Energy Policy Institute of Canada
Institut canadien de politique énergétique

A Strategy for Canada's Global Energy Leadership

Progress Document

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PRESENTED TO

The Conference of Energy and Mines Ministers

Energy Policy Institute of Canada
Institut canadien de politique énergétique

Energy Policy Institute of Canada (EPIC)

Recognizing the importance of energy to Canadians, EPIC is a not-for-profit federal corporation and non-partisan policy advocacy organization composed of Canadian enterprises that are important producers, transporters and consumers of energy, and those that engage in financing energy development. **EPIC's sole purpose and unique interest is to provide a broad, cross-sectoral, full value chain perspective on a Canadian energy framework and strategy.**

Mission

- To build an energy framework and strategy from the standpoint of Canada's overall economic future.
- To engage organizations that care about energy.
- To assemble contributions from associations for incorporation into an energy framework and strategy.
- To be a project completed in two to three years by delivering a strategy representing many stakeholders.

EPIC's Energy Vision

Canada is an energy superpower with the potential to achieve even more for the benefit of Canadians. Realizing our national potential will require aggressive and focused innovation, exceptional environmental performance, and a broad-based capacity to serve domestic and international markets with energy products and expertise.

Canadians have an enviable quality of life. We extract, produce and use all forms of the planet's energy to fuel our economy. Canada's surplus of resources will be increasingly in demand and valued as economic growth increases among emerging countries. But with ownership of these natural resources comes an obligation for responsible production and use. This will require accelerated innovation that positions Canada for the future energy mix, reduces the environmental impacts of our energy system, and spurs research and development into new technologies.

Our responsible energy leadership will create economic wealth for Canadians in all regions. We will be front-runners in developing technology and superior environmental management systems. Our innovation will lead to diversified exports of energy, knowledge and technology.

Canada will continue to build upon free and open market forces as the primary determinant of trade, investment and energy consumption decisions. Internationally, Canada will be a leader in promoting open and efficient markets as a counter to the increasingly state-sponsored, geopolitically-motivated interventions that govern much of the world's supply of energy.

Our stable and reliable political and social systems provide the solid foundation for our global and environmental leadership. Although small in numbers, Canada has created one of the richest and most peaceful democracies in the world. Canada's almost 150-year history is remarkable for its contributions to industry, medicine, peace keeping and societal innovation.

As a nation, we are poised to make responsible global energy leadership our next great success.

Guided by a national strategy, Canadians can work together to achieve the goal of meeting Canada's potential as a responsible energy superpower. As a private sector voice, EPIC will present a business perspective in our recommendations and we will always respect the economic, environmental and social aspirations of the citizens of our great nation.

EPIC Members

EPIC's founding member organizations include:

Accenture
Aecon Group Inc.
AltaLink Management Ltd.
Apache Corporation
ATCO Power
Canadian Association of Petroleum Producers (CAPP)
Canadian Energy Pipeline Association (CEPA)
Canadian Gas Association
Canadian Natural Resources Ltd.
Canadian Pacific Railway
Canadian Petroleum Products Institute (CPPI)
Canadian Oil Sands Limited
Canfor
Capital Power Corporation
Cenovus Energy
Domtar Corporation
E. I. du Pont Canada Company
Emera Inc. (Nova Scotia Power Inc.)
Enbridge Inc.
EnCana Corporation
Enmax Corporation
Finning International Inc.
Forest Products Association of Canada
FortisBC
General Electric Canada
Imperial Oil Limited
Petrobank Energy & Resources Ltd.
Plutonic Power Corporation
Rio Tinto Alcan
Shell Canada Ltd.
Spectra Energy
Suncor Energy Inc.
Toronto Hydro Corporation
TransAlta Corporation
TransCanada Pipelines Ltd.
Trican Well Service Ltd.
Vestas-Americas

Associate Members

Air Canada
ONEX Corporation
SNC Lavalin

Our Member's Impact on Canada

$177 billion
2010 Canadian revenue

$300 billion
Canadian property, plant and equipment

$419 billion
Total market cap

135,000
Canadian employees

225
Offices in Canada

Head office locations

Vancouver Edmonton Calgary Mississauga Toronto Montreal Halifax

Many organizations are providing invaluable information as we prepare our various papers leading towards an energy strategy.

Canadian Chamber of Commerce
Canadian Council of Chief Executives
Canadian Nuclear Association
Canadian Wind Energy Association
Canadian Renewable Fuels Association
Coal Association of Canada
Winnipeg Consensus Group

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Executive Summary

Canada is the fifth largest energy producer in the world. The energy industry generates about a quarter of our export revenues and employs some 650,000 people across the country. By any standard, the record of our achievement in energy is impressive. But we can no longer afford to rest on our laurels. Geopolitically, the world is moving toward a more tenuous balance of powers. Economically, the recent credit crisis has exposed the vulnerabilities of the global financial system. And socially, public attitudes toward sustainability and the environment are evolving to a point where industry and government are expected to take decisive action on carbon policy.

In other words, we are witnessing rapid changes in the national and international circumstances under which most of us grew up. If Canada is to preserve – and, ideally, strengthen – its leadership position as a resource-rich and energy-producing nation, it must respond in a meaningful way to these challenges to the status quo. Should we fail to act, our national potential, economic competitiveness, and ability to provide social benefits will be constrained. EPIC members have been working for the past year on the principles and specific elements of a national energy strategy that would allow a Canada to achieve its full potential as a global energy power. We continue to work on this complete strategy, but wish to make interim recommendations to the Ministers at their annual EMMC conference in 2011. Taken together, these recommendations do not constitute a comprehensive strategy, but they are expected to lay the foundations for a unified national approach. EPIC's interim recommendations are to:

- Improve Canada's regulatory regime by eliminating overlapping and inconsistent requirements at the federal, provincial, and municipal levels.
- Enhance Canada's energy security by moving beyond our historical reliance on the United States and capturing growth opportunities in Asia and elsewhere.
- Adopt interim carbon pricing measures, and define the criteria that should inform the design of a long-term carbon-pricing regime in Canada.
- Promote greater public knowledge of energy's impact on our economy, environment, and society – with a view to increasing conservation behaviour.
- Foster energy innovation by encouraging more private sector investment in game-changing technologies.

EPIC believes these interrelated areas require immediate political action in order to maintain and enhance Canada's position as a global energy power. Accordingly, we established five subcommittees to explore each of the above themes and to develop specific policy recommendations. The subcommittee recommendations included below are designed to begin a constructive debate and trigger policy actions.

We believe Canada has reached a critical juncture in its history, and that today's leaders have an unprecedented opportunity to secure our country's role as a strong and responsible energy superpower. Our hope is that this submission will be the first step in a process leading to an effective national energy strategy.

Recommendation 1:
Improve Canada's Regulatory Framework

A. Defining the Issue

The "energy system" includes highly interconnected technology and physical infrastructure required to transform primary sources of energy into products and services that provide mobility, convenience, and comfort to Canadians. Government is a key enabler of the energy system, since policies and regulations not only affect overall public confidence but also determine the business climate in which investment decisions are made.

Canada is blessed with enormous potential: our broad range of energy sources and extensive infrastructure can support a variety of economic, social and environmental objectives. Historically, however, our regulatory system has been complicated and fractured, involving multiple levels of regulation – both horizontally across jurisdictions and between departments and agencies of individual governments. According to a 2010 International Energy Association (IEA) report, "in many parts of Canada the regulatory framework in potential natural gas- and oil-producing regions appears complex…environmental outcomes of the energy project approval process are unpredictable and untimely." Overlaps and inconsistencies have indeed caused unnecessary delays, increased the cost of doing business, and created uncertainty and 'opaqueness' for all energy stakeholders.

Now is the time to fundamentally reshape the regulatory landscape in Canada in order to create a more competitive and efficient energy system.

B. Importance to Canada

Capital is extremely mobile and is attracted to both opportunity and regulatory efficiency. An improved regulatory system would enhance Canada's productivity, ensuring private and public resources are optimally allocated across the energy value chain.

Indeed, energy regulation should be at least as high a national priority as taxation, stimulus, or any major spending program. An integrated and more collaborative approach to energy regulation could be Canada's new competitive advantage – a key enabler of competitiveness, productivity, investment and growth. Further, an efficient, transparent and inclusive regulatory system could be a key component of Canada's environmental reputation.

The stakes are high. In renewing Canada's aging energy infrastructure and realizing our national potential, a policy framework must be equal to the task. We can only maintain our position as a global energy leader through comprehensive regulatory reform.

C. EPIC Recommendations

EPIC recommends a multi-jurisdictional task force, led by Deputy Ministers, to drive regulatory improvements at the federal, provincial, territorial, and municipal levels of government. The mandate of this task force, with a Ministerial oversight committee, should include all aspects of the energy system from production to consumption, including:

- A current-state analysis of the energy regulatory system to identify critical points of interaction, overlap and inconsistency.
- A process to identify and align the values and objectives of the energy regulatory framework.
- A critical path and timeline for a coherent and integrated regulatory framework, which might include:
  - Streamlining the regulatory process by allowing one regulatory body to take the lead in specific instances, and having the other bodies rely on the lead for their requirements.
  - Allowing projects that require a review under both federal and provincial environmental regulations to undergo a single assessment, meeting the requirements of both levels of government while upholding environmental responsibilities. (The Canadian Environmental Assessment Act enables the screening and review of environmental projects to be assigned to a person, body or province.)
  - Ensuring that the level of regulatory oversight is appropriate to the level of risk involved, based on a common methodology for risk assessment and management.
- A stronger model for collaborative and integrated policy development within government.
- A model for ongoing, transparent stewardship of changes in our regulatory system.
- An effective mechanism for involving aboriginal peoples as economic, environmental and social benefits can only be sustainably secured through social harmony with the aboriginal community.

D. Additional Considerations

EPIC believes that all three levels of government must use regulation more strategically in the 21st century to advance Canada's interests. Canada's regulatory regime should be modern, efficient and competitive, while maintaining a strong commitment to environmental stewardship, public safety, and responsible resource management.

Canadian corporations now devote considerable capital – both human and financial – to regulatory matters. So do all regulatory process participants, including resource-constrained governments. Smart regulation has the potential to reduce the time, effort, and cost burden on all these parties.

Consumers put their trust in regulation, believing that regulations will protect their interests, particularly when the public is being asked to embrace change. A more responsive and coherent regulatory system would increase the confidence of Canadians at a time of profound transition.

Integration on cross-regional issues is critical. Energy resource endowment and optimal energy choices vary by region, not necessarily honouring provincial/territorial boundaries. Regulation that does not recognize this will result in a sub-optimal energy system.

Vertical integration and alignment of governments – federal, provincial and municipal – are equally critical. Municipalities are a close point of contact between the consumer and the delivery of energy services. The infrastructure decisions made by municipalities can lock in or change the patterns of energy use for decades. An inconsistent and burdensome regulatory system could result in unnecessary perpetuation of an inefficient status quo.

EPIC acknowledges much work is being done to enhance the regulatory system at various levels. We do not propose that our recommendations should replace such efforts. We believe, however, that current initiatives focus on a narrow segment of the regulatory system, not the energy system as a whole. EPIC fears that if our national system of regulation is not improved in a more holistic way, based on international best practices, Canada will fall behind.

E. Suggested Next Steps

EPIC and its member organizations offer decades of practical experience to share with policy makers in reshaping Canada's regulatory regime. We are ready to engage in diagnostic work to identify the points of greatest leverage, and to work with governments and other decision-makers to establish new regulatory constructs and policies.

Recommendation 2:
Enhance Canada's Energy Security

A. Defining the Issue

As a net energy exporter, Canada faces unique energy security challenges: we are beholden to the world economy, which demands ever-growing supplies of energy that are accessible in liquid and efficient markets. In the first place, then, energy security for Canada is inextricably tied to global economic security, and particularly the ability of our major trade partner – the United States – to access energy supplies. Second, our energy security is a function of the reliability and continued expansion of our energy delivery system (pipelines, electricity transmission, natural gas and electricity distribution). To enhance its energy security, Canada needs to diversify both energy supplies and its global customer base.

B. Importance to Canada

Canadian energy exports today are almost entirely to the US, reflecting the large energy appetite of the US economy and the continental nature of natural gas and electricity markets. Canada's reliance on the US has governed the development of our export infrastructure, but as Canadian supply increases it will be more important to consider other export markets.

Canada's electricity trade is predominantly with the US. The development of greater inter-provincial transmission capacity, based on regional supply needs, would increase the market reach of exporting provinces. These infrastructure investments would benefit our economy and environment by creating new jobs and providing electricity to Canadian consumers. Moreover, increased regional trade would not necessarily undermine Canada-US trade. In fact, broadening the reach of exporting provinces will increase trade opportunities while re-enforcing the reliability of the transmission grid through increased regional inter-ties. The Canadian electricity transportation and distribution system is inadequate to meet future market demands, and an enhanced regional trade capacity would broaden our ability to service fellow Canadians.

To the extent that inter-provincial electricity trade is expanded, market mechanisms should be implemented to ensure electricity is priced to reflect the full cost of production and transmission, without subsidy. When market mechanisms prevail, electricity exports will naturally flow to the highest value markets (i.e., markets that have shortages or more expensive production sources in their own jurisdictions), and these same market mechanisms within the importing zones will ensure that retail prices reflect the full costs of production, transmission and distribution.

As with electricity, Canadian oil exports should grow beyond the traditional US base. Recent political attention in the US to low-carbon fuel standards and pipeline expansion has shown why dependence on our neighbour leaves us vulnerable to its domestic agenda. Meanwhile, Canada has tremendous opportunities in the Asia/Pacific region, where world oil demand growth is expected to be strongest.

Natural gas may offer an even more compelling case for diversification beyond North America. Growth in natural gas supply from "unconventional" sources such as shale gas, tight sands, and coal bed methane has significantly changed the market outlook. Some projections now foresee North America becoming a net gas exporter of liquid natural gas (LNG) to international markets, especially Asia.

C. EPIC Recommendations

EPIC recommends the following principles for developing Canada's supply infrastructure and diversifying our customer base:

- Canadian policy should support efficient and competitive exports, while specific decisions about market diversification (e.g., which markets to access) should be left to market forces.
- Policy should facilitate market diversification through efficient regulatory review of export licensing and infrastructure investments both domestically and internationally, and through the elimination of regulatory barriers to exports.
- Regulatory assessments of export infrastructure proposals should recognize the potential domestic benefit of gaining access to broader energy markets.
- The National Energy Board should undertake a comprehensive review of global and regional market opportunities for Canada, including the policy and regulatory implications.

D. Additional Considerations

A more diversified commodity export strategy would increase global market access for Canadian technologies. There are already many success stories for made-in-Canada technologies: hydro plants, CANDU technology, unconventional drilling techniques, water treatment, sour gas processing, carbon capture and storage, and renewables technology – to name but a few. Canadians will prosper all the more through the expansion of export channels for our know-how and innovation. In a broader sense, our energy security and economic prosperity depend on our ability to take Canadian technology to all parts of the globe.

E. Suggested Next Steps

The opportunities and challenges associated with expanding Canada's energy supply and diversifying our export markets have been generating greater interest in recent years. EPIC members have been active participants in public debates, along with major think-tanks such as the C. D. Howe Institute, the Conference Board of Canada, and others. Looking ahead, we believe one of the most important requirements will be a clear and common view of market opportunities and the related economics.

EPIC will engage a think-tank to perform an economic analysis of the potential benefits of a more diversified commodity and, therefore, technology export strategy. Our members will remain actively involved in helping policy makers strengthen Canada's long-term competitive position.

Recommendation 3:
Move Toward a National Carbon Pricing Regime

A. Defining the Issue

The federal and provincial governments have developed a number of conflicting and/or contradictory targets, policies and strategies to deal with the climate change issue. Industry, consumers and other GHG emitters face inconsistent and incomplete signals about necessary changes in their behaviour. This leads to sub-optimal results for Canada's environment and economy. A consistent and coherent national approach to climate policy, including carbon pricing, will be critical to meeting Canada's energy and environment objectives, and international commitments. EPIC members recommend the gradual adoption of a national carbon pricing system that provides clarity to consumers and industry.

EPIC recognizes that Environment Ministers have a mandate to develop air emissions standards. However, the direction and content of environmental policies and regulations will have a significant impact on how energy is produced and consumed in Canada. Therefore, in making the following recommendations to Energy and Mines Ministers, we are acknowledging that this policy area is one of significant interest and relevance to your mandates. We also understand that subsequent decisions will require Cabinet-level collaboration at both the federal and provincial levels.

B. Importance to Canada

The price signal is the most powerful incentive for both industry and consumers to conserve energy, enhance efficiency, and shift to lower GHG-emitting fuels and technologies – thereby reducing emissions at the least overall cost to society. As part of an overall policy framework, carbon pricing can also spur innovation to improve the lives of consumers and position Canadian firms as competitive suppliers of less carbon-intensive products and services. Longer-term, carbon pricing can become a key mechanism to drive technology development and national prosperity.

Carbon pricing is therefore a critical element of an effective policy framework. It must work in collaboration, not conflict, with regulations, incentives, tax policy, and renewable portfolio/fuel standards. In particular, carbon pricing should be supported by policies that encourage energy efficiency, stimulate the development of new technologies, and advance the orderly turnover of capital stock and transmission infrastructure so as to allow more lower-carbon energy into the system.

C. EPIC Recommendations

Due to the complexity of this issue and the existence of a wide variety of current policies and regulatory approaches, EPIC's recommendations are broken into two separate categories. The first category includes interim measures that we believe would enjoy wide support and could be implemented quickly. The second category includes criteria to inform the design of a Canadian carbon pricing regime.

Interim Measures

Transitional measures should reduce carbon emissions, require little or no new sources of funding, be relatively easy to implement, and have a high degree of support from a range of stakeholders. While some measures would be temporary, others would survive as components of an eventual carbon pricing regime. Immediate action by Energy Ministers should also lay the groundwork for longer-term carbon pricing initiatives, establishing both the precedent and expectation for subsequent action. Interim actions should therefore be treated as seriously as the long-term goal of creating a carbon pricing regime.

1) Implement regulations for ramping down GHG-intensive electricity generation.

EPIC supports the Capital Stock Turnover (CST) regulation that addresses existing coal-fired generation retirements. This regulation elegantly balances the desire to reduce GHG emissions against the needs of rate-payers and investors, limiting life of assets to 45 years from Commercial Operation Date (COD) unless they achieve a GHG emission profile equivalent to that of a Natural Gas Combined Cycle (NGCC) generating plant. Through the enactment of the CST regulation, the electricity sector hopes to see at least a 17% reduction in national GHG emissions by 2020, with greater reductions between 2020 and 2025. This regulation does not preclude the establishment of a price on carbon to encourage lower emitting generation choices/investments going forward. Indeed, a price on carbon would also support the development of 'clean coal', whether through pre- or post-combustion technology options.

2) Government should share R&D and related risks with private industry.

Governments should consider ways of sharing the risks associated with R&D, technology development, deployment/piloting, and commercialization – whether through new or existing programs/agencies, targeted tax incentives, or some other mechanism. Reducing private sector risks will boost R&D and accelerate economic growth. EPIC expects that the Jenkins Panel, currently reviewing federal support to research and development, will make important recommendations in this regard when it issues a report this fall.

3) Broaden access to or reallocate existing funds to better support carbon reduction initiatives.

Funds already allocated to incentive programs may be underutilized. The criteria for accessing these funds should be broadened, increasing the scope of carbon reduction activities. An example is the $500M Sustainable Development Technology Canada (SDTC) fund for second generation biofuels, which has a 3:1 ratio of investment to the commercialization of technologies.

4) Include energy efficiency as part of the criteria for large stimulus/infrastructure spending.

Stimulus funds are also already allocated to meet a number of government objectives, so no new budgets are proposed. EPIC simply proposes adding 'carbon reduction effectiveness' as one of the criteria for project approval. This could be an important deciding factor when deciding between projects that otherwise meet program objectives.

5) Introduce Renewable Portfolio Standards across Canadian provinces.

Renewable Portfolio Standards (RPS) are becoming more common as a way to shift from high- to low-carbon intensity resources. RPS policies, where they are based on reduced GHG emissions standards, may also become an integral part of Canada's long-term carbon pricing regime. EPIC recommends province-specific programs that recognize the costs and challenges within each region, providing some flexibility during the transition period.

Longer-Term Carbon Regime Design Criteria

EPIC recommends a coherent national approach to carbon pricing as a fundamental element of the energy vision we have outlined. Nothing short of this will achieve our economic and environmental goals. We propose a number of criteria for the design of a carbon pricing regime:

- The price of carbon should be instituted as broadly and uniformly across the economy as feasible.
- The carbon regime should be a national system rather than the current federal/provincial patchwork.
- Revenue raised should fund reductions in other taxes and support the development of new technologies that have the effect of reducing Canada's carbon footprint.
- Revenue distribution should be rationalized to avoid a disproportionate impact on any sector or region, including inter-regional transfers of wealth.
- The price of carbon should start at a relatively low level, allowing time for businesses, institutions, and consumers to adapt.
- There should be adequate provisions to ensure that the competitiveness of trade-exposed industry is not unduly impaired. An important component will be ensuring that any Canadian price on carbon is contained to be reasonably in line with that of other major economies.
- The price of carbon should not merely penalize emissions-intensive activities, but also incentivize improvements in efficiency through upgrades to existing technologies.
- The carbon regime should take account of the orderly turnover of capital stock and avoid inappropriate stranding of assets.
- The carbon regime should include enough flexibility to reduce overall compliance costs, including consideration of offsets as a means to bring the price signal to sectors/activities outside the initial coverage of the carbon pricing scheme.
- Combined with other key policies, the price of carbon should be predictable and transparent over time.
- Longer-term, Canada's carbon price should be aligned with carbon pricing policy in North America – and, eventually, at a global level.
- While it is likely not possible to be perfectly compatible with US policies on GHG emissions, Canada should have a comparable carbon price to avoid carbon tariffs/border charges. We also have to recognize, however, that an equivalent carbon price on both sides of the border would mean a lower percentage reduction in GHG emissions in Canada compared to the United States.
- Canada's carbon price should increase in line with other countries and key competitors.

D. Additional Considerations

Carbon pricing is broadly supported by a large cross-section of Canadian society, leading economists, think-tanks, and a growing chorus of environmental NGOs. While most acknowledge it will entail costs to industry and others, there is agreement that a well-designed carbon pricing regime probably represents the best mechanism for keeping total costs to a minimum, and ensuring these costs are borne equitably. In addition, as national GHG control regimes come under more international scrutiny, a strong and clear carbon pricing system is probably the best signal to other countries that Canada is taking meaningful action.

While we believe national carbon pricing should be a key element of a longer-term framework, in the near term, the federal government has indicated its intention to regulate performance-based GHG emissions standards for the most emissions-intensive industries. Designing a series of performance standards for multiple sectors, technologies, and product lines will be extremely complex. There is a substantial risk that this approach will lead to high cost and inefficient regulation of several industries. Different sectors will bear disproportionate costs relative to their GHG contributions, and the results for Canada's environment and economy will be sub-optimal.

Meanwhile, the electricity industry has a high proportion of aging, near-fully depreciated, high carbon-emitting assets. The federal government's proposed performance-based GHG emissions standards will encourage near-term capital stock turnover more effectively than a carbon price set at a low level to minimize negative economic impacts. Further, the use of performance-based GHG emissions standards to encourage the turnover of aging capital stock does not preclude the future introduction of lower-emitting assets into an overall carbon pricing system.

E. Suggested Next Steps

To ensure the successful harmonization of a carbon pricing system with the measured use of performance-based GHG emissions standards, a number of key issues will need to be addressed:

- There should be integration/equivalency with existing (Alberta and BC) and planned provincial GHG schemes.
- The federal government should consult extensively with affected industries on the setting of reasonable performance standards, their implementation date, whether and to what extent they will be adjusted or phased out over time, and how they will be integrated into a future carbon pricing system.
- A clear distinction should be made between new facilities, those that should aim for a high standard of performance that is economically achievable, and existing facilities for which considerations such as respecting good faith historical investments, avoiding inappropriate stranding of assets, and encouraging capital stock turnover will be paramount.
- Benchmarking against competitors in other countries may be one, but not the only, viable approach.
- New renewable and low-carbon energy supplies (domestic or imported) should be benchmarked on a full lifecycle GHG assessment basis against the comparable baseline of Canadian energy supplies.
- Where Canadian firms already compare favourably with competitors offshore, the objective should be to avoid burdening them with additional requirements that would potentially cause a loss of market share to less efficient competitors.
- Sectors need to be consulted on whether facility-level, firm-level or sector-level performance standards are appropriate, or whether the sector should be subject only to carbon pricing.
- Firms should be granted a measure of flexibility in how they meet performance standards, including the use of offsets, emissions trading, and compliance through contributions to a technology fund (as in Alberta).
- Companion policies should be introduced, including measures to address sector competitiveness and how replacement technologies should be treated.
- There should be close integration of polices that address air pollutants – e.g., Air Quality Management Systems (AQMS) and Comprehensive Air Management Systems (CAMS). Firms should not be required to incur unreasonable costs for facilities that will be retired in the near term.
- The federal government must commit to and deliver on greater efficiency of regulatory permitting processes.
- As an important complementary policy, both levels of government should commit to one-window GHG reporting systems and the development of one accepted protocol for measurement and reporting.

Since there are many details to be worked out for both the transitional and longer-term recommendations, EPIC and its members are committed to supporting Energy and Environment Ministers in any way possible by ensuring that our national energy strategy is underpinned by sound economic and investment criteria, as well as environmental standards.

Recommendation 4:
Foster Energy Innovation

A. Defining the Issue

In December of last year, the Federal Government announced the launch of an expert panel, led by Tom Jenkins, to provide recommendations on how to maximize the impact of the $7B dollars spent annually in support of commercially-oriented R&D. The panel has released a consultation paper, which provides background information and a series of questions that guided its consultation process. That paper built on recent work around Canada's innovation performance undertaken by the Council of Canadian Academies and the Science, Technology and Innovation Council. These reports point to a serious issue with our country's lagging ability to capitalize on our knowledge base and create economic value.

Indeed, while government-funded R&D in Canada – both direct subsidies and Input Tax Credits (ITCs) – is high as a percent of GDP, privately-funded R&D represents only 54% of total R&D spending, compared to a 70% average in OECD countries. In fact, according to 2008 NRC data, only 10% of the 100 Canadian companies with the largest R&D spend are energy companies, even though energy-related industries represented 23.3% of total new capital investment in Canada. And while R&D spending is likely under-reported in the energy industry (a significant amount is classified as 'ongoing engineering' due to its inadmissibility for tax treatment), this also reflects the lack of incentives for innovation amongst larger energy companies.

The primary federal government program supporting investment in innovation – Scientific Research and Experimental Development (SR&ED) – performs well for fundamental research and initial development in industries such as pharmaceuticals and IT/telecommunications. But it is not fully realizing its potential as a catalyst for energy innovation in Canada. The latter area relies less on pure than applied research, as well as later stage development, process improvement and commercialization. This should be a greater focus for the SR&ED program.

B. Importance to Canada

The energy sector represents an indispensable resource in terms of innovative capacity, financial means, and technical expertise to develop solutions that allow for the responsible exploitation of much-needed resources. One dollar prudently invested in energy R&D – whether for hydrocarbons or renewables – should have a multiplicative effect on Canadian jobs, royalties and taxes. Two examples from oil and gas are Steam Assisted Gravity Drainage (now a key technology for unlocking production from in situ oil sands, with commensurate economic benefits), as well as the recent multi-company research on tailings ponds technology (a potential game-changer in terms of both cost structure and social license for oil sands mining activity).

Another example is nuclear energy, where Canada's R&D is an integral part of the innovation system that drives productivity and sustained advances in our citizens' standard of living. Strong, robust nuclear research initiatives at our national laboratories and universities support improvements and medical services. Neutron beam testing, for example, which can only be done at major nuclear facilities, is applied almost daily to new materials and products. This research underpins safe operations within the nuclear industry, and in many non-nuclear sectors (aerospace, autos, health and medicine).

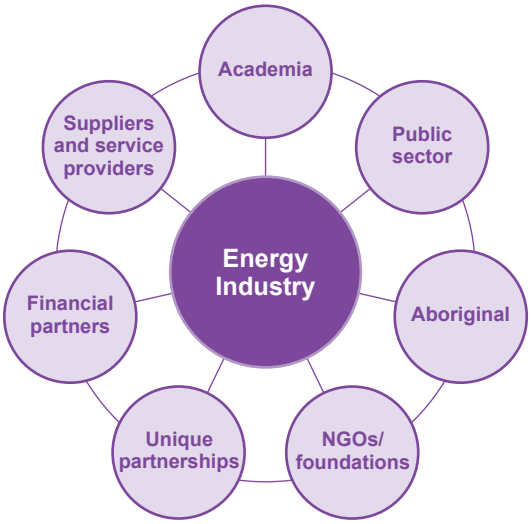
Industries are using technology to become leaner and more efficient, and at the same time unlock new value streams by turning what used to be waste into novel products that offset input costs and generate additional revenues. The benefits of clean technology may be greatest for Canada's energy and natural resource sector. There is enormous potential in more efficient oil sands extraction technologies, renewables that can compete with hydrocarbons, or carbon capture and storage (CCS). All of these areas will require massive investment, however, and the uncertainty of the current SR&ED process is one specific example of a disincentive for corporate Canada to invest greater sums in R&D. Instead, companies tend to focus on R&D investments to meet regular operating return on investment criteria.

C. EPIC Recommendations

EPIC believes that to address the most significant challenges for energy and environment – issues such as environmental reclamation or CCS – the energy industry, academia, and government will all have to work closely together. This collaboration can and should be facilitated through innovation clusters dedicated to specific aspects of the energy industry.

As illustrated in the figure below, innovation clusters are more than just opportunistic partnerships. They are more than collaborations between those in the same R&D area. Innovation clusters tend to form organically, incorporating a broad spectrum of players and covering everything from basic research to pilot demonstration. They might include industry, academia, governments, banking and financial partners, suppliers and service providers, as well as NGOs and aboriginal groups. An innovation cluster is usually focused on enabling technologies that, in turn, inspire new ideas and developments across the cluster, building on work in different but related areas. A good example is CENPES, a global innovation hub in Brazil focused on offshore oil and gas technology, with $1B from multiple funding sources and a broad range of global partners.

Innovation cluster



- **Facilitates multi-way, multi-player collaborations amongst partners**
- **Attracts concentration of global players that are engaged in identifying challenges and solving problems**

In addition, EPIC recommends the following improvements to the SR&ED program:

- ***Include technical expertise in SR&ED.*** Consider removing SR&ED from CRA's area of responsibility, encouraging the shift from a tax audit mentality to one that understands the goals and challenges of the energy industry.
- ***Improve SR&ED's administrative process.*** Consult with industry to prepare and publish clearer guidelines for eligible projects, making proposal approval more transparent. Also establish a mechanism for appealing SR&ED project decisions.
- ***Broaden SR&ED's mandate to cover other areas of the development chain.*** Explicitly encourage larger-scale proposals that could significantly enhance the efficiency of energy exploration, extraction, production or consumption.
- ***Replace regional review offices with centres of expertise.*** This would avoid the problem, for example, of a telecommunications company having its proposal reviewed in Calgary rather than in Ottawa, where there is a higher concentration of telecom expertise.

D. Additional Considerations

An improved innovation culture in Canada could bring various benefits. Innovative technologies could lower the cost of energy and increase its availability, thus enhancing citizens' prosperity. R&D jobs, which tend to be higher value-added and, therefore, more desirable, would be in greater supply. SR&ED could also smooth out the 'troughs' in the R&D cycle, providing a platform for continued investment even when energy prices are lower. Finally, Canada could more easily position itself as a global leader in best-in-class standards for innovative yet environmentally-responsible technologies. This would stimulate more international investment in Canadian technology centres that specialize in everything from exploration and production to smart grid services to greater use of natural gas, renewable fuels or electricity in transportation.

E. Suggested Next Steps

EPIC proposes the following work program going forward:

1) EPIC is prepared, in partnership with government officials, to engage a Canadian think-tank to assess the role that "innovation clusters" can play in developing a higher level of Canadian innovation and R&D in all forms of energy production and consumption. This review will build on the analysis and recommendations of the Jenkins panel report due this fall, and will consider historical successes and failures in order to make recommendations to the 2012 Energy and Mines Ministers Conference.
2) Form a senior group of federal and provincial government officials and industry representatives from all energy types to propose reforms to the Canadian SR&ED program, targeting a presentation to the federal government in early 2012.

EPIC believes an energy strategy is critical for the country. We are prepared to work with governments and stakeholders to improve Canada's innovation performance as it relates to producing, transporting and consuming energy.

Recommendation 5:
Promote Energy Literacy and Conservation

A. Defining the Issue

Energy consumption involves numerous costs to society – whether in the form of burdensome household or corporate budgets, higher prices from increased demand, taxes to support infrastructure investments, or environmental impacts. Energy conservation and efficiency are important ways of containing these costs and promoting better environmental and economic outcomes in Canada. To promote conservation, government needs to engage the Canadian public on energy issues and provide them with the tools, education, and incentives to make changes in their daily lives.

B. Importance to Canada

Energy efficiency and conservation can potentially contribute a number of benefits:

- Lower costs for the economy as a whole.
- Improved well-being for families, due to lower household energy costs.
- Enhanced competitiveness of Canadian businesses, due to lower manufacturing costs and more competitive positioning of export goods as a result.
- Job creation for the energy efficiency sector in local communities.
- Greater amounts of energy available for export, as a consequence of reduced domestic energy consumption.
- Achievement of emission reduction targets, and greater public acceptance of such targets based on the proven success of conservation.
- Climate change mitigation.
- Development and deployment of new energy technologies – to be used either domestically or to create new export opportunities.

C. EPIC Recommendations

EPIC recognizes that government, utilities, and educators are primarily responsible for promoting energy literacy in Canada. Nonetheless, we pledge to act as a key supporter and/or participant in the following initiatives.

Education Initiatives

All levels of government should collaborate with industry, NGOs, and associations to develop a strategy to educate children and adults on the complex energy issues facing Canada. This should include developing a curriculum for grade school through high school that promotes conservation behaviours and provides consistent energy/economy messages about the economic value of the energy industry.

Tools & Incentives – Changing the Construct

In order to ensure energy conservation programs are delivered on a long-term basis, governments should re-evaluate the current system for approving and managing such programs. Current challenges with utilities' economic criteria to fund energy efficiency and conservation initiatives underscore the need for "social" criteria that take into account environmental impacts and/or job creation. Provincial governments should develop legislation to support long-term funding of energy conservation and literacy by utilities. This will promote broader and quicker uptake in incentive programs, and bolster existing government programs such as financing and tax credit packages.

Community Design

Working with NGOs such as QUEST and Pollution Probe, government should support and promote the development of a Canadian vision for energy-efficient communities. This vision should be deployed at the provincial and municipal level, and government and industry should support its development by providing funding for non-partisan research, while facilitating discussion between provincial bodies.

Technology & Innovation

The Canadian government should create a framework for the commercialization of clean energy technologies by facilitating a discussion with key players: utilities, technology companies and municipal governments. This should take place in each province and jurisdiction across Canada, based on the unique energy landscape, technology and resources available. Utilities should demonstrate the viability of new technologies in the Canadian market (e.g., advanced metering, heating technologies, micro combined heat and power) while showing the benefits to customers. Technology companies should showcase their new products and promote value-added job opportunities within Canada.

D. Additional Considerations

The Canadian government has been supportive of energy conservation initiatives to date, recognizing their value for society as a whole. The challenge remains how to entrench conservation as a social norm akin to wearing seatbelts, where Canadians recognize the impacts of their cumulative actions and take steps to conserve energy in their daily lives.

E. Suggested Next Steps

Governments should play a collaborative and facilitative role, working with industry, NGOs, associations, and others to drive a number of energy literacy initiatives. These should include:

- Establishing an Energy Literacy Educational Working Group to develop an energy education strategy for children and adults, and deploying a common vision for Canada across each region. Examples of such initiatives include the Energy Primer document prepared by Pollution Probe, as well as the Canadian Centre for Energy Information web portal for independent non-advocacy information on all forms of energy.
- Working with NGOs such as QUEST/Pollution Probe to develop a Canadian vision for energy efficient communities, and sharing this across the country by engaging provincial ministries, local industry and municipal governments.

EPIC's Process

Our members will continue work through the summer and fall of 2011 to finalize our strategy document. Dialogue with a wide range of groups will be a part of our process as we complete this substantive policy paper. Our goal is to present our recommendations for a national energy strategy to governments as soon as possible.

EPIC is willing to work with governments to develop a Canadian approach to a national energy framework. We envision an innovative, efficient and transparent method that engages key stakeholders. Our recommendations on process will be fleshed out in our strategy paper. One of our criteria is that a process should be designed for quick decision making without loss of rigour, and allow for effective use of time and resources in order to provide recommendations in a well defined, short period of time.