growing deficits, the government stopped contributing to the fund altogether. Since 1987, not a nickel of resource royalties has found its way into the Heritage Fund and the investment income it earns is annually stripped out of the Fund.<sup>5</sup> Thus, contrary to item (a) in our list of guidelines for public finances in a resource-dependent province, the provincial government has since 1987 failed to save a substantial portion of non-renewable resource royalties. Indeed, since 1987 the government has failed to save any non-renewable resource royalties at all. In essence, the government abandoned the Hartwick Rule; the rule that enables an economy dependent upon the extraction of non-renewable resources to transform the declining resource stock into a new, productive, capital stock that will produce a permanent benefit to all future generations.

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<sup>5</sup> As of the fiscal year ending March 31, 2004 the fair market value of the AHSTF stood at \$12.4 billion. As a fraction of Alberta's GDP, the Heritage Fund has shrunk from 21% in 1987 to just 7% in 2004. The Heritage Fund is therefore being allowed to steadily shrink in economic importance.

Beginning in 1993, the provincial government went on an austerity program that successfully eliminated the annual deficit and, indeed, produced annual surpluses. The surpluses have been used to eliminate provincial debt. Although it is not widely seen as such, because most of these surpluses were the result of high energy royalties the fact they have been used to reduce provincial debt means that we have effectively returned to the world of the Hartwick Rule. Paying down, or investing in, our own debt is just like saving. The decision to use natural resource royalties to pay down our debt was essentially akin to following a “Hartwick-ish” Rule with a very narrow portfolio consisting of just one asset – our own debt.

With respect to guiding principle (a), then, the provincial government has done well by establishing the Heritage Fund, failed by halting contributions to the Heritage Fund, and then recovered nicely by eliminating debt. We are now at a cross-roads: Will the current government be guided by the Hartwick Rule and begin to transfer of resource royalties into the Heritage Fund – as it did in the 1970s and early 1980s – or will it return to a policy whereby the current generation of Albertans enjoy the benefits of our oil and gas endowment to the detriment of future generations – as it did in the late 1980s and early 1990s?

*The second guiding principle* is that when royalty revenues are saved, these savings should not be used to fund projects aimed at diversifying the economy. Industrial diversification will occur in the private sector when and if it is profitable. This process need not, and should not, be an activity of government. How have we done with respect to the second of our guiding principles?

As we noted above, when the Heritage Fund was first created, one of its mandates was to fund government-directed efforts at industrial diversification. This initial use of the fund was ill-conceived. The prevailing wisdom is that active government involvement in diversification is unlikely to be successful. The trail of failed efforts at government-sponsored efforts at industrial diversification is a long one in Alberta and the relatively recent promise of governments to avoid such efforts in the future is welcome. Still, the temptation is strong; we must resist it.

*The third guiding principle* is that technological advances by private firms, especially in the non-renewable resource sector, are important for future standards of living. The government can play a role in fostering technological advances by maintaining a high-quality education system that provides a highly-trained, highly-motivated and highly-productive workforce. How have we done with respect to our third guiding principles?

The provincial government has done a good deal to fund basic research in health care via the Alberta Heritage Foundation for Medical Research. It has more recently established a similar (though smaller) endowment fund for science and engineering research. Even more recently it has taken tentative steps toward funding basic research specifically aimed at the oil and gas industry. We applaud these initiatives but encourage further investments in higher education. In particular, we note that the current approach of “targeting” spending in higher education at medical and engineering research is short-sighted when it comes at the expense of funding other areas of research. It is important to recognize that advances in all kinds of research have implications for productivity growth. Thus, for example, Alberta is unique in Canada as having a very strong incentive to find methods and ways to lesson greenhouse gas emissions at the lowest economic cost possible. Many of the most effective ways of lowering emissions involves

appropriate designed economic institutions, regulatory regimes, and tax policies. Research in these areas is the domain of social scientists. Similarly, advances in mathematics and computer science have made possible new methods for locating oil and gas deposits. The lesson here is that funding of all types of basic research is important for it is sometimes from unexpected and surprising quarters that important advances in understanding derive. For these reasons we should be asking ourselves why a province as rich as Alberta does not have a university on par with the University of Toronto, the University of British Columbia, or the University of Montreal. Higher education may not have brought Alberta to where it is today, but it is required to ensure that it maintains this path into tomorrow.

*Our fourth guiding principle* recognizes that the provincial government has a responsibility to spend in areas of health, education, and social assistance. The fact that spending responsibilities are more or less constant, on a real per capita basis, while revenues (particularly royalty revenues) are volatile means that government must have a plan to deal with periods when revenues are insufficient to meet spending needs and periods when revenues exceed spending needs. Volatility of revenues must not result in volatility in spending. How has the province dealt with volatile revenues?

Alberta's record with respect to our fourth guiding principle has been quite poor. One of us has previously studied Alberta's spending, tax revenue, and natural resource royalties spanning the period from 1931 to 1991.<sup>6</sup> The beginning of this time span was chosen because 1931 was the year in which the federal government transferred natural resource revenues to Alberta's provincial government. The study shows that increases and decreases in natural resource royalties have tended to precede increases and decreases in provincial government spending. The fact that in 1993 the then newly-elected Klein government would choose to respond to the loss of natural resource revenues resulting from a fall in oil and gas prices by cutting spending by 20% or more was, then, consistent with Alberta's history. So too is the recent spending spree of the provincial government. Provincial government spending has increased by 27% in the past 5 years and royalties have increased by 60%. While some of this increase in spending may have merit, the fact these spending increases are so closely tied to increases in resource royalties does not. Contrary to item (d) in our list of guidelines for public finances in a resource-dependent province, the provincial government has historically and inappropriately tied spending to highly volatile royalty revenues.

To its credit the provincial government has recently taken steps to loosen the connection between resource royalties and spending. Effective in 2003, following the recommendation of the *Financial Management Commission*, the government of Alberta established the Sustainability Fund. Under the legislation establishing the Sustainability Fund, resource revenues in excess of \$3.5 billion are to be transferred to the fund; with the first \$3.5 billion in resource revenue absorbed in general revenue.<sup>7</sup> The express purpose of the Sustainability Fund is to provide a cushion to allow for volatile resource revenue. Thus, the fund can be drawn upon to avoid program cuts if resource revenues drop below \$3.5 billion or if resource revenue is high but other

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<sup>6</sup> Kneebone, R. (2002) "Recent and Not So Recent Trends in Provincial Government Spending in Alberta," in L.S. Wilson (ed.), *Alberta's Volatile Government Revenues: Policies for the Long Run*, Institute for Public Economics, Edmonton.

<sup>7</sup> This was increased to \$4 billion starting in 2004/05.

government revenue has declined significantly.<sup>8</sup> Resource royalties in excess of \$3.5 billion are deposited into the fund.

An important feature of the Sustainability Fund is that it has a cap of \$2.5 billion. While we think this cap should be allowed to grow over time to account for the effects of inflation and the size of the economy, this is a small quibble. A cap is a useful feature because the Sustainability Fund should be no larger than necessary to play this “budgetary shock absorber” role assigned to it. A problem with the legislation defining the Sustainability Fund is that it is vague about what happens when budget surpluses have proven sufficiently large to completely fill the fund. That is, once the Sustainability Fund reaches its \$2.5 billion cap, what happens to non-renewable resource revenues? Indeed, this question is immediately relevant, as the fund reached its cap within one year of being established, in 2004. The legislation says that when the fund grows beyond the \$2.5 billion cap, the excess funds may be used for debt repayment, may be used for capital projects, or may be otherwise allocated by the Treasury Board. Now that the debt has been repaid and the government has put aside funds to finance future capital projects, the government can do what it wishes with non-renewable resource revenue.<sup>9</sup>

It is this vagueness in the legislation that is the reason for questionnaire recently sent to Albertans by the provincial government. The government is seeking advice about what to do with the flood of non-renewable resource revenues now that the Sustainability Fund has been filled to the brim, now that money has been put aside for future capital spending, and now that the debt has been eliminated. Before providing our recommendations, in the next section we briefly discuss some issues that are important for deciding how to answer the question of what to do next.

### *3. Alberta’s Approach to Dealing with Resource Revenues: Future Concerns*

In 2004 the province therefore finds itself with an embarrassment of riches. It has no more debt to pay off and it is facing a projected surplus very conservatively estimated at \$4 billion due in large part to windfall resource revenue. Sounds like 1976 - déjà vu all over again. Albertans are familiar with the fact that it has not always been thus. It was a sharp reduction in oil prices in the mid-1980’s and a failure of the provincial government to act swiftly to control the bleeding that led to a string of nine large provincial deficits from 1986 to 1994. As a result, the province moved from a net asset position to a net debt position in the early 1990s. It took the combination of deep spending cuts implemented by the Klein government in 1993, a big increase in resource royalties since 2000, and an aggressive debt reduction policy that reduced interest costs to move the province back into a net asset position. Thus, it took the province 20 years and a great deal of turmoil in provincial budgets to recover from a sudden drop in oil and gas prices.

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<sup>8</sup> Revenue in the Sustainability Fund can also be used to fund emergency expenditures such as those related to drought relief, the BSE crisis, forest fire fighting, etc.

<sup>9</sup> The *Fiscal Responsibility Act* also established a Capital Account to fund capital spending. On March 31<sup>st</sup>, 2004 the Capital Account was valued at \$1.2 billion. The 2004 Budget calls for the Capital Account to grow to \$2.5 billion by 2006. Thus, while a part of the current inflow of royalty revenue is committed to building the Capital Account, with royalties expected to be in the neighbourhood of \$8 billion this year this commitment will be met rather quickly.

What the experience of the past 20 years has illustrated is that the only predictable thing about energy prices is that they will be unpredictable. It has also shown the danger of a government being unprepared for sudden fluctuations in energy prices. Recent changes in the process of budgeting in Alberta are designed to deal with this volatility and so minimize the turmoil of short-term energy price fluctuations.

As well as dealing with short-run fluctuations in energy prices, the government must also worry about long-term trends. Being aware of these long-term trends is also important when one thinks about what to do with the currently high levels of resource royalties.

An analysis of oil and gas production undertaken by University of Alberta economists Andre Plourde and Brad Reid shows that while overall oil production is increasing in Alberta, production from traditional light, medium and heavy crude is declining, in both absolute and relative terms, while production from bitumen and synthetic oil is increasing.<sup>10</sup> There seems to be unanimous consent that this will continue into the future. This has important implications for the provincial budget for two reasons. The first is that government royalty rates imposed on traditional crude are significantly higher than those imposed on bitumen and synthetic. This means that, over time, inevitably, the province will collect less revenue per unit of oil production. Increasingly we will need prices to stay high in order to realize anything resembling the oil royalties of the past. The second reason this is important is that extracting bitumen and synthetic production is expensive. While significant improvements in technology have made it cheaper, more progress will be required in the future as our conventional reserves are depleted. As Lesson #1 stresses, technological progress in resource extraction is key for maintaining living standards in the future.

Production is just one side of the coin determining resource royalties; the other is prices. Just five years ago, in 1999, a barrel of oil sold for about US\$11. At the time, *The Economist* magazine was predicting even cheaper oil, arguing that a 'normal' price for oil was in the US\$5 to US\$10 range. In the past few weeks the price of a barrel of oil has topped US\$50. Analysts offer many explanations for this, including: the recovery of the world economy and associated rise in demand for oil (particularly from China), the increased discipline of OPEC and non-OPEC countries (especially Venezuela) in restricting increases in production, and, more recently, the terror premium particularly as it relates to Iraq, hurricanes on the Gulf coast, etc.

Oil is just one part of the picture. Natural gas prices are high because of strong North American demand. As a result, natural gas royalties have far outstripped oil royalties in the past couple of years. Projections of natural gas production in Alberta are all over the map, ranging from a substantial increase over the next five years, to a slight reduction. Important considerations here are pipeline capacities and the future viability and cost-effectiveness of liquid natural gas (LNG) transport that would open the North American market to natural gas imports from the Middle East and elsewhere. Both these factors will play a role in determining the long-term trend in natural gas prices.

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<sup>10</sup> Plourde, A. and B. Reid (2002) "Natural Resource Revenues and the Alberta Budget" in L.S. Wilson (ed.), *Alberta's Volatile Government Revenues: Policies for the Long Run*, Institute for Public Economics, Edmonton.

Three points are relevant here. One; sky high oil and gas prices, and the royalties pouring into the Alberta Treasury as a result, are a recent phenomenon. Two; no one knows if, or how long, they will last. Many analysts are predicting the end of cheap energy. This may or may not be the case, but one thing is certain; no one knows what the new long-term prices of oil and natural gas will be. Three, and this is important, the essence of the arguments presented here are in fact independent of the price of oil and gas. As indicated at the outset, our underlying objective is to maintain, or enhance, per capita income (the standard of living) in Alberta perpetually into the future. While the level of energy prices most surely determines the level of that standard of living, for current and future generations, they are not an important determinant of the rate of growth in the standard of living.

Finally, there is a very dark cloud on the provincial budgetary horizon: Health care costs. Demographic projections show that the percentage of Albertan's over the age of 65 will double from 10% currently to 20% by 2030. With old age comes, over course, higher health care expenses. Calculations by economists at the Department of Finance<sup>11</sup> in Ottawa suggest an ageing population will put enormous pressure on provincial health budgets. Their calculations show that if provincial governments continue to enrich health care by similar amounts as they have over the past 20 years – by adding things such as pharmacare and increasing spending to reduce wait-times, for example – health care spending will grow from about 33% of total program spending currently to nearly 50% by 2030.

The inexorable march of time and the fact that provincial government spending responsibilities are highly dependent upon population and age distribution means that we can make relatively informed guesses about future demands on provincial government spending. The increases in demand for health related spending that has already begun to be felt will reach a peak in roughly 10 years time and remain high for the following 20 years. A dramatic increase in health care spending is fast approaching and governments must face the inevitable consequences: Either they must increase taxes in the future or they must save now (or “pre-finance” if you will) in anticipation of those costs. The choice is one of intergenerational fairness. Should we bequest to the next generation an exploding health care budget while taking no steps to help pay for it?

#### *4. Our Recommendations*

Based on the above discussion, we make the following recommendations:

- ◆ The boom and bust relationship between program spending and resource revenues has been a thorn in the side of the province for decades. The provincial government has responsibilities in health care, education, and social assistance the cost of which grow more or less steadily and predictably. Spending in these areas cannot be linked or made dependent upon highly volatile and unpredictable resource royalties. A buffer between spending and revenue must be maintained. In other types of economies the annual budget deficit can act as a buffer between volatile revenues and spending. In a resource-based economy such as Alberta this role can, and should, be played by a savings fund. This was

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<sup>11</sup> King, P. and H. Jackson (2000) “Public Finance Implications of Population Ageing”, Department of Finance Working Paper 2000-08.

the motivation behind the establishment of the Sustainability Fund and we applaud its establishment. **The Sustainability Fund should be maintained, with the additional requirement that the cap on the fund be indexed to inflation and population growth.**

- ◆ While technically complicated, conceptually the mathematics of sustainability underlying the insights of Stiglitz and Hartwick are simple and unavoidable. In order for future generations of Albertans to enjoy the standard of living we enjoy today, we must direct our government to save a substantial portion of the revenue generated by our non-renewable resources. In this manner we can convert a *non-renewable* stock of oil and gas into a *permanent* stock of financial capital the benefits of which can be enjoyed by all future generations of Albertans. Somewhat more study is required to determine the precise proportion of royalties that should be allocated to a saving account. Peter Loughheed allocated 30 percent of royalty revenues to the Heritage Fund; we think this is at the lower end of the range, and that something in the 50 percent range may be more appropriate. Moreover, any surpluses generated after the funds are allocated to the fund should also be saved. **We recommend that, at the very least, the province one-third of the non-renewable resource royalties collected by the provincial government be deposited into a revitalized Heritage Fund.**
- ◆ An exciting prospect of the previous two recommendations is that as the size of the Heritage Fund grows, the annual income that it generates will potentially be available to lower taxes in the future. A recent study by economist Jean-François Wen of the University of Calgary has projected that by depositing 50% of anticipated oil and gas royalties, reinvesting all interest income earned on the Fund, and limiting the rate of growth in government spending to reasonable levels, provincial personal income taxes could be eliminated altogether in less than 20 years.<sup>12</sup> Indeed, we are currently benefiting from the foresight of previous generations. Income from the Heritage Fund is currently at around \$1 billion. Spending on health care, or education, or cities is currently \$1 billion higher, or personal income tax rates are 2 percentage points lower, than they otherwise would be if this fund didn't exist. Another possibility is that the annual income spun off by the Heritage Fund will be available to fund the approaching crisis in health care funding. Rather than increase taxes in the future to finance rising health care costs, Alberta can be the envy of other provinces by holding taxes constant – or even lowering them! – even in the face of rising health costs. This is an Alberta Advantage of first order. **We recommend that a revitalized Heritage Fund be significantly enlarged so that taxes can be lowered, or at least not increased, in the future.**
- ◆ The lessons of the resource curse should not be lost on Alberta. An abundance of natural resources in no way guarantee of a high and sustainable standard of living. While resource revenues are, and have been, the province's main economic engine for much of its history, maintaining our standard of living into the future requires that we become a source of advanced technology and ongoing improvements, particularly in the area of natural resource extraction. To provide the human capital needed for these advances we should beware the lessons of the resource curse and not under-invest in higher education. Universities and colleges providing high-quality education and research in all areas are crucial for providing the highly-trained labour force sought after by industry and for

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<sup>12</sup> Wen, J-F (2001) "Eliminating Alberta's Personal Income Tax: (When) Can Heritage Fund Income Replace Tax Revenues?", in L.S. Wilson (ed.), *Alberta's Volatile Government Revenues: Policies for the Long Run*, Institute for Public Economics, Edmonton.

discovering the new ideas, approaches, and techniques that result in the productivity increases necessary to maintain our standard of living. Higher education may not have brought Alberta to where it is today, but it is required to ensure that it maintains this path into tomorrow. One possible approach, would be to earmark some of the revenues allocated to the Heritage Fund under our first recommendation to a separate fund for post-secondary education. The income from this endowment fund could be used to finance post-secondary education. This is not unlike the approach the government has taken in the establishment of the Alberta Heritage Foundation for Medical Research and the endowment fund for science and engineering research, but it would be a broader fund available for all types of post-secondary education. **We encourage further investments in higher education**

We realize that some of the above recommendations – taking a sizable chunk of resource revenues off budget and saving them in an endowment fund, spending more on advanced education and technology – may be difficult. However, they are all grounded in well-established economic principles, and are consistent with the notion of sustainable fiscal policy. The provincial government has modified its budgeting approaches in some laudable ways. Now that it has put its finances in order, Albertans have been asked what the government should do next.

Economics is the dismal science because it forces us to confront unavoidable constraints on our ability to improve our well being. While Alberta may appear to be the land of milk and honey right now, if we take a longer term, intergenerational perspective that emphasizes sustainability, we see that we are effectively drawing down a non-renewable resource in order to finance current consumption, and we reveal Alberta's dirty little secret: we are truly living on borrowed time.

The province is at a crossroads. Adopting our recommendations would put the province on the road to securing the high standard of living we currently enjoy, to securing a high standard of living for future Albertans, to enabling the continued provision of high-quality and accessible health care and education, and to setting the stage for permanently lower taxes in the future.