First Nations Land Management Resource Centre

Partial Benefit-Cost Study Findings
Final Report

KPMG LLP

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Contents

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Glossary

B/C ratio	The ratio of economic benefits, to the cost of achieving them. For example, B/C = 2.5 : 1 would mean the benefits were 2.5 times the costs.
Benefit stream	The benefits modeled for individual projects, and for the Framework Agreement in total over all years modelled.
Big winner	An informal term to describe projects of individual First Nations believed to have the highest economic impacts. Only the benefits of big winner projects were estimated.
Bounds	In benefit-cost studies, bounds provide more optimistic estimates ("upper bound") and more conservative estimates ("lower bound") of the economic impacts.
Case study	In PBCA (see below), economic benefits are calculated using case study techniques (e.g., document review, interviews), for individual economic development projects. Each case study uses estimation methods unique to that case and project(s).
Cost stream	The costs modeled for the Framework Agreement in total, as well as implementation costs for the "big winner" projects only, over all the years modelled.
Discount rate	Discounting takes into account that the monies spent on implementing the Framework Agreement, LCs, and individual economic projects could instead have been invested (e.g., in mutual funds, Government of Canada Treasury bonds), providing some financial return. Discounting compares the actual benefits and costs to this hypothetical return to ask, "Was investing in this program better or worse than simply investing the funds at an X% rate?" The X% is the "discount rate". Usually 2 – 3 rates are used as a sensitivity analysis – the higher the discount rate, the higher the actual benefits must be to match what the financial returns would have been through a hypothetical investment.
FA	Framework Agreement on First Nations Land Management – the FA supports First Nations in the development of their own Land Codes (LCs), in turn providing them considerably more control and flexibility to plan, fund, and implement the economic development projects which were investigated in this report.
Incrementality	The degree to which important socio-economic impacts would not have occurred at all (or would have occurred much later on, or with far more difficulty), without the existence of the Framework Agreement. In this study, only projects showing high incrementality to the Framework Agreement were considered in the analysis.
FN	First Nation
FNLM	First Nations Land Management
INAC	Indigenous and Northern Affairs Canada
LC	Land Code – These are the Land Codes that individual First Nations develop and implement under the Framework Agreement. In this study, only economic development projects which depended in some way on a new land code for specific First Nations were included in the PBCA.

Legacy programs	Programs existing prior to the Framework Agreement that had a similar purpose: to help First Nations with their land management tools and activities.
Long list	The initial list of all candidate projects to possibly be investigated under PBCA – winnowed down through further investigation into a "short list" of the best candidates.
Lower bound	A conservative estimate of the economic benefits of an individual project, using more pessimistic assumptions of what will likely be achieved over time (e.g., using slower assumptions about market growth). Totalling the lower bounds of all projects studied provides a lower bound of the total benefits of the program.
Modeling	Benefits and costs associated with individual case studies and projects, and with the Framework Agreement as a whole, were "modeled" over time, using actual financial figures up through Year 2016, and projected figures (for benefits only) for years after 2016, using various documented assumptions about the projects' likely future success.
Monetization	Estimating the dollar ("money") value of socio-economic benefits; e.g., sales revenues or cost savings.
Net benefits	For individual projects, "net" means the gross revenues from that project (e.g., sales revenue), minus costs of developing and implementing the project (e.g., building, staffing, and operating it); i.e., this is analogous to their "profits".
NPV	Net Present Value – In PBCA for the Framework Agreement, the NPV is the difference between the discounted total net benefits of the high impact cases investigated, minus the total discounted costs of the entire Framework Agreement. In other words, it is the "profit" to Canada of implementing the Framework Agreement and Land Codes at individual First Nations
PBCA	Partial Benefit-Cost Analysis – A special benefit-cost technique in which the net benefits of only a small sub-set of especially high impact projects are compared to the total costs of the entire program which created those projects.
Project	An individual economic development initiative for which economic benefits were estimated. There might be one or more projects within a given First Nation.
SEB	Socio-economic benefit
Short list	The final list of the best projects (i.e., highest impacts, quantifiable in dollar terms, good data) that were investigated in detail under PBCA.
Upper bound	An optimistic estimate of the economic benefits of an individual project, using more liberal assumptions of what will likely be achieved over time (e.g., using faster assumptions about market growth). Totalling the upper bounds of all projects studied provides an upper bound of the total benefits of the program.

1   Executive Summary

Overview. This report is the result of the Partial Benefit-Cost Analysis (PBCA) study undertaken to quantify the economic role and impact of the Framework Agreement (FA) on First Nations Land Management (FNLM). The study documents the value and benefit of the Framework Agreement to the Canadian national economy.

Partial benefit-cost analysis. PBCA is a specialized case of general Benefit/Cost Analysis and uses the same principles. Using PBCA, KPMG modeled the net economic benefits (i.e., the "profits") associated with only a small number of First Nations projects which were believed to have the highest economic impacts (informally called "big winners"). Only the benefits from projects which would not have proceeded without the Land Codes developed under the FA were estimated. The sum of these net benefits from the "big winners" was compared to the total incremental FA costs from 1996 through 2016. ("Incremental" means only costs which would not have been incurred by the federal government without the FA were modeled; e.g., certain costs that existed prior to the FA, and which did not increase under the FA, were excluded.)

The PBCA modeling. The final PBCA was conducted on a total of four of the highest impact cases, one of which had two sub-components, for a total of benefits from five projects being quantified. (This list of final cases was refined by the KPMG study team from an initial list of 14 candidate cases which were thought to have large socio-economic benefits (SEBs) that were in large part due to a given First Nation operating under their land code. This means there are a number of other potential "big winners" arising from the FA which currently cannot be modelled, so the results reported here are likely very conservative.)

As there were uncertainties associated with each of the highest impact cases that did not allow precise calculation of their net benefits, a lower bound and upper bound estimate of benefits were made, representing more conservative and more optimistic assumptions about future project achievements, respectively. (This is a common situation in PBCA studies – it is not a finding unique to the FA.) Further, a "best estimate" was calculated for each case. The "best estimate" was derived on a case-by-case basis. For example, in a case where there were no data to suggest which of the lower or upper bound estimates were more likely, a simple average was used for the "best estimate". In a case where non-FA industry data suggested a typical value for one of the variables used in the PBCA, that value was used in the "best estimate".

Findings. The PBCA results suggest that the FA will generate net positive benefits (i.e., "profits") for Canada. Under the best estimate scenarios for each case study, the FA provides a positive net return to Canada of between roughly $270 million and $1.4 billion (depending on the discount rate used), modelled over the anticipated lifetime of the projects considered in the PBCA. That is, the five big winner projects alone may generate profits from $270 million to $1.4 billion over and above the entire FA costs, plus the costs of building and running these five projects, over their assumed lifetime.

These represent benefit/cost ratios from 1.8 : 1 to 7.5 : 1, again depending on the discount rate used. In other words, these cases illustrate positive returns derived from the FA for Canada. That is, for every dollar that was put into the FA and these "big winner" projects by the individual First Nations and their partners, between $1.80 and $7.50 in profits may be returned. See the table below for a summary of these findings. In this table, the "discount rate" represents a comparison of the PBCA benefits to what a simple investment (e.g., in mutual funds, or Treasury bonds) would have returned. For example, the FA "big winners" will return about $579 million more than investing the entire FA expenditures (to date) at a 5% annual rate, compounded.

Net Present Value and Benefit-Cost Ratios for "Best Estimate" Scenarios

	Best Estimate Benefit Assumptions ($million, 2016$)		
Discount Rate	**2%**	**5%**	**7%**
Net benefits in high impact cases	1,629.6	857.9	602.7
FNLM costs	216.5	278.7	333.1
Net Present Value	1,413.1	579.1	269.5
Benefit-Cost Ratio	7.5	3.1	1.8

These figures are lower bounds, as the net benefits from only five individual economic development initiatives have been compared to the incremental cost of the *entire* FA for all participating and non-participating First Nations (e.g., those in the developmental phase). Although the Treasury Board of Canada recommends a 7% discount rate,[1] this is somewhat higher than the 5% rate typically used for analysis of innovation programs, and is likely considerably higher than what individual FNs could obtain through individual investments, resulting in the 7% discount rate likely being overly conservative in this case.

As such, a range between the 2% and 5% discount rate, or a benefit-cost ratio between 3.1 : 1 and 7.5 : 1, is a very conservative "best estimate" to use for interpretive purposes. That is these findings suggest that the FA may return profits to Canada of between $3.10 and $7.50 for every dollar invested, over and above investing the same monies into financial instruments returning 5% or 2% annual compound interest, respectively.

Both the Net Present Value (NPV) and Benefit-Cost (B/C) figures provide strong and defensible evidence regarding economic impacts. The findings are lower bounds and represent the minimum net benefits associated with the FA because of the underlying nature of PBCA, in that it estimates the impacts from only a small number of the highest impact projects, but compares these to the total costs of the entire program.

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[1] http://publications.gc.ca/collections/collection_2015/gazette/SP2-2-149-9.pdf

2   Partial Benefit-Cost Analysis Methodology

2.1   Introduction

Partial Benefit-Cost Analysis is a leading practice for investigating the socio-economic benefits of initiatives in which the benefits are very unevenly distributed. In these circumstances, typically a small proportion of projects or initiatives result in a large proportion of the total impacts. Thus, in PBCA, one carries out rigorous benefit-cost analyses through case studies of a sample of the highest impact projects or initiatives only (informally called "big winners"), but normally one compares the total net benefits of this sample to the total cost of the program. The "big winner" case studies investigated are always those:

- with the highest known socio-economic benefits (SEBs);
- having impacts which can be quantified in dollar terms ("monetized"); and
- where the impacts are clearly attributable, at least in large part, to the program under review, in this case the Framework Agreement on First Nations Land Management and the development of a First Nations' (FN) Land Code (LC), as opposed to other parties or independent, non-FA or non-LC actions of the FNs.

In PBCA, the first (and often most difficult) task, is to identify which specific projects may be "big winners", typically by asking expert observers to suggest a "long list" of PBCA candidates. Further investigation then reduces this to a "short list" of cases which are the best for full investigation. This process for the FA is discussed further below.

2.1.1   The "long list"

Extensive discussions with the representatives of the Lands Advisory Board and First Nations Land Management Resource Centre were held to identify the "long list" of possible case studies. These were cases which were initially believed to satisfy the criteria defined in section 2.1 above, and thus were considered for more detailed investigation. The "long list" consisted of 14 First Nations which were believed to have high impact initiatives and projects.

2.1.2   Intermediate activities

Through iterative interim stages, the 14 FNs in the "long list" were investigated in more detail to determine how large their SEBs were, whether they could reasonably be attributed to the FA and development of a First Nations' Land Code, and whether defensible quantitative information on the size and timing of SEBs could be obtained. Note that projects which could not be tied to the development of an LC under the FA were not investigated; e.g., if an important economic development initiative was begun prior to that FN developing its LC, then that project was not investigated. Further, case study respondents were asked to describe in detail how each specific project might have evolved if not developed following the LC; if there were no significant differences with vs. without the LC – i.e., there were no "incremental impacts" – that project was not included in the PBCA. (Such investigation of the incrementality of impacts related to the program under review is standard in PBCA studies.)

2.1.3   The final "short list"

The final PBCA was conducted on a total of four "big winner" cases, one of which had two sub-components, for a total of five initiatives quantified. As noted above, this list of final cases was refined from an initial list of 14 candidate cases which were initially thought to have large SEBs that were in large part due to the FA. Of these 14:

- Four had benefits which could be defensibly quantified. These are discussed in detail in section 3;

- Three did not agree to participate in the study; and

- Seven had interesting and potentially significant SEBs, but these SEBs proved to be impossible to quantify, for one or more of several reasons:

  - Too early in the process to make defensible estimates of future SEBs; and/or

  - Most major economic development projects had been initiated prior to those FNs developing their LCs; and/or

  - It was very difficult to obtain concrete information on the magnitude of the SEBs.

This situation is not unusual in PBCA studies: often the "long list" of projects is winnowed down to a handful of projects on the final "short list" that can be quantified, so no negative interpretation of this situation should be made.

2.1.4   PBCA methodology

The full details of PBCA are provided in Appendix A of this report. In summary, the PBCA was conducted through the following activities:

- Consulted with the members of the First Nations Land Management Resource Centre and Lands Advisory Board as to the likely nature of SEBs within each case;

- Obtained contact information for individuals within each FN who were known to be knowledgeable about the SEBs under consideration;

- Reviewed existing documentation for each case (e.g., materials on each FN's website related to the case under study);

- Conducted detailed interviews with individuals within each of the FNs;

- Drafted write-ups laying out the main quantitative assumptions for each case (e.g., size of benefits, known costs, timing of benefits);

- Validated assumptions with the key individuals within each case study FN;

- Modelled net benefits in Excel for each in-scope case, including:

  - the gross benefits for each PBCA case, by year;

  - the costs of implementing, constructing, operating, and maintaining each PBCA case, by year;

  - the net benefits of each PBCA case, by year (i.e., the gross benefits minus the costs);

  - the Excel modelling of the total FA costs, by year:

- o Only the incremental "new" costs associated with the FA were used, as many FA functions and expenditures were also made under earlier legacy programs such as the Reserve Land and Environment Management Program (RLEMP) or the 53/60 Delegated Authority Program;

- o The study team determined that approximately 52% of the total actual FA expenditures were incremental; i.e., they were not part of the legacy programs, and therefore represented "new" FA costs that should be included against the cost side of PBCA. Further details on this calculation are provided in section 5 of Appendix A.

- Excel modelling of Net Present Value and Benefit/Cost ratio:

- o NPV = (Net benefits of big winners) minus (Total FA costs); and

- o B/C ratio = (Net benefits of big winners) divided by (Total FA costs)

- Note that individual case study models are conservative, as they only quantify a portion of the benefits associated with each initiative; e.g., benefits to human health and/or the environment were not quantified or dollarized.

- Further, the nature of PBCA means that both the overall NPV and B/C ratios are lower bounds: Only the benefits from a few of the highest impact projects were dollarized, whereas these net benefits were compared to the costs of the entire FA. As noted above, some FNs did not participate in the study, and other FNs are too early in the process to be able to defensibly model their benefits, so if these benefits were known, the NPV and B/C ratios modelled would both increase, while the costs modelled would remain the same.

- As a result of both the conservative modelling within individual case studies, and the overall "big winner only" approach used by PBCA, the overall NPV and B/C ratios are minimum values for the FA overall.

3 The Framework Agreement PBCA Case Studies

3.1 Dokis First Nation - Okikendawt Hydroelectric Project

Project description. The Okikendawt Hydroelectric Project is located adjacent to an existing dam that controls an outflow of water from Lake Nipissing into the French River on traditional Dokis territory. The Okikendawt Hydroelectric Project is a commercial venture jointly-owned by Hydromega Inc. and the Dokis First Nation. The 10 megawatt facility will sell 100% of its power to the Ontario Power Authority (OPA) [2] for a forty (40) year term through a Feed-in-Tariff (FIT) power purchase agreement.[3]

Construction started in June 2013 and was commissioned in June of 2015.

Detailed mapping of modelled impacts and assumptions.   FIT contract prices are publicly available on the Ontario Power Generation website. The rate table published April 5, 2012[4] by the OPA has been used as the baseline price per kilowatt hour.

For small hydro projects ≤10 MW, the price is 13.1 ¢/kwh. However, the OPA rate table specifies price adders for aboriginal participation projects where a First Nations participation level (equity) is >15% ≤50%, in which case an additional 0.75 ¢/kwh is added. As this is the case for Dokis, this additional rate has been used in the modeling.   The rate table also allows for an escalation percentage based on the Consumer Price Index but these adjustments have not been made in the model.

Capacity is the proportion of time a year that a power facility is actually generating electricity. Run-of river stations can vary widely as they will not generate power when water levels are low. Capacity for run-of-river projects is noted to be between 40% and 80%.[5]

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[2] Through amendments to the *Electricity Act of Ontario*, the operations of the Independent Electricity System Operator and the Ontario Power Authority were merged on January 1, 2015. The organization is now just called the IESO. http://www.ieso.ca/Pages/About-the-IESO/default.aspx

[3] Okikendawt Media Release, August 19, 2013, Dokis First Nation, Ontario, http://www.dokisfirstnation.com/index.php?mact=News,cntnt01,detail,0&cntnt01articleid=23&cntnt01returnid=102

[4] The OPA rate table for 2012 has been used as the baseline price per kilowatt hour for both the Dokis and Henvey energy projects as this rate table is closest to the timeframe for negotiation of both projects.

[5] http://www.energybc.ca/profiles/runofriver.html -- originally from 2.Hatch Energy- Natural Resources Canada. 2008. Low head hydro market assessment. Vol:1. Main Report. Ontario, Canada. Retrieved at: http://canmetenergy-canmetenergie.nrcan-rncan.gc.ca/fichier.php/codectec/Fr/H327842.201.01/Low+Head+Market+Assess+Rpt+-+Vol%5E1+Main+Report.pdf, accessed March 15, 2016

Dokis Analysis Summary Table:		
	Lower Bound	**Upper Bound**
Reasoning for Quantitative Economic Benefits	40% capacity 13.85 ¢/kwh Gross revenue $4.29M/yr. Assumes total costs (Dokis and partner) = $60M. Dokis is known to intend to pay off its loan over a 4 year period; it is assumed the partner does the same.	80% capacity 13.85 ¢/kwh Gross revenue $8.58M/yr. Costs as per lower bound.
"Best Estimate"	50% capacity 13.85 ¢/kwh Gross revenue $5.37M/yr. Costs as per lower bound.	
Timeframe for Quantitative Economic Benefits	40 years (i.e., until 2055)	40 years (i.e., until 2055)
Other Economic Benefits not Quantified	Creation of a number of temporary, part-time, and full-time jobs for Dokis Community members. Supporting land lease agreements for temporary accommodation sites through the construction phase. Provision of materials (fuel, aggregates) during construction.	
Qualitative Benefits	Improvements to infrastructure, education, business creation support, and the protection of culture, social well-being and health.	

3.2   Henvey Inlet First Nation – Henvey Inlet Wind Energy Centre

Project description. Henvey Inlet First Nation (HIFN) established and owns 100% of Nigig Power Corporation (Nigig Power), which was set up to develop the Henvey Inlet 300 Mw wind project. Work on the project has been ongoing since 2008, including the early activities of wind resource analysis, environmental and cultural features assessments, community engagement, and analysis of transmission routing and turbine siting.

Nigig Power attributes the Henvey Inlet Land Code as the mechanism that provided the necessary means to escalate and finalize the project and project contracts after land control delays occurred due to unsuccessful attempts to produce bankable land control instruments with the federal government.

On June 4, 2010 (subsequent to the passing of the HIFN Land Code), Nigig Power submitted a Feed-In-Tariff Application to the Ontario Power Authority for the 300 Mw wind farm project. A power purchase contract was secured in February 2011, the largest contract award in Ontario at the time.[6] The FIT contract is a 20 year term and the project will be constructed and operated in a 50:50 partnership with a commercial developer.

There are two main components of the project:

- *Wind Component* - The project will install up to 90 turbines after studying 120 turbines sites. Project delays presented an opportunity to order newer, larger and more efficient technology. Each turbine will have a small pad-mounted transformer located beside the tower, one on-site substation including transformer and electrical collector lines. The project also includes access roads to the turbines for on-going maintenance as well as electrical equipment and systems required for hook-up to Hydro One Networks Inc.'s (Hydro One) grid. The wind turbines and on-site substation will be situated exclusively on Henvey Inlet No. 2 lands with a footprint of about 500 acres out of the 20,000 acre reserve property.

- *Transmission Component* - From the on-site substation, a new transmission line will transport the electricity generated at the wind farm to Hydro One's Parry Sound Transformer Station. The transmission line design is currently being finalized and will consist of a 230kV overhead pole line. The transmission line will be located off of Henvey Inlet reserve lands.

Detailed mapping of modelled impacts and assumptions. The Henvey Inlet Wind Farm is expected to be operational in 2018 and has a FIT contract for the purchase of power for 20 years. Industry estimates project wind turbines generate only 30-40% of their total capacity, with real-word experiences indicating capacities are typically more in the 15-30% range.[7] The HIFN wind project estimates place it in the 30-33% capacity range.

FIT contract prices are publicly available on the Ontario Power Generation website. The rate table published April 5, 2012 by the OPA has been used as the baseline price per kilowatt hour.

For all sizes of wind projects the price is published at 11.5 ¢/kwh. As for Dokis, the OPA rate table identifies price adders for aboriginal participation projects where a First Nations' participation level (equity) is >15% ≤50%, with an additional 0.75 ¢/kwh being added. However, Henvey Inlet negotiated the OPA contract prior to 2012 when rates were somewhat higher (the actual Nigig Power/OPA

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[6] Nigig Power Corporation, Fact Sheet – August 2011
[7] https://www.wind-watch.org/faq-output.php, accessed March 14, 2016.

contract rate is confidential). Fact Sheets[8] published by Nigig Power and Henvey Inlet identify an anticipated rate of 15.0 ¢/kwh once the project has been constructed and brought online. We have used the latter figure in our upper bound estimate.

The rate table also allows for an escalation percentage based on the Consumer Price Index but these adjustments have not been made in the model.

A high-level estimate of costs to develop, build and implement were provided by HIFN at $1B (HIFN and partner), with construction starting in March 2017.

Henvey Inlet Summary Table		
	Lower Bound	**Upper Bound**
Reasoning for Quantitative Economic Benefits	15% capacity 12.25 ¢/kwh Gross revenue $48.3M/yr., plus leasing revenue at 3% of gross revenues Assumes total cost = $1B, amortized over 20 years @ $80M/yr. (actual costs unknown)[9]	30% capacity 15 ¢/kwh (based on rates prior to 2012 when Henvey was negotiating the OPA contract)[10] Gross revenue $118.3M/yr., plus 3% lease revenue Costs as for lower bound
"Best estimate"	25% capacity Higher rate per kwh Gross revenue $98.6M/yr., plus lease revenues Costs as for lower bound	
Timeframe for Quantitative Economic Benefits	40 years (i.e., until 2055)[11]	40 years (i.e., until 2055)
Other Economic Benefits not Quantified	Employment growth, particularly during construction where it is estimated more than 500 jobs will be created.	

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[8] Nigig Power Corporation, Fact Sheet, August 2011 and June 2010, http://www.hifn.ca/?page_id=253.
[9] This figure is scaled up from on other similar power project cost projections. See, e.g., http://owa.ca/assets/files/conferences/2011/presentations/Costal-VLH_Turbine.pdf. Paying off this loan earlier will increase the NPV and B/C ratio somewhat, as discounting has less of an effect. However, the effect is not enough to substantially change the overall PBCA findings.
[10] Nigig Power Corporation, Fact Sheet, August 2011. http://www.hifn.ca/wp-content/uploads/downloads/2011/09/Nigig-Power-Update3-August-20111.pdf, accessed August 19, 2016.
[11] The initial contract is only for 20 years, but if the project terminated then, it would run at a net loss. As this cannot be the assumption of the funding partners, a 40 year lifespan is projected. Actual projected lifespan is confidential.

Henvey Inlet Summary Table		
	Lower Bound	**Upper Bound**
	Avoided greenhouse gas emissions.	
Qualitative Benefits	Henvey Inlet attracted offers from major global energy players, including some of the top development, engineering, procurement and construction firms.	
	Revenues generated from the wind power project are anticipated to support:	
	• Community and economic development;	
	• Improved infrastructure;	
	• Expanded and new education and training programs;	
	• Expanded and new social, cultural and health programs;	
	• Additional housing;	
	• 100+ post-construction jobs; and	
	• The potential to create a self-sustaining economy.	

3.3 Mississaugas of Scugog Island First Nation – Great Blue Heron Charity Casino

Project description. The Great Blue Heron Charity Casino is owned by the Mississaugas of Scugog Island First Nation (SFN) and is operated by Great Blue Heron Gaming Company, which is wholly owned by Casinos Austria International (CAI Ontario Inc.) and others. The Ontario Lottery and Gaming Corporation (OLG) owns and maintains authority over the slot machine facility, which is located within the casino.[12]

The casino started as a vision of the Mississaugas of Scugog Island First Nation. Their goal was to provide an economic development plan to foster opportunity and advancement for their Community, which turned into a reality through an agreement with CAI and its local partners, the Steiner Group and Sonco Gaming Inc., who developed and operate the casino on their behalf.

When the casino first opened its doors in 1997, the gaming opportunities consisted of only 40 table games with $10 betting limits and a 650-seat bingo hall, both operating with restricted hours. Through a subsequent agreement with the OLG, the casino was remodelled throughout 1999, and in May of 2000 (subsequent to the implementation of the First Nation's Land Code) added 450 slot machines and discontinued its bingo operation. Since then the casino has continued to grow, adding more variety and games to the facility. These changes have taken the Great Blue Heron Charity Casino,

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[12] Ontario Lottery and Gaming Commission, Annual Reports 2009-10 through 2013-14, http://www.olg.ca/about/public_disclosure/annual_report.jsp, accessed February 20, 2016.

from only 245 employees into one of the largest employers in Durham Region. Currently the casino employs over 1,100 staff, including ~85 from local and surrounding First Nations.

The Mississaugas of Scugog Island First Nation identify an inextricable causal link between their land code and the negotiated leasing agreement with the OLG for the slot machines and facility. Having the ability to govern lands according to the Scugog Island land code is one of the main reasons the First Nation became signatory to the Framework Agreement. Governance over the negotiations for the leasing agreement with OLG has provided the benchmark for economic development for the First Nation.

The Mississaugas of Scugog Island have developed supporting land laws and continue to support economic development efforts. There are two areas where the First Nation would like to continue to focus its governance efforts: enforcement of land laws; and environmental stewardship (including resolving legacy issues).

Detailed mapping of modelled impacts and assumptions. The analysis only considers a very conservative portion of revenue and funds received from the OLG. As reported publicly through the OLG's annual reports, the Great Blue Heron development and operating agreement provides 5% of revenue from OLG slots in consideration for the provision of lands used for the Slot Machine Facility.

These amounts have been as follows[13]:

Year	Revenue ($)
2013-2014	$3,600,000
2012-2013	3,910,000
2011-2012	3,870,000
2010-2011	3,755,000
2009-2010	4,188,000
2008-2009	4,556,000
Average	$4,055,800

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[13] Ibid

Scugog Analysis Summary Table		
	Lower Bound	**Upper Bound**
Reasoning for Quantitative Economic Benefits	Past revenue stream used actual annual revenues to SFN of $3.6M - $4.6M (as in table above) from 2008 – 2013. Future revenues estimated at $3.6M annually from 2013 onwards, based on most recent revenues from Casino operation. Costs have already been netted out from these returns to SFN.	Although revenues have actually been decreasing recently, the upper bound uses the actual 6 year average of $4.1M annually.
"Best estimate"	Average of lower and upper bound; i.e., future annual revenues of ~$3.8M/yr.	
Timeframe for Quantitative Economic Benefits	20 years[14]	20 years
Other Economic Benefits not Quantified	The analysis only considers a very conservative portion of revenue and funds received from the OLG. As reported publicly through the OLG's annual reports, the Great Blue Heron development and operating agreement provides 5% of revenue from OLG slots in consideration for the provision of lands used for the Slot Machine Facility. There are other spin off economic benefits to Scugog Township and Durham Region.	
Qualitative Benefits	Currently the casino employs over 1,100 staff, including ~85 from local and surrounding area First Nations.	

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[14] The actual contract term is confidential. 20 years have been used for modelling purposes.

3.4   Westbank First Nation – Snyatan and Okanagan Lake Landing

Project description. This case focused on two commercial retail developments, Snyatan Mall ("The Gathering Place") and Okanagan Lake Landing, both developed on Westbank First Nation (WFN) lands. While WFN is considering other development possibilities (e.g., Pondarosa Golf Course and/or residential development) these were not near enough to estimate potential benefits for PBCA.

Snyatan. This 94,000 s.f. development has significant anchor franchises (e.g., Winners and Future Shop, now subleased to Wholesale Sports), as well as many mid-sized franchises (e.g., Second Cup, Dollar Tree, H&R Block, Peace Hills Trust, Bosleys, Bulk Barn, R&R Hair, Mr. Mozzarella restaurant, Nari Sushi restaurant, Five Guys Burgers restaurant, and many more). Phase I is 90% occupied and represents about half of the potential development, and Phase II will go forward when economic conditions permit. The development is built on a mix of community- and Certificate of Possession (CP)-owned land (the project began with the CP portion, followed by WFN contributing an adjacent Community Land parcel). The cash flow is positive, although Snyatan is early in its life so this income is currently servicing debt rather than distributable cash.

WFN is a 40% owner, so as Snyatan matures, 40% of revenues will go to WFN. The First Nation also obtained cash up front as a partial lease payment for the 6.975 acres of Community Land contributed to the project by WFN.

Snyatan was able to raise debt from top tier institutions such as Peace Hills Trust, Scotiabank and HSBC. WFN believes that its new land management regime likely contributed significantly to the developers' ability to bank-finance projects on WFN leased land.

Okanagan Lake Landing. This development is currently ~72% occupied, with higher lease rates than Snyatan due to its more strategic location, and already has had some distributable cash for partners. WFN is a 50% equity owner, entitled to 50% of future net revenues, and the First Nation received approximately 50% of the appraised land value as an up-front payment as well.

The Churchill WFN Limited Partnership raised financing from top tier institutions, such as Valley First Credit Union and Canadian Western Bank, but WFN itself did not directly obtain loan financing to participate in the development transaction.

Detailed mapping of modelled impacts and assumptions. The confidential figures for up-front cash payments for leased WFN land, and confidential internal WFN projections for anticipated net revenues from each development by 2018, and by 2024, were used in the modeling.

Westbank Analysis Summary Table		
	Lower Bound	**Upper Bound**
Reasoning for Quantitative Economic Benefits	Projections of net income to WFN were obtained by KPMG for both Snyatan and OKL, for use in PBCA analysis. These are confidential and cannot be disclosed. KPMG also obtained details of the up-front payments for each development, and these are also included in the PBCA analysis; these amounts are also confidential. There are only minor administrative costs to WFN for managing these investments. Infrastructure cost charges were recovered through development cost charges paid by the project to WFN as the governing institution.	As for lower bound
"Best estimate"	As for lower bound	
Timeframe for Quantitative Economic Benefits	50 years, based on observed lifetime of major malls); operating costs not significant.	Same as lower bound
Other Economic Benefits not Quantified	Significant increase in the assessed value of WFN land, from $398M in 2005 to $1.13B in 2012.[15] Not possible to determine exact contribution of the FA and LC, although likely to be a significant factor.	
Qualitative Benefits	Snyatan raised debt from top tier institutions. Investigating WFN's land management regime contributed to developers' ability to bank-finance projects on WFN leased land.	

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[15] http://www.wfn.ca/docs/2013_-_6._leasing_wfn_lands__barry.pdf.

4 The Framework Agreement PBCA Findings

4.1 "Best estimate scenario"

Summary. The PBCA results suggest that the FA may generate net positive benefits (i.e., "profits") for Canada. Under the best estimate scenarios for each case study, the FA may provide a positive net return to Canada of between roughly $270 million and $1.4 billion (depending on the discount rate used), modelled over the anticipated lifetime of the projects considered in the PBCA. That is, the five big winner projects alone may generate profits of $270 million to $1.4 billion over and above the entire FA costs, plus the costs of building and running these five projects, over their assumed lifetime.

These represent benefit/cost ratios from 1.8 : 1 to 7.5 : 1, again depending on the discount rate used. In other words, these cases illustrate positive returns derived from the FA for Canada. That is, for every dollar that was put into the FA and these "big winner" projects by the individual First Nations and their partners, between $1.80 and $7.50 in profits may be returned. See the table below for a summary of these findings. In this table, the "discount rate" represents a comparison of the PBCA benefits to what a simple investment (e.g., in mutual funds, or Treasury bonds) would have returned. For example, the FA "big winners" may return about $579 million more than investing the entire FA expenditures (to date) at a 5% annual rate, compounded.

Best estimates. As seen in section 3, a lower bound, upper bound, and "best estimate" were calculated for each case. Derivation of lower and upper bounds is common in PBCA studies simply because many of the variables used in calculating individual benefits are subject to uncertainties, even when based on available data and/or expert opinions. For example, future market changes may be difficult to model, the actual operating efficiencies of individual projects may be subject to effects due to training and experience, weather, etc. This is a normal situation in PBCA studies – it is not a finding unique to the FA and should not be interpreted as negative in any way.

Here we present the "best estimate" results for the FA overall. Individual "best estimates" were first derived on a case-by-case basis. For example, in a case where there were no data to suggest which of the lower or upper bound estimate was more likely, a simple average was used for the "best estimate." In a case where non-FA industry data suggested a typical value for one of the variables used in the PBCA, that value was used in the "best estimate." These individual case study based "best estimates" were then used to derive the NPV and B/C ratio "best estimates" for the FA as a whole, as shown in exhibit 1.

Under the best estimate scenarios for each case study, the FA provides a positive net return to Canada of between roughly $270 million and $1.4 billion (depending on the discount rate used), modelled over the anticipated lifetime of the projects considered in the PBCA. These represent benefit/cost ratios of from 1.8 : 1 to 7.5 : 1, again depending on the discount rate used. In other words, the FA "makes money" for Canada.

Exhibit 1 – Net Present Value and Benefit-Cost Ratios for "Best Estimate" Scenarios

	Best Estimate Benefit Assumptions ($million, 2016$)		
Discount Rate	**2%**	**5%**	**7%**
Net benefits in high impact cases	1,629.6	857.9	602.7
FNLM costs	216.5	278.7	333.1
Net Present Value	1,413.1	579.1	269.5
Benefit-Cost Ratio	7.5	3.1	1.8

As stated previously, these figures are lower bounds, as the net benefits from only five individual economic development initiatives have been compared to the incremental cost of the *entire* FA for all participating and non-participating First Nations (e.g., those in the developmental phase). In addition, the 7% discount rate recommended by the Treasury Board of Canada[16] is somewhat higher than the 5% rate typically used for analysis of innovation programs, and is likely considerably higher than what individual FNs could obtain through individual investments, and so provides very conservative findings.

As such, a range between the 2% and 5% discount rate, or a benefit-cost ratio between 3.1 : 1 and 7.5 : 1, is a very conservative "best estimate" to use for interpretive purposes. That is, these findings suggest that the FA may return profits to Canada of between $3.10 and $7.50 for every dollar invested, over and above investing the same monies into financial instruments returning 5% or 2% annual compound interest, respectively.

4.2   Sensitivity analyses

Lower and upper bounds. As noted earlier, some of the case studies used more conservative or more liberal assumptions to arrive at lower bound or upper bound estimates, respectively, for NPV and B/C ratios. In addition to reflecting the uncertainties associated with modeling impacts out into the future, these also provide one type of sensitivity analysis – what if we are rather pessimistic, or rather optimistic, about the likely fate of these initiatives? The NPV and B/C ratios for these assumptions are found in Exhibit 2.

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[16] http://publications.gc.ca/collections/collection_2015/gazette/SP2-2-149-9.pdf

Exhibit 2 – Net Present Value and Benefit-Cost Ratios for Lower Bound and Upper Bound Scenarios

	Lower Bound Benefit Assumptions ($million, 2016$)				Upper Bound Benefit Assumptions ($million 2016$)		
Discount Rate	*2%*	*5%*	*7%*		*2%*	*5%*	*7%*
Net benefits in high impact cases	203.1	-32.8	-86.4		2,278.8	1,262.1	915.1
FNLM costs	216.5	278.7	333.1		216.5	278.7	333.1
Net Present Value	-13.4	-311.5	-419.5		2,062.3	983.4	582.0
Benefit-Cost Ratio	0.9	-0.1	-0.3		10.5	4.5	2.7

The exhibit above shows that, not surprisingly, the FA is even more beneficial to Canada under the upper bound assumptions, providing a net return of between roughly $580 million and $2.0 billion, depending on the discount rate chosen.

The situation under the lower bound assumptions, however, is less positive: the net return to Canada is about at the break-even point, with a B/C ratio just slightly under the "breaking even" point of 0.9:1. At 5% and 7% discount rates, the net return to Canada is negative, showing losses of from $300M to $400M, respectively.

What do these negative findings for the lower bound assumptions mean? The interpretation is that these large initiatives – especially the two large energy projects – are not "build them and forget" projects that will absolutely provide positive returns for either the participating FNs, partners or for Canada. Instead, it will be critical to monitor – and actively maximize – their operations, costs, efficiencies, and profits over the long term, remembering that we modelled out 40 to 50 years from the present. That conclusion is of course true for all large energy projects, not just those developed under the FA, but it's a finding well worth bearing in mind going forward.

Modeling Henvey Inlet and Dokis with 50 year lifetimes instead of 40 year lifetimes. The analysis in Exhibit 2 is based on modelling the two large energy projects with 40 year lifespans, rather than the more liberal assumption of 50 years for the mall projects of Westbank and more conservative assumption of 20 years for the casino project of Scugog. This was simply because of uncertainties regarding how much upgrading, major maintenance, and equipment replacement might be required over the long term for the energy projects and what the potential future cost requirements may be. However, an additional sensitivity analysis is possible by modelling Henvey Inlet and Dokis with similar 50 year lifespans, in essence assuming they will be well-run and well-maintained over the long term, and not require major capital investments (other than planned routine investments), over this time. The results are shown in Exhibit 3 (with the B/C ratios for the 40-year assumptions found in Exhibit 1 also shown for comparison).

Exhibit 3 – Net Present Value and Benefit-Cost Ratios for "Best Estimate" Scenarios – 50 Year Lifespan for Henvey Inlet and Dokis

	Best Estimate Benefit Assumptions ($million, 2016$)		
Discount Rate	*2%*	*5%*	*7%*
Net benefits in high impact cases	2,075.0	981.5	657.9
FNLM costs	216.5	278.7	333.1
Net Present Value	1,858.5	702.8	324.8
Benefit-Cost Ratio (50 yrs.)	9.6	3.5	2.0
Benefit-Cost Ratio (40 yrs.)	7.8	3.2	1.8

Of course, the "50-year assumptions" increase the NPVs and B/C ratios somewhat, although not to an enormous extent, and especially under the higher discount rates as discounting significantly lowers the value of revenues earned far in the future. This sensitivity analysis does, however, reinforce the discussion above regarding lower and upper bounds in that it shows that careful attention paid over the long term to these large capital investment projects pays off for FNs and Canada.

A   Appendix A

PBCA Details

1. What kinds of economic impact methodologies are available?

First, we wish to put PBCA into the context of the many different types of "economic impact" studies often seen. This topic is confusing, in large part because many methodologies in common use are called an "economic impact" analysis, even though different methods measure very different things, in very different ways, and the results mean very different things. It is worth a brief digression to show where PBCA fits in and why a proper PBCA analysis is important to the FA. In short:

- "Input-Output (I-O) impacts" reflect local economic "ripples" from expenditures made by organizations as they produce their goods and services derived through program support. It's in I-O studies that one finds terms like direct, indirect, and induced impacts, and multipliers. (Multipliers are often interpreted as profit ratios, but they aren't.) I-O impacts only depend on *how much money is spent* and *where it is spent*, so a failed program can still look good: it can produce no successful economic development products or services, and no lasting socio-economic impacts for the First Nation, but have huge I-O impacts and high multipliers, all obtained from spending during the construction phase

- Company-specific financial impact analyses assess the success of the program at generating economic impacts. However, these are often measured as gross financial impacts, not profits, in part because profits are confidential. Some studies use industry averages to estimate net impacts (i.e., profits) but they do not necessarily reflect the true economic impacts.

- Benefit-cost (B-C) studies reflect the success of the program, and are very rigorous. They identify and measure not only the gross benefits, but also the full costs of commercial activities. Traditional B-C studies attempt to measure benefits and costs of all projects supported by the program – while this is possible for small programs, it would be virtually impossible for the dozens of initiatives fostered by the FA.

- PBCA studies are a variant of B-C. The "partial" is because PBCA only measures the impacts of a small number of projects that generate the very highest impacts, and essentially ignores all the rest. This is very sensible since the impacts from economic development initiatives are often very unevenly distributed: the lion's share of impacts typically arises from a very small number of projects. Thus PBCA's very narrow focus on the highest impacts means the analyst can go to considerable lengths to identify and quantify these within a limited study budget, and not expend time on small impacts. As a result, PBCA is a best practice for any program where impacts are very unevenly distributed – as is clearly the case for the FA.

2. PBCA methodology

What does PBCA measure? PBCA is based on the "lion's share" idea noted above. It is notoriously difficult to measure benefits when they are very unequally distributed – in this case, where most initiatives obtain relatively modest impacts, but a small number have probably obtained very

significant impacts. To solve this, PBCA only investigates what we colloquially call "big winners": i.e., those instances where:

- the impacts are especially large (ideally, huge);

- the impacts can be quantified in dollar terms ("dollarized"); and

- the impacts are clearly attributable (at least in large part) to the program under review.

Each big winner is investigated in a case study format, and both impacts and costs for individual case studies are studied in detail, otherwise using traditional rigorous B-C methodology, as described below.

Net benefits. First, the analyst models the anticipated net benefit streams for each big winner case. Both existing benefits and anticipated future benefits are modelled, with future benefits estimated according to how well and how quickly the new products, services, and other impacts become accepted and well-used over the foreseeable near- to mid-term. The "net" part subtracts out the costs of commercialization; e.g. design, construction, operation, maintenance, etc.   For the FA cases studied, the net benefits are usually analogous to profits, but in other cases that are relevant to the FA but were not quantified in this study (e.g., increasing the sustainability of natural resources) it may mean modeling costs of things like outreach and education.

Why do we net out case study costs? If the FA encourages First Nations to commercialize ideas which make $1B, and the case study production costs are only $500M, then the FA is a dramatic success. But if the initiatives cost those First Nations $2B to produce and distribute, the FA is not a success. Note that a very important part of commercial case study costs is normally the salary component – these are <u>costs</u>, not benefits. The higher the salaries, the lower the profits, and the lower the net impacts. Including salaries as benefits would overestimate the true benefits by a significant factor. (We mention this only because many "economic impact" studies that are NOT based on B-C methods often include salaries, and resulting taxes, as benefits.)

Benefits modeling. How benefits are modelled is unique to each PBCA case, and each case may be modelled differently. For example, one case may not expect profits for another five years, but then revenues increasing rapidly for another 10 – 15 years, and with 50% profit margins. Another case may already have existing benefits with 25% profit margins, but is seeing increasing competition and only expects to be competitive for another five years. The net benefit assumptions for each PBCA case are fully documented, validated with individual case study respondents, and (in most cases) fully available for independent review.   A possible exception is where some figures are highly confidential and cannot be disclosed.

Summing benefits. The past and future net benefits of the "big winners" are summed within each year.

Incremental program costs. Next, the analyst models the total program cost stream – including any known partner costs – from some reasonable date in the past until the present day. (Future FA costs don't need to be modeled, since they don't affect benefits arising from the big winners being investigated.) For the FA, a key consideration was how *incremental* these costs really were – some of the activities supported under the FA were also supported under earlier legacy programs, and thus were not really "new", incremental costs. How the incremental portion of the FA costs was determined is discussed below. (This was a complex and lengthy process, which is only outlined below. However, all assumptions were developed in close cooperation with our Project Authority, and in addition based in part on earlier FA costing work conducted in a separate KPMG study.)

Discounting. Benefit and cost streams are discounted using appropriate indices and assumptions. Discounting takes into account the "next best use" of the FA monies – i.e., how do the FA benefits compare to what they would have been if, instead, they had been invested at, say, 2% compound annual interest. In this case the 2% figure is called the "discount rate". Usually two or three different discount rates are used as a sensitivity test. If a program has a benefit/cost ratio of 1.00 when using 2% discounting, it means it made exactly as much profit as if one had invested the program funds in a financial instrument providing 2% returns annually – in other words, it didn't do any better (or worse) than simply investing the money at 2%.

Final results. The net benefits of the big winner case studies are compared to the total incremental FA costs (i.e., not just the costs of big winner projects), with both benefit and cost streams discounted. This uses Canada as a referent group for the analysis – the analysis treats the FA, all partner organizations, and all Canadian investors as one large innovation system. This reflects the reality that it is only sensible to support a program that benefits the country as a whole. PBCA thus provides estimates of the program's:

- Net Present Value (NPV) = (Net benefits of big winners) minus (Total program costs); and

- Benefit/Cost ratio (B/C) = (Net benefits of big winners) divided by (Total program costs).

Both the NPV and B/C figures provide strong and defensible evidence regarding economic impacts. The findings are lower bounds – they will represent the <u>minimum</u> net benefits associated with the FA.

Lower and upper bounds. It is common to model several scenarios; e.g., more conservative lower bounds, vs. more optimistic upper bounds where there are data uncertainties, along with narrative explaining the different possible assumptions. This reflects the reality that such modeling is challenging.

Interpretation of PBCA. There are three possible results from PBCA:

- If the estimate of net benefits is close to or greater than the total program costs (i.e., the NPV is positive, and B/C > 1.0), it can be concluded that the true total program benefits are in excess of the program costs. This is because PBCA does not estimate many of the program benefits – only the big winners benefits are estimated, and even there, some benefits are impossible to quantify.

- If the net benefits estimate is far less than the program costs (i.e., the NPV is negative, and B/C <1.0) – and assuming that a serious attempt has been made to identify and quantify big winners– one may conclude that the total benefits due to the program are unlikely to exceed the program costs.

- If the lower bound estimate is only slightly less than the program costs, then one must take a serious look at the likely benefits from those initiatives that have not been studied in detail in order to draw a conclusion regarding whether the total program benefits are likely to exceed the total program costs.

Why not do surveys, and extrapolate? Surveys typically have low response rates and thus are a sample. These sample results may be highly non-representative of the average when benefits are very unevenly distributed. Analyzing a small sample of projects, even randomly, and extrapolating to the total program runs a great risk of accidentally missing the highest impact projects (and thus greatly underestimating total program benefits), or accidentally including too many high impact projects (and thus overestimating total program benefits). The more uneven the impacts across projects, the more serious these problems are. We have seen many instances where just one or two projects out of hundreds or even thousands generate 90% or more of the total program net benefits – if you miss

these, the results of the study are not reflective of the true picture, and low survey responses make this almost a certainty. To compound this problem, we have found that the participants with the very highest impacts are often the least likely to respond to a survey.

3. PBCA scoping

Success critically depends on being able to focus on the true big winners. As noted above, missing even one "whale" can dramatically affect the final results. Since the FA has encouraged the development of many dozens of projects, this was a significant challenge. The general technique is always an iterative one, first doing initial scoping to identify a "long list" of candidate big winners, then winnowing this down into a "short list" of the cases for full PBCA investigation, as discussed in section 2 of the main report.

4. PBCA data collection and analysis

Conducting the PBCA case studies. These proceeded first through discussions with members of the First Nations Land Management Resource Centre and the Lands Advisory Board to determine the general nature of impacts. Next, the study team reviewed existing documentation on the PBCA cases, such as discussions on the First Nations websites (mainly to see what types of impacts were intended), followed by interviews with knowledgeable members of the individual First Nations (to follow up on actual known impacts and to confirm contact information). This was followed by interviews with one or more representatives of the FNs involved (to confirm the nature and size of dollar impacts, possible non-dollar societal impacts, anticipated growth of market penetration and product/service development over time, costs to the FNs, barriers to commercialization or market acceptance, and attribution of impacts to the FA). In cases where the true market size or costs were difficult to determine, some research into similar technologies and/or markets was done. The main outcome of these case studies was an Excel model of the existing and anticipated future net benefits by year, for each First Nation (and in one FN, for two different commercial developments), with differing model assumptions for each case as required.

5. Estimating incremental FA costs

Introduction. This topic is quite important, as including all actual FA expenditures is an unfair representation of "new" costs associated with the FA and development of Land Codes by the participating FNs. Thus considerable effort was expended to develop an appropriate estimate of how much of this funding is incremental to what FNs obtained through the various INAC legacy programs for land management. (And, of course, *still* obtain for those FNs who have not become signatory to the Framework Agreement.) That is, how much of the FA funding is really "new" as compared to how much FN land management cost INAC in the past?

- Suppose, for example, that before the FA it used to cost INAC $25M a year to support all FN land management activities – both direct funding to FNs from legacy programs, plus funding for more indirect land management-related activities and overhead in the FNs, INAC, Environment Canada, NRCan, etc.

- Further suppose that *all* FNs were now part of the FA, and it now cost $30M for all direct and indirect FN land management activities, for all parties.

- Then we would say that the FA only costs $5M in new, incremental money, and in our PBCA model we would only include that $5M on the cost side of the ledger.

We cannot determine the incremental part just by looking at historical data on land management costs. We have to think about which portions of these costs going into the future with the FA will be "new", vs. the costs that would probably have been present under the old legacy programs as well.

Note that there is no perfect answer to such questions, for the FA or any other new initiative or program. The team made reasonable (and reasoned) arguments based on the logic of the situation, as outlined below.

What proportion of the FA funding is "new"? One way to sort out what's "new" is to first look at the Operational Funding, because that is very clearly related to both land management and the FA:

- Estimate how much operational funding some specific individual FNs have received from the FA for land management and related costs, including operational, developmental, and transition costs, if possible;

- Estimate how much direct operational funding those same specific FNs received for land management costs under legacy programs; i.e., before they became operational under a Land Code.

- Compare the total FA operational costs to total legacy operational program costs, for those specific FNs – we want to know if the legacy costs were, as an example, 25% of FA costs, or 100%, or 200%. Call this the "Operational Legacy Percentage" or OLP.

- For this example, let's say the OLP is 25%; i.e., direct legacy land management costs were only a quarter as much as they cost under the FA, for the same FNs. However, this means that only 75% of direct FA operational costs are actually "new" and incremental – the other 25% would have been spent under legacy programs if the FA did not exist. In our example, we don't have to count that 25% in our costing model.

Then we look at the detailed "line items" that the FA actually supports, where we have some reasonable data for one or more years for these line items. Some of these line items are direct operational costs, but others are indirect costs such as those incurred by INAC or Environment Canada.

- For line items which look very similar to direct operational costs, in our example we would assume that only 75% of these costs are new, incremental costs; i.e., we'd only use 75% of these costs in our PBCA model.

- For line items which are clearly entirely new because of the new FA activities (e.g., developmental costs), we would assume 100% of these costs are new and incremental.

- For line items costs that would probably happen with or without the FA, we would not count <u>any</u> of these costs.

- We then total up the adjusted line item costs and compare the adjusted total to the total actual FA costs, and assume that is a reasonable proxy for what's new and incremental for FA costs for all years for which we can estimate these costs.

So the first task was to figure out the "OLP". Based on our analysis of estimated FA funding in 2010-11, and for which we also knew the maximum funding received under the legacy program Reserve Land and Environment Management Program (RLEMP). These FNs received 47% as much funding under RLEMP as they did (or may) under the FA. **Or, only 53% of FA costs are "new" incremental monies for direct operational costs.**

Assumptions about other FA line item costs. We have some "Ask" costs for 2008-09 through 2012-13, in which various line item costs are specified. Our analyses of how incremental these costs are is discussed in Exhibit A.1.   Remember that there is no "true, accurate" figure for these assumptions – here we are trying to make reasonable assumptions. The purpose of Exhibit A.2 was to develop assumptions about the individual level of incrementality of specific components of FA costs; e.g., the incrementality of INAC costs under the FA vs. the incrementality of Resource Centre costs under the FA. These assumptions were then applied against the costs of those individual components, as will be seen further below in Exhibits A.2 and A.3.

Exhibit A.1 – Assumptions about other FA Line Item Costs

	Assumed incremental %	Why this assumption?
Operations		
- INAC	22%	"Best estimate" upper bound based on previous work done by KPMG on activity-based costing for FA.[17]
- Lands Advisory Board	100%	Clearly "new" incremental costs because of the FA
- Resource Centre	100%	Clearly "new" incremental costs because of the FA
Developmental funding		
- FNs	100%	Clearly "new" incremental costs because of the FA
- Environmental Site Assessments (ESAs)	0%	Entirely non-incremental – ESAs must be done for a wide variety of reasons whether the FA exists or not because of federal government obligations. The timing might change, but that's not a major issue for PBCA.
- Legal descriptions	53%	Assume 53% as for the OLP to be conservative, assuming there are some extra costs due to the FA
- Capacity development	100%	Clearly "new" incremental costs because of the FA
Transitional funding		
- Environmental management agreements (EMAs)	0%	Entirely non-incremental – same argument as for ESAs.
- Environment Canada	0%	Entirely non-incremental – same argument as for ESAs and EMAs
- Other	53%	Assume 53% to be conservative and based on the OLP
Operational funding		
- FNs	53%	Based on the OLP

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[17] Cost/Benefit Analysis of Future Investment in the Framework Agreement on First Nations Land Management, Final Report, January 27, 2010.

Applying these assumptions to FA "Asks". Exhibit A.2 first shows our information on Asks from 2008-09 through 2012-13. We understand that the Asks are more than FNs actually received for some components (e.g., few Capacity Development funds were actually disbursed)., but they were simply used to derive the "estimated incrementality" figures discussed below, which were then applied against actual FA costs. Only the Ask figures had sufficient detail (e.g., for different sub-categories of Developmental funding) to allow this analysis to be done – actual disbursements were not available.

Exhibit A.2 – Actual FA "Asks"[18]

	2008-09	2009-10	2010-11	2011-12	2012-13	TOTAL
Participating FNs	50	65	65	80	80	
Operational FN	29	50	50	65	65	
	$000s					
Operations						
- INAC	4,717	4,410	4,413	4,416	4,420	22,376
- Lands Advisory Board	664	664	664	664	664	3,321
- Resource Centre	2,551	2,551	2,551	2,551	2,551	12,755
Sub-total	*7,932*	*7,625*	*7,628*	*7,631*	*7,635*	*38,451*
						-
Developmental funding						-
- FNs	2,993	2,138	2,138	2,138	2,138	11,543
- ESAs	1,065	1,260	1,275	-	1,275	4,875
- Legal descriptions	1,000	1,000	1,000	1,000	1,000	5,000
- Capacity development	1,949	1,348	764	878	294	5,232
Sub-total	*7,007*	*5,745*	*5,176*	*4,015*	*4,706*	*26,650*
						-
Transitional funding						-
- Env'l management agreements	2,540	1,482	2,478	300	1,770	8,570
- Environment Canada	1,178	1,147	1,270	1,260	1,260	6,115
- Other	995	2,322	-	1,658	-	4,975
Sub-total	*4,713*	*4,951*	*3,748*	*3,218*	*3,030*	*19,660*
						-
Operational funding						-
- FNs	9,372	14,738	14,738	19,297	19,297	77,441
						-
GRAND TOTAL	*29,023*	*33,059*	*31,290*	*34,161*	*34,668*	*162,201*

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[18] Source: First National Land Management (FNLM) Authority Renewal, Building on Success, July 5-6, 2007, T'sleil Waututh First Nation – Power Point Presentation, slide 14
Financial Summary – Option 1 Full Transitional Funding and Capacity Development
Document file name: "FNLM Authority Renewal – Building on Success"

Exhibit A.3 show how these figures change using our incrementality assumptions, based on Ask figures. For example, the INAC "Ask" figure for 2008-2009 was $4.717M (as seen in Exhibit A.2). However, our analysis indicated that only 22% of this figure was a "new, incremental" cost due to the FA (with the rationale found in Exhibit A.1.) Therefore Exhibit A.3 shows the true incremental INAC cost as $4.7M x 22% = $1.038M. Similar adjustments were done for all individual line items. (Note that if the assumed incrementality for a given line item is 100%, as for the Lands Advisory Board, then the full "Ask" amount in Exhibit A.2 is also shown in Exhibit A.3, as this individual cost is assumed to be a true "new" FA cost.)

Exhibit A.3 – "Ask" Line Items found in Exhibit A.3 Adjusted by Assumed Incrementality as found in Exhibit A.2

		2008-09	2009-10	2010-11	2011-12	2012-13	TOTAL	Est. Incremental
	Participating FNs	50.0	65.0	65.0	80.0	80.0		
	Operational FN	29	50	50	65	65		
					$000s			
Assumed % incremental		29.0	50.0	50.0	65.0	65.0		
	Operations							
22%	- INAC	1,037.7	970.2	970.9	971.5	972.4	4,923	22%
100%	- Lands Advisory Board	664.1	664.1	664.1	664.1	664.1	3,321	100%
100%	- Resource Centre	2,550.9	2,550.9	2,550.9	2,550.9	2,550.9	12,755	100%
	Sub-total	*4,253*	*4,185*	*4,186*	*4,187*	*4,187*	*20,998*	
							-	
	Developmental funding						-	
100%	- FNs	2,992.6	2,137.6	2,137.6	2,137.6	2,137.6	11,543	
0%	- ESAs	-	-	-	-	-	-	
53%	- Legal descriptions	530.0	530.0	530.0	530.0	530.0	2,650	
100%	- Capacity development	1,948.9	1,347.7	763.8	877.7	293.8	5,232	
	Sub-total	*5,472*	*4,015*	*3,431*	*3,545*	*2,961*	*19,425*	73%
							-	
	Transitional funding						-	
0%	- Env'l management agreements	-	-	-	-	-	-	
0%	- Environment Canada	-	-	-	-	-	-	
53%	- Other	527.4	1,230.5	-	879.0	-	2,637	
	Sub-total	*527*	*1,231*	*-*	*879*	*-*	*2,637*	45%
							-	
	Operational funding						-	
53%	- FNs	*4,967.1*	*7,811.1*	*7,811.1*	*10,227.1*	*10,227.1*	*41,044*	
							-	
	GRAND TOTAL	**15,219**	**17,242**	**15,428**	**18,838**	**17,376**	**84,103**	
	Incremental % of total FNLM Ask costs	***52%***	***52%***	***49%***	***55%***	***50%***	***51.9%***	***52%***

Conclusion. The grand total of "new" incremental FA Ask costs is about $84M over the 2008/09 to 2012/13 period, as compared to the total actual FA Ask costs of $162M over the same period shown in Exhibit A.2.

That is, only 84/162 = 52% of FA expenditures are actual "new," incremental monies. Therefore all detailed FA costs by type[19] were either adjusted by the detailed assumptions found in Exhibit A.1 (i.e., the actual INAC figures were adjusted by the 22% incrementality figure, the actual FA Developmental funding was adjusted by the 73% incrementality figure, and the actual FA Transitional funding was adjusted by the 45% incrementality figure), or where these details were unavailable the totals were adjusted by the overall 52% incrementality figure during the PBCA cost stream analysis. These analyses were applied to all FA costs over the study period from 1996 onwards.

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[19] Where these costs were known, as was true for some years of Developmental Funding, Operational Funding, and LABRC costs.