

A PROPOSAL TO CREATE A PAN-CANADIAN ENERGY INFORMATION ORGANIZATION (CEIO)

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SUMMARY

Canada is a safe and stable resource-rich nation in an increasingly energy-hungry world. While this state of affairs imbues our riches with strategic importance, it also creates an acute need for accurate data collection guided by nationally accepted methods, tools and approaches, to cut through the tangle of overlapping jurisdictions that confuse present attempts to understand the Canadian energy sector as a whole. Prepared at the request of the Alberta Department of Energy, this paper proposes the creation of the Canadian Energy Information Organization (CEIO), an independent, objective energy information agency similar, but not identical, to the Energy Information Administration in the United States and the International Energy Agency serving OECD member countries. Funded through modest provincial contributions and working with Statistics Canada, the CEIO would support federal and provincial energy regulatory mechanisms; offer timely energy forecasts, analysis and statistical interpretations; lower research costs for the provinces; promote clear and uniform reporting standards; and aggregate facts and figures in an easily accessible database functioning as an official information portal, educating the public and ensuring that Canada makes the most of its energy bounty. A nationally recognized authority on the Canadian energy sector is long overdue, and in sketching one (right down to the level of corporate governance, budgeting and staffing), this paper fills in a major gap in Canada's energy landscape.

INTRODUCTION AND NEED

In a recent meeting at Kananaskis, Alberta in July 2011, Ministers of Energy representing Canada's federal, provincial and territorial governments met to discuss a wide range of energy-related topics, including the overarching need to create a policy plan for energy planning in the future. One of the key outcomes from this collaborative endeavour was the commitment to develop a Canada-specific energy information agency. A look at some of the commentary following that meeting illustrates the connection between information and overall future policy initiatives.

“We all have a stake in reducing greenhouse gas emissions through clean energy production. A pan-Canadian approach to energy will involve all Canadians and ensure that we are all starting on the same page as we move forward. The ministers discussed common issues, which could be addressed collaboratively by the federal, provincial and territorial governments under this approach.

Areas of possible collaboration identified by ministers included regulatory reform, energy efficiency, energy information and awareness, new markets and international trade, and smart grids and electricity reliability.”

Source: Press release following Energy Ministers' meeting

“An energy plan must be based on the very best information and data informed by appropriate methodologies, tools and approaches. The success of a collaborative process will depend in part on access to appropriate technical support and the very best science and research. Moreover, such support needs to overcome the stifling problem of ‘dueling science and economics,’ and instead provide a single, independent source of information and analysis to inform discussions and decision-making.”

Source: A new energy vision for Canada, Pembina and TidesCanada, April 2011

Building a national and international-class information agency reflects the structural support demanded of a nation dominated by energy supplies and transport capacity. In the world arena, Canada is an energy superpower with reserves in excess of demand for a wide range of energy resources. This wide range of energy resources is widely and unevenly distributed across the country, and at present primarily serves a single market — the United States. A significant proportion of Canadian energy flows to the US are single-province-to-US transfers running north to south, without coordination or access to other provinces. This important trade pattern is critical for understanding pan-Canadian energy values. It may become even more important in the future as Canada begins to diversify export options in order to serve new and emerging markets. Consequently, future coordinated energy strategies for Canada will demand common knowledge of overall energy demand and supply trends, not only domestically but globally, where current and future markets are located.

In spite of the infrastructure developed to serve and interact with this trading partner, diversification in terms of products as well as alternative offshore markets is spurring a need for greater understanding of the energy industry as well as trends that will affect long-term investment in developing resources.

Information and analysis, not solely data compilation, are the hallmarks of modern democracies, especially those organized around capital-intensive industries such as energy. The current energy information system in Canada is complicated by constitutional arrangements whereby natural resources are a federal responsibility and energy resources are a provincial responsibility. This results in overlapping information collection and analysis with variable techniques, standards, definitions, concepts, and timeframes where the quality can vary significantly. At a fundamental level, understanding flows of energy and energy products will enhance the effectiveness of regulation throughout the continent, improve the understanding of the markets for these products and ultimately create more stable and dependable revenue estimates for public agencies tasked with optimizing the use of existing resource stock.

This presents a logistical as well as quality assurance dilemma where, in extreme cases, the objectivity and credibility of some core data can be questioned, leading to conflicting reports or conclusions about trends. Mechanically, assembling data from this variety of disparate sources is unlikely to consistently provide a reasonably complete set of data on energy in Canada. Support industries that depend on clear and unambiguous forecasts and analysis will seek out other, less reliable non-official sources of data. The upshot will be a loss of confidence in the Canadian energy industry with corresponding limits on capital investment and long-term resource contracts.

Energy will continue to play a dominant role in Canada's domestic economy as we move to occupy a strategic world position well into the future. Given this and as we proceed into the new century, it will be important to amplify and integrate three overarching policy drivers into federal and provincial/territorial planning for energy development. These are broadly bounded by the categories of energy and economic activity, energy and environmental quality and energy security, not only for Canada but for North America as well.

Underpinning all of these categorical distinctions is the need to manage a secure, sustainable supply of energy for Canadians, while ensuring a stable economic base that is derived from discovery and development of energy resources and planning for long-term environmental quality as well. In order to manage this complex set of objectives and systems, it is critical to maintain an up-to-date capability in energy information resources. A key benefit from implementing this initiative will be the consolidation (i.e., decrease) and streamlining of collection activities, saving money, reducing respondent burdens, and increasing data quality. The agency will have as a key objective the de-fragmenting of current data resources, coincidentally providing opportunities for Statistics Canada to concentrate on higher efficiency and effectiveness in overall survey design and implementation. Since many private, non-profit or other dedicated sources of data are available, accessing and independently validating these resources for use in analysis products will not only save time and money, but provide a single clearing house for public access.

These can be created through a centralized agency dedicated to producing high-quality, timely, relevant, objective, complete, comparable statistics necessary to monitor and assess market activity and to support comprehensive policy development. This is a change from present conditions where a wide variety of agencies are gathering different data with varying standards using different evaluation and analytic tools. Further, the results of this data collection effort are spread through a wide variety of portals and access points. In the end, we lack a single official set of Canada-centric energy data resources that can be the basis for uniform and potentially collaborative energy policies. This proposal addresses that need through the creation of an independent data analysis institution to supplement the data collection activities of Statistics Canada focused solely on the energy industry. The proposed agency would be known as the **Canadian Energy Information Organization**.

CEIO CHARACTERISTICS

This agency would be an independent body, fashioned by common agreement between the federal, provincial and territorial governments, while continuing to rely on Statistics Canada¹ as the primary source of data. Its purpose would be the collation and interpretation of this data, and the publication of routine, periodic and special analysis reports specific to the Canadian energy industry.

The overall functions of such an agency would include:

- Support existing and future federal and provincial energy regulatory institutions;
- Create and prepare long-range energy documents which would include:
 - Reports;
 - Forecasts; and
 - Statistical interpretation.
- Provide an official standard for energy reporting and analysis, with a single source and with a standard and harmonized database; and
- Provide expert witness testimony for the judicial and regulatory systems.

The organization's mandate and role can be expected to evolve over time, especially as its capabilities mature. Initially the charge and expectation would be to unify data collection and analysis under a single collection and processing arm.² This arm is essentially the current Statistics Canada infrastructure, which is well-placed to conduct field data collection, collation and validation prior to publishing. This agency would provide the aggregated data (according to an adopted aggregation rule to preserve privacy) and publish primary and tabulated data for later analysis.

¹ The CEIO would not be charged with primary data collection, a task that Statistics Canada is very well-qualified to discharge.

² It is important to note that NRCan is responsible for providing data to the IEA and JODI to meet Canada's international energy reporting obligations. They take data generated by Statistics Canada surveys and use it to complete the mandatory international reporting. Similarly, Environment Canada uses data collected by Statistics Canada to generate their reporting requirements on greenhouse gas (GHG) emissions. This relationship would not move under this proposal.

Analyzing this data, and producing a wide range of informational products would be the job of the CEIO, which would develop independent statistical and interpretive reports to continuously update and characterize the Canadian energy market. The overarching goal will be to provide clear authoritative data and to develop independent outlooks on the challenges and opportunities the Canadian energy industry faces.

The agency's role will include serving as an independent arm for government agencies, as well as the first point of reference for scholars, industry and the consuming public.

The Mission

The mission and responsibility of the agency will be to:

- Create, maintain and distribute consistent, timely, world-class analysis of the Canadian and North American energy economies for public consumption;
- Provide an official analytic portal for information regarding Canadian energy industry conditions over time;
- Help to establish and maintain strong linkages to energy industry partners, while reducing respondent burdens for data collection;
- Create an independent and high-quality analysis-focused institution that will be the world reference point for information on Canadian energy resources;
- Lower the cost of provincial and territorial data analysis while establishing and promulgating a clear and uniform reporting standard;
- Reduce response time and improve user data experiences when acquiring timely industry information; and
- Identify issues, establish priorities and find opportunities for collaboration relating to the collection of energy data.

Characteristics and Hallmark

This agency represents a departure from traditional federal/provincial/territorial cooperative or collaborative institutions. It is designed to build on existing strengths (i.e., Statistics Canada data collection and collaborative arrangements with industrial partners) while eliminating overlap and in some cases competitive arrangements between ministries in the federal government, as well as a wide range of institutional solutions currently in use at the provincial or territorial level.

The characteristics that will establish a central source for information include:

- Adherence to high professional standards;
- Provision of fact-based, time series data and periodic analysis of energy resource and market trends;

- Maintenance of clear objectivity and independence, in keeping with its role as the official but impartial clearinghouse for analysis;
- Provision of a national tie-in or representative for provincial and territorial character
- Ease of use, which is periodically challenged in order to maintain this characteristic;
- High value-added analysis; and
- Reliance on data sources viewed as being objective, professional, high quality and official.

Alternatives

There are currently a range of sources available for accessing information on Canadian energy resources and industrial operations. They include the Canadian Energy Resources Institute (CERI) and the non-profit Canadian Centre for Energy Information (CCEI), as well as a myriad of not-for-profit institutions such as Climate Change Central, the Pembina Institute, Canada West Institute, the CD Howe Institute or a wide range of industry specialty representatives such as the Canadian Energy Pipeline Association (CEPA) or the Canadian Association of Petroleum Producers (CAPP), to name but a few. Some excel in acquiring and organizing data that represent an industry segment and in some cases may overlap with the work of others, but none can or is expected to broadly represent the overall industry without bias or institutional focus. For many of these organizations, the collection of data is a byproduct or secondary activity, which may mean they do not have the infrastructure, skills or capacity to collect quality, consistent data on an ongoing basis.

As well, there are alternatives to the proposed arrangement that should be considered in the debate over the final design. This list is not intended to be exhaustive, or exclusive, but does describe a reasonable range of options, assuming that the objective to create a clear mandate for an independent energy-focused agency.

The options beyond the proposed CEIO include:

1. Make use of existing independent sites.

This would keep current data collection and analysis as it exists in various agencies, but would add a central portal for consumers, where they would be redirected by HTML links to existing non-profit or industry or government sites, where data and analysis are compiled and can be retrieved. No common standard for information is presumed in this case, but the central reference point can cut time and effort for those desiring information. There could be concerns about data quality, impartiality, completeness or comparability.

2. Collaborate with other international agencies.

This would add capacity for analysis at the federal level, but add institutional connections beyond Canada. Currently, information is collected by the US EIA and the OECD. A more formal arrangement could be struck with agencies like these to create a new international presence that could offer information and analysis through them.

3. Add analysis capacity within current institutional arrangements.

This option would build a new analysis section within Statistics Canada which would collaborate with current staff at NRCan and the NEB. This would build on existing infrastructure and expertise and could become a focal point for official statistics. However, independence might be sacrificed in this arrangement, as the organization could be viewed as federal rather than national.

4. Consolidate all analysis capacity within NRCan.

As above.

INFORMATION AND PUBLIC EDUCATION

Public education is a critical goal for the government; informed consumers can be depended on to make the right and most efficient decisions from the public standpoint. The reports and tools available from the agency would serve to inform and enhance the role of consumers in understanding not only their own energy use patterns, but also the value and contribution of the industry that plays such a vital role within Canada.

There are three key roles in the category of information and education:

1. Aggregate, validate and make available energy information to all stakeholders;
2. Develop educational tools to enhance energy literacy amongst stakeholders; and
3. Routinize and publish accurate and up to date comprehensive analytical, tabular and forecast information

In addition, the agency would maintain and update the principal and emerging high-value models used throughout Canada. This role would also extend to cooperation and common data development with other nations or interested parties who can enhance the role of data collection and evaluation from outside government. These groups can be expected to include:

- Public;
- Not-for-profit;
- Private; and
- Other national agencies

Most of the data contemplated in or by this proposal exist and are available through national and provincial bodies. These institutions currently provide access to statistical data on the Canadian energy industry. The degree of completeness of the provincial data sets is diverse across the country and the quality of the data is positively related to the level of energy activity in the provinces.

A review of a sample of major institutions that provide data on the Canadian energy industry is undertaken in this section with additional details provided as an appendix. By combing these sources, the institute will provide a reasonably complete dataset on the energy industry in Canada. For instance, on a provincial level, Alberta's Energy Resources Conservation Board has one of the best templates for data collection and presentation style, while data sources through the other provincial and territorial governments are less complete. A coordinated effort to develop and maintain the data from other provinces will be required on an ongoing basis.

STRUCTURE AND DATA PROGRAM

The agency would be a hybrid federal/provincial organization. In order to have an independent board of directors, it would be organized under non-profit statutes. Each province would elect or appoint a director. The directors would in turn hire an Executive Director (who would meet standards of public review and employment) who would be responsible only for the interpretation staff and the budget submitted annually.

Budgets and contracts would be undertaken and approved on a five-year forward basis, with each year renewing obligations five years into the future. This arrangement would provide continuity and confidence in data interpretation for market consumers and governments.

The CEIO would routinely assemble information from the full spectrum of energy sources, end uses, and energy flows; it would generate short- and long-term domestic and international energy projections, and perform informative energy analyses.

The CEIO would distribute its data products, analyses, reports, and services to customers and stakeholders through its website, by subscription and direct customer requests. CEIO programs would cover data on coal, petroleum, natural gas, electric, renewable and nuclear energy. CEIO programs would be derived from Statistics Canada data collection and survey information on energy statistics that is housed within the Manufacturing and Energy Division. This program is responsible for the production of Canada's annual energy balances using data collected through 22 direct surveys and from administrative data sources across the country.

On the supply side of the balances, data are available on the production, transformation, distribution, inventories and imports for all types of energy. On the disposition side, data are available on energy consumption by sector and fuel type, as well as exports. Important users of these energy statistics include Canada's system of national accounts at Statistics Canada (for input into key economic indicators such as monthly GDP), at NRCan (for use in the calculation of energy efficiency measures and for meeting Canada's international reporting commitments), and at Environment Canada (for use in the calculation of greenhouse gas (GHG) emissions).

Data collection would be undertaken by the current organization within Statistics Canada³ on a contract basis. This would be a cost-effective approach that would take advantage of existing infrastructure, expertise and processes. This would minimize burden on respondents, avoid duplication of collection efforts and reduce costs. Data needs would be determined by the CEIO, including statistical confidence levels and areas of need. The CEIO could also provide an effective forum to discuss data issues, identify new and emerging needs, prioritize activities and find opportunities for collaboration. Statistics Canada could also lead national efforts to consolidate and harmonize energy data collection activities across the various other organizations currently active in this domain. Data analysis and forecasting would be undertaken within the CEIO.

This agency would operate in the physical proximity of, and could share administrative capabilities with, the National Energy Board for efficiency. This capacity would only pertain to shared physical resources since the CEIO would be independent from the NEB in governance and actual budget.

The Statistics Canada's current governance model provides a convenient example of a compact and functional internal management and governance structure:

The governance model of Statistics Canada is three-tiered with seven issue-based policy committees, a central policy committee and a Chief Statistician.

The issue-based policy committees are focused on seven separate areas: information management, communications, human resources, program management, program evaluation, corporate planning, and quality. The policies that are decided upon within the issue-based policy committees are sent up to the central policy committee, which is chaired by the Chief Statistician including six additional assistant chief statisticians and the Corporate Secretary. The central policy committee ensures that there is consistency and integration of all policy decisions and acts as the body for all decision-making. The Chief Statistician has the authority to make final decisions. The Departmental Audit Committee provides independent advice and guidance regarding risk management, control and governance processes.

Identifying and prioritizing the information needs of Canada is done in conjunction with considerable stakeholder involvement including: the National Statistics Council, the Federal-Provincial-Territorial Consultative Council and subject-matter advisory committees.

³ Statistics Canada collects and disseminates statistics and information regarding population, resources, economy, society and culture. They promote statistical standards and practices that ensure data quality and comparability by gathering data through the national census of the population every five years, as well as through about 350 surveys on nearly every aspect of Canadian life.

ILLUSTRATIVE SAMPLE DATA

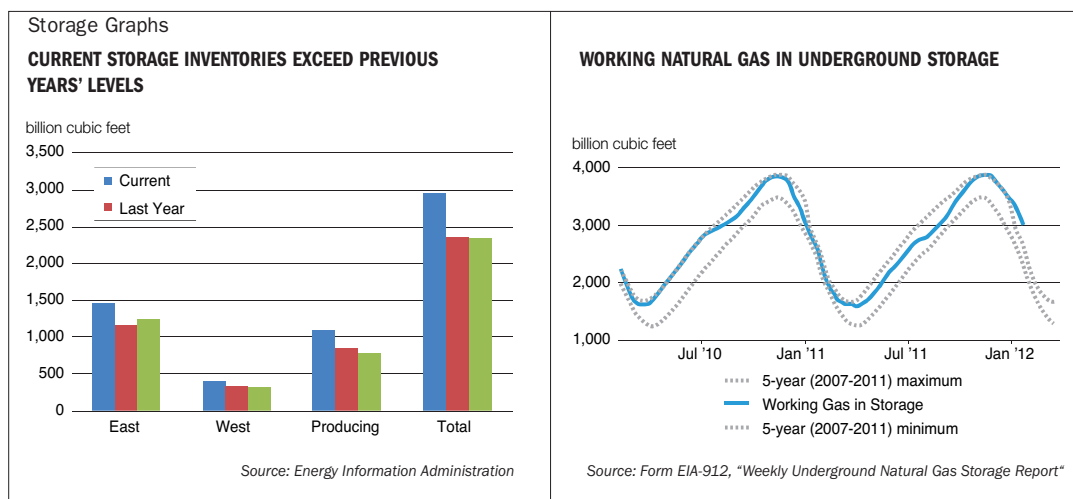
The type of agency under discussion has precedent in the US and in Europe. As a way of illustrating the types of analysis, including statistical analysis as opposed to data collection, reproduced below is a sample of a recent *weekly* update and analysis from the EIA periodic reports.

Weekly Storage Report, Week Ending Feb. 1, 2012

Working natural gas in storage fell to 2,966 Bcf as of Friday, January 27, according to EIA's WNGSR. This represents an implied net withdrawal of 132 Bcf, which is 29 percent less than the 5-year average implied net withdrawal of 186 Bcf. Inventories in all three regions posted declines, with the East region contributing the most to this week's implied net withdrawal, with a decrease of 100 Bcf (a 6.4 percent decline from the previous week).

Stocks were 601 Bcf higher than the five-year average level of 2,365 Bcf, and 586 Bcf higher than last year at this time. Inventories in the Producing Region continue to stand out at 310 Bcf (39.3 percent) above the five-year average of 789 Bcf. Stocks in the East and West Regions were above their five-year averages by 218 Bcf (17.4 percent) and 73 Bcf (22.6 percent), respectively.

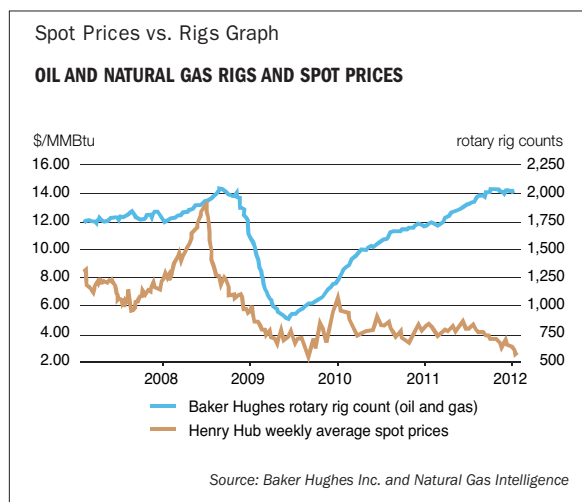
Temperatures during the week ending January 26 were 5.3 degrees warmer than the 30-year normal temperature and 9.1 degrees warmer than the same period last year. During the week all regions were warmer than normal, particularly the East South Central and West South Central regions in the South averaging 12.0 and 9.7 degrees warmer than normal, respectively. Heating degree-days nationwide were down 16.5 percent from normal and 24.9 percent from last year.



Temp Table							Supply Table		
TEMPERATURE - HEATING & COOLING DEGREE DAYS (week ending Jan 26)							U.S. NATURAL GAS SUPPLY - GAS WEEK: (1/25/12 - 2/1/12)		
Region	HDD Current	HDD deviation from:		CDD Current	CDD deviation from:		Percent change for week compared with:		
		normal	last year		normal	last year	last year	last week	
New England	243	-32	-96	0	0	0	Gross Production	7.95%	0.07%
Middle Atlantic	234	-29	-79	0	0	0	Dry Production	8.89%	0.08%
E N Central	264	-32	-84	0	0	0	Canadian Imports	-24.81%	0.99%
W N Central	273	-40	-86	0	0	0	West (Net)	4.49%	14.59%
South Atlantic	130	-51	-84	10	2	6	MidWest (Net)	-19.22%	6.56%
E S Central	102	-85	-115	0	-1	0	Northeast (Net)	-51.68%	-19.75%
W S Central	70	-67	-93	5	1	5	LNG Imports	-28.35%	-12.40%
Mountain	186	-42	-25	0	-1	0	Total Supply	4.76%	0.04%
Pacific	111	-6	30	0	-1	0			
United States	187	-37	-62	2	0	2			

Note: HDD = heating degree-day; CDD = cooling degree-day

Source: National Oceanic and Atmospheric Administration



STAFFING AND ORGANIZATION

This agency is created in and serves a public role. As such, the staffing structure is expected to be generally traditional in nature. What makes it unique is the independence of the agency with oversight from its diverse board of directors. The board of directors would be comprised of one member from each province and territory and one member from NRCan in the federal government. The responsibility of the board of directors is to hire and oversee the Executive Officer, review and recommend the annual budget and to oversee data quality and the recommendations of the Executive Officer for new hiring or changes in program focus. Actual operation and day-to-day activities including staff hiring or data development and distribution would be the responsibility of the Executive Officer.

The organization would be established with three key management areas reporting to the Executive Officer — Operations, Finance and Legal Counsel. Reporting directly to the Operations chief would be four divisions within the CEIO, namely publications, analysis, research and Web/IT operations.

Operations – statistics and forecasting

This is a relatively large group, comprised of statisticians and analysts as well as professional writers and graphic artists who are responsible for document and statistical output. The group can be expanded periodically as needed to include specialists, such as academics, who will write or offer guest analytic documents. The group is expected to be 15 to 17 members.

Finance – budgeting

This group is probably five or so individuals who are responsible for the ongoing budget management of the agency.

Legal counsel

This group is responsible for contracting and data confidentiality oversight as well as routine legal opinions that underpin administrative activity.

Staffing Levels

Senior Management	-	4
Line Management	-	4
Staff:		
Administrative	-	10
Statistics	-	5
Writing and Analysis	-	10
Publications	-	2

COOPERATIVE ARRANGEMENTS AND TRAINING

This agency is designed to produce products that reflect the role, activity and characteristics of the Canadian energy industry. This industry is diverse not only in terms of the natural and developed characteristics, but with regard to the geographic locations and internal as well as external (export) markets that support the market.

In this context, the agency is in a position not only to provide ongoing and up to date analysis, but also acting as a coordinating body for data collection and analysis for the provinces and territories over time. A key function will be to help train staff from the member agencies that may be seconded for periods of time to improve skills and to standardize the data collection and analysis on a broad basis. This latter function will serve to unite and develop statistical commonality across member regions as well as provide in-region expertise.

The structure and mission of this agency support independent portals and university-based or non-profit statistical reviews over time. In addition, the utility of the agency is increased by cooperative data access and reference from entities such as the Canadian Centre for Energy Information, by ensuring that they can always rely on the most current and harmonized data resources.

In the future, national initiatives such as a Canadian Energy Strategy can be based and framed in terms of neutral and reliable energy data generation and analysis. In addition, the ability of such an agency to work with key partners such as the OECD in Paris and the EIA in Washington will enhance the value of Canadian energy activities on worldwide markets.

PUBLIC AFFAIRS AND EDUCATION

A key function of the agency and its senior staff is to maintain consistent and focused connections with all of the member provinces and territories. Accomplishing this task will be an ongoing and evolving process; one likely product, however, would be an annual presentation to each member of the current state of energy in their jurisdiction, including a review of trends, anomalies and forecasts. The agency Director would also be responsible for an annual update to the federal government.

This will afford progress on major public goals of increasing public energy literacy, developing a consistent reporting strategy for the wide range and use of Canadian energy products and providing a tool for financing and investment strategies by other countries or investment partners.

BUDGET

This proposed agency is forecast to have a relatively modest budget in the context of older and well-established institutions. However, a critical characteristic of the agency itself is that its value is established first on the veracity and reliability of its work products, and second on long-term consistency and availability. This is necessary to maintain the confidence of the membership, Canadian energy trading partners and independent financing organizations that underpin the market, in order to build credibility and trust over time.

As a consequence, the budgeting is based on five-year forward estimates and commitments for funding from the member agencies.

Estimates provided here are based on a number of assumptions regarding size, timing and rates of growth or changes in assignments. The actual annual budget for this agency would be established by its board of governance and administered by the agency's Director.

Although the data collection tasks will remain with Statistics Canada, the data transformation and analysis will be the responsibility of the CEIO.

The budget would consist of contributions from the provinces established by the board of governors for a rolling five-year forward period. Budget development is expected in three distinct phases, startup and first year, first five years of operation and operations beyond five years. These demarcations are intended to be practical and descriptive rather than proscriptive. The initial phase will require staff development, the base of report generation, model acquisition and testing and initial publication and analytic procedures. The second phase, estimated to be approximately five years in length, is used to approximate the formative period in which report characteristics emerge, and efficiencies in publication and the establishment of a user community are undertaken. In this second phase, the more realistic estimates of budget demands are expected to be revealed. The third or mature phase is expected to be fully independent operations on an ongoing basis.

Phases 1 and 2 will need a federal contribution to the budget in order to overcome the hurdle of start-up costs and to provide stability as the agency is organized. The agency is expected to be fully independent and reliant on provincial and territorial contributions after the fifth year of operation.

The initial budget is estimated to be \$3 million of startup costs, including forward building leases, initial acquisition of facilities and leases, acquisition of IT systems, models and provisions for staff training, etc. For each of the following years in Phase 1, \$5 million annually is assumed for management, line labour and operations. No estimate is given for the Phase 3 budgets that will be dependent on the scale of operations and actual experience with costs.

Funding Resources

As pointed out above, the funding for this agency is expected to be derived initially from contributions of the provinces, territories and federal government.

Provincial contributions would be used to cover the analytical and administrative costs of the agency including publication costs not offset by subscriptions. The budget for each province would be set based on a formulaic combination of population density and energy sales/transfers⁴ annually. The budget would be committed on a five-year forward basis, using a trust fund for impoundment after the second year of operation.

All CEIO products would be prepared independent of policy considerations; policy evaluation or critique by other agencies may draw upon CEIO analytic reports. The CEIO will neither formulate nor advocate any policy conclusions. The CEIO would be independent from review by executive branch officials.

Two separate formulas are presented to illustrate possible contribution plans. Each relies on assumptions for membership, including an initial, but limited contribution from the federal government to seed the agency and provide initial stable funding.

⁴ The range of energy products for this calculation could include fuels such as natural gas in full range, radioactive fuels, hydro or other electric products and hydrocarbon-based products either for domestic or export consumption.

Common Characteristics:

- Assumed Annual Budget: \$5,000,000
- Federal Contribution (for 5 years): \$2,500,000
- Threshold Contribution: to be determined
- Annual Proportional Contribution: to be determined (two examples follow)

The member contributions can be negotiated based on an agreed-upon standard. Membership requires data sharing and cooperation, and yields annual and special reports from the agency.

Two sample *illustrative* formulas are presented below, first based on population and the second based on energy generation and usage.

SAMPLE FORMULA FOR PROVINCIAL BUDGETING BASED ON POPULATION

2011	Population (in 000s)		Initial Contribution (\$)	Increment (\$)
Canada	34,482.80		2,500,000.00	
Newfoundland and Labrador	510.60	1%	100,000.00	19,989.97
Prince Edward Island	145.90	0%	100,000.00	5,711.98
Nova Scotia	945.40	3%	100,000.00	37,012.37
New Brunswick	755.50	2%	100,000.00	29,577.79
Quebec	7,979.70	23%	100,000.00	312,404.88
Ontario	13,373.00	39%	100,000.00	523,552.32
Manitoba	1,250.60	4%	100,000.00	48,960.93
Saskatchewan	1,057.90	3%	100,000.00	41,416.74
Alberta	3,779.40	11%	100,000.00	147,963.33
British Columbia	4,573.30	13%	100,000.00	179,044.48
Yukon	34.70	0%	50,000.00	1,358.50
Northwest Territories	43.70	0%	50,000.00	1,710.85
Nunavut	33.30	0%	50,000.00	1,303.69
			3,650,000.00	1,350,007.00
			Total 5,000,007.00	
Ex-ante contribution province			100,000.00	
Ex-ante contribution territory			50,000.00	

SAMPLE FORMULA BASED ON ENERGY CHARACTERISTICS

Model for distribution of costs based on energy use and export

All energy values in petajoules and in year 2010

Total Cost: \$5,000,000

Federal Contribution: \$2,500,000

Members: \$2,500,000

	Domes Use (pj)	Export (pj)	Total (pj)	Allocation	Basic Contr. (\$)
Canada	8,248	10,487	18,735		2,500,000
Ontario	2,494	32	2,526	13.48%	337,020
Alberta	1,653	8,960	10,613	56.65%	1,416,215
Quebec	1,762	254	2,016	10.76%	269,018
BC	1,082	785	1,867	9.97%	249,175
Man	293	254	547	2.92%	72,993
Sask	368	45	413	2.20%	55,111
NS	197	69	267	1.42%	35,562
NB	210	1	211	1.13%	28,156
N&L	126	87	213	1.14%	28,423
PEI	35	0	35	0.19%	4,697
Territories	27	0	27	0.15%	3,630
				100.00%	2,500,000
				Federal	Fed + members
				2,500,000	5,000,000

CURRENT NATIONAL REPORTING AND RESIDENT AGENCIES

Canada has many voluntary and mandatory reporting requirements that require systematic, independent validation and verification in their development and dissemination. These could be subsumed within the mandate of the agency by order of Parliament or become the basis of a cooperative arrangement with other agencies to support their efforts and reporting where needed.

For instance, Canada is currently a signatory to the Conference of the Parties (COP) for the United Nations. Parties to the Convention to the COP must submit national reports on its implementation. The required contents of national communications and the timetable for their submission are different for Annex I and non-Annex I Parties. This is in accordance with the principle of common but differentiated responsibilities enshrined in the Convention.

The core elements of the national communications for both Annex I and non-Annex I Parties are information on emissions and removals of GHGs and details of the activities a party has undertaken to implement the Convention. National communications usually contain information on national circumstances, vulnerability assessment, financial resources and transfer of technology, and education, training and public awareness; but the ones from Annex I Parties additionally contain information on policies and measures.

Annex I Parties that have ratified the Kyoto Protocol must include supplementary information in their national communications and their annual inventories of emissions and elimination of GHGs to demonstrate compliance with the Protocol's commitments.

Annex I Parties are required to submit information on their national inventories annually, and to submit national communications periodically, according to dates set by the COP. There are no fixed dates for the submission of national communications of non-Annex I Parties, although these documents should be submitted within four years of the initial disbursement of financial resources to assist them in preparing their national communications.

Statistics Canada

Statistics Canada is Canada's national statistical agency. It has two main objectives. First, it collects and disseminates statistics and information that help Canadians to better understand their country's population, resources, economy, society and culture. Second, it promotes sound statistical standards and practices by using common concepts and classifications to ensure data quality and comparability. Statistics Canada gathers data through the national census of the population every five years, as well as through about 350 surveys on nearly every aspect of Canadian life. A broad range of data are available free of charge through the Statistics Canada website and through a network of research data centres, as well as through its CANSIM data base on a fee-per-use basis for special or unique products. Following a general trend in other government agencies, Cansim products became free as of February 1, 2012.

An energy statistics program is housed within the Manufacturing and Energy Division. This program is responsible for the production of Canada's annual energy balances using data collected through 22 direct surveys and from administrative data sources across the country. On the supply side of the balances, data are available on the production, transformation, distribution, inventories and imports for all types of energy. On the disposition side, data are available on energy consumption by sector and fuel type, as well as exports. Important users of these energy statistics include Canada's system of national accounts at Statistics Canada (for input into key economic indicators such as monthly GDP), at NRCan (for use in the calculation of energy efficiency measures and for meeting Canada's international reporting commitments), and at Environment Canada (for use in the calculation of GHG emissions).

Natural Resources Canada

Natural Resources Canada (NRCan) seeks to enhance the responsible development and use of Canada's natural resources and the competitiveness of Canada's natural resources products. They are the established leader in science and technology in the fields of oil and gas, minerals, forests and electricity.

On an annual basis, energy production and consumption forecasts are completed at the provincial level. Biweekly analysis of energy prices in Canada as well as searchable energy databases for major Canadian cities are available. The agency has good pricing data and good sectoral data that are free of charge. NRCan also features an educational responsibility, which seeks to develop Canadians' understanding of the national energy industry. The deliverables from NRCan include an analysis of energy policy, energy efficiency and science and technology.

FUTURE PRODUCTS

Future products from the agency could include current data produced by a wide variety of federal agencies as well as additional documents determined by the board of the agency. They will be both periodic and special, ranging from member requests or documents designed to reflect changing economic or market conditions. Sources will include Canadian industry reporting, provincial and territorial reports and data, industry surveys and data, and information trends published by cooperating agencies such as OPEC, OECD, the EIA in Washington and other public resources such as NYSERDA and the California Energy Commission.

An illustration of special reports, which might be generated by such an agency that would be of value to the provinces as well as the national government could include:

- Summary and analysis of hydrocarbon generation, locus and intensity by year;
- Compliance with existing emissions and generation treaties;
- Impacts of changes in permit activity on labour levels in the energy sector;
- Impacts of changes in regulation on capital investment; and
- Rotating and special report(s)
 - A spotlight on individual provinces and territories to highlight changes, current activities, forecasts and unique circumstances that yield changes in markets or resource availability.

About the Author

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He is the former chief economist at the U.S. National Renewable Laboratory in Golden, Colorado, where he led a research team engaged in examining over-the-horizon issues for the U.S. Department of Energy and developing new methods for cross-cutting analysis. He is a former commissioner with the California Energy Commission, where he held the designated economist position.

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