

ALBERTA ENERGY EFFICIENCY ACT

DISCUSSION PAPER JANUARY 2010



A L B E R T A

Energy Efficiency Alliance



TABLE OF CONTENTS

INTRODUCTION	2
SUMMARY OF PERSPECTIVES HEARD	2
THE IMPORTANCE OF ENERGY EFFICIENCY	3
THE ROLE OF LEGISLATION	6
POTENTIAL LEGISLATION FOR ALBERTA	7
LEGISLATED ENERGY EFFICIENCY TARGETS	8
EFFICIENCY MANDATE FOR REGULATORS	8
PROVINCIAL ENERGY EFFICIENCY ORGANIZATION	8
RETAILER AND DISTRIBUTOR PARTICIPATION IN ENERGY CONSERVATION AND EFFICIENCY	9
EQUIPMENT STANDARDS	10
STANDARDS FOR MECHANICAL INSULATION	12
ENERGY AUDITS OR ASSESSMENTS	12
BUILDING CODE	13
DISTRIBUTED GENERATION	13
SMART GRIDS	14
CO-GENERATION AND DISTRICT HEATING	14
PRODUCT LABELLING	15
LAND USE AND TRANSPORTATION PLANNING	16
CREATING AN ENERGY EFFICIENCY FUND	16
TIMELY REPLACEMENT	17
INEFFICIENT PRACTICES	18
EDUCATION	19
GOVERNMENT PROCUREMENT POLICY	19
REPORTING	20
CLOSING	20



INTRODUCTION

In January 2008, the Government of Alberta stated that it would “Develop an Energy Efficiency Act” as part of its Climate Change Strategy. It is expected that the Act will be a focal point of the province’s emerging approach to energy efficiency.

As a multi-sector organization focused on advancing energy efficiency in the province, the Alberta Energy Efficiency Alliance has commissioned this paper as a way to contribute to a discussion regarding the upcoming Energy Efficiency Act.

The paper includes a summary of the importance of energy efficiency and the role legislation plays in implementing greater energy efficiency. It also identifies how other jurisdictions have used legislation to improve energy efficiency, and offers a wide range of possible options for energy efficiency legislation in Alberta.

A variety of stakeholders, including AEEA members and other not-for-profit organizations, have been asked about their support or potential concerns regarding each of the legislative options identified, and their feedback appears throughout the paper. The full list of stakeholders that have provided official comments on the paper are listed on page 23. Most reviewers did not comment on all of the legislative options, therefore the comments listed are only a reflection of those stakeholders who did comment either positively or negatively on each option.

SUMMARY OF PERSPECTIVES HEARD

Seven legislative options were identified that received a high degree of support from participating stakeholders and similar opinions regarding implementation. Eight other options were also generally supported, but differences of opinion were voiced about how they should be implemented.

High Degree of Support

- Legislated EE targets
- EE mandates for regulators
- Standards for mechanical insulation
- Improved standards for buildings
- Increased product labelling
- Government procurement policy
- Reporting on EE initiatives

Supported, But Different Perspectives on Implementation

- Provincial EE organization
- Energy retailer and distributor involvement in EE activities
- Provincial equipment standards
- Energy audits or assessments
- Support for distributed generation, smart grids, co-generation and district heating
- EE in land use and transportation planning
- Creating an EE fund
- EE education

THE IMPORTANCE OF ENERGY EFFICIENCY

“[T]he way we use energy leaves a lot to be desired”
 Alberta’s Provincial Energy Strategy 2008, p. 17

Albertans “are among the highest per-capita energy consumers on the globe”
 Alberta’s Provincial Energy Strategy 2008, p. 25

Energy efficiency is recognized as a cost effective way to improve affordability and reduce the environmental impact of energy production, transmission and use. There are many energy efficiency measures with returns on investment above 15 per cent (Figure 1) and which provide emission reductions at essentially no cost (Figure 2). Energy efficiency is also recognized as less expensive and easier to deploy than developing new energy supplies, and provides greater job creation and economic development potential^{1,2,3}. Figure 3 shows the potential for energy efficiency to significantly limit the growth of energy demand in Canada.

FIGURE 1: EXAMPLES OF RETURN ON INVESTMENT FOR RESIDENTIAL ENERGY EFFICIENCY MEASURES⁴

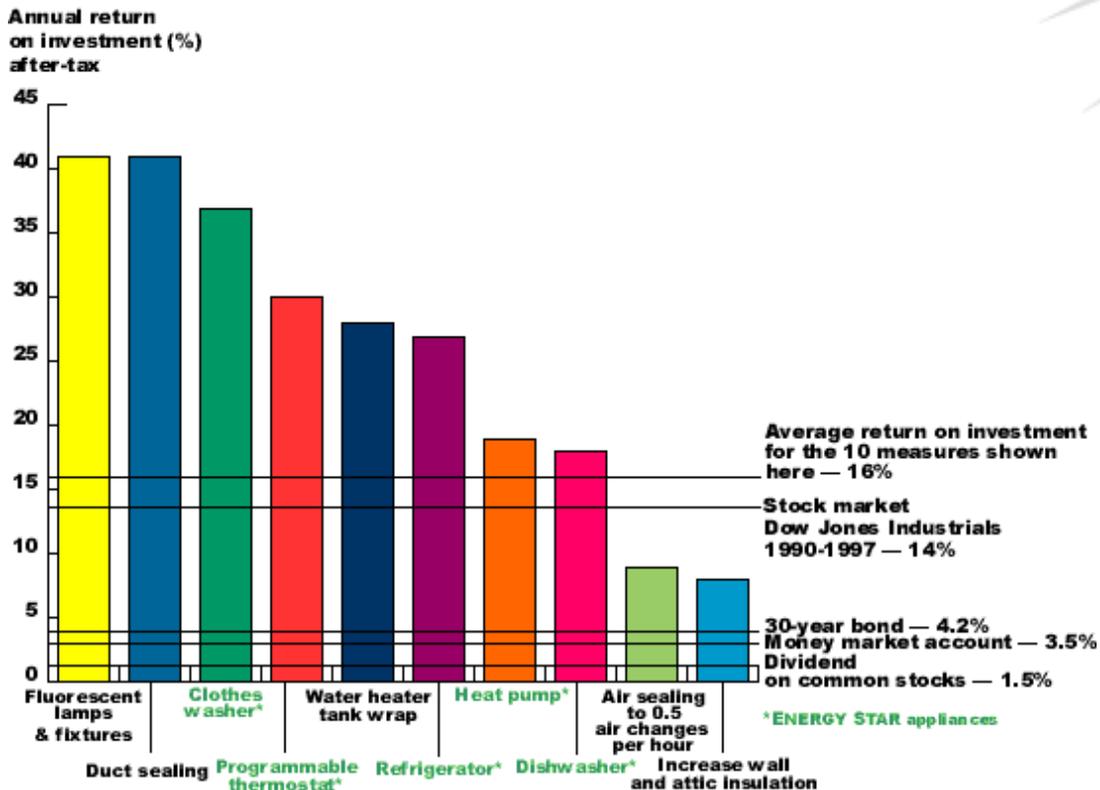




FIGURE 2: ENERGY EFFICIENCY COULD PROVIDE EMISSION REDUCTIONS AT NO NET COST⁵

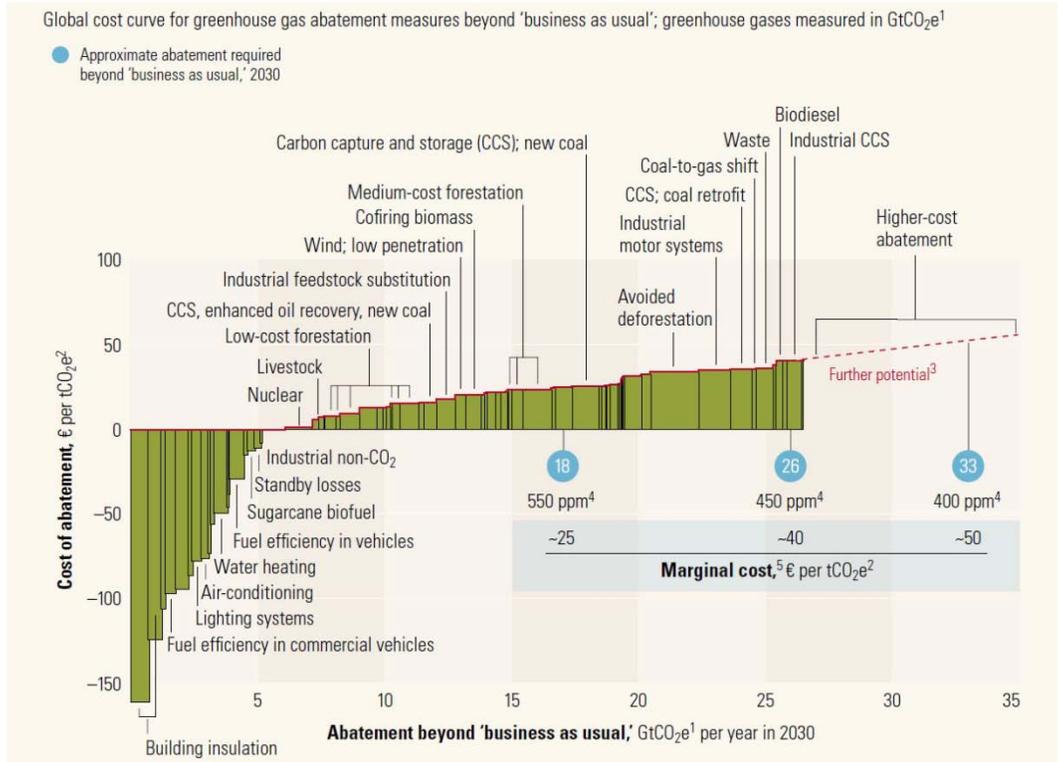
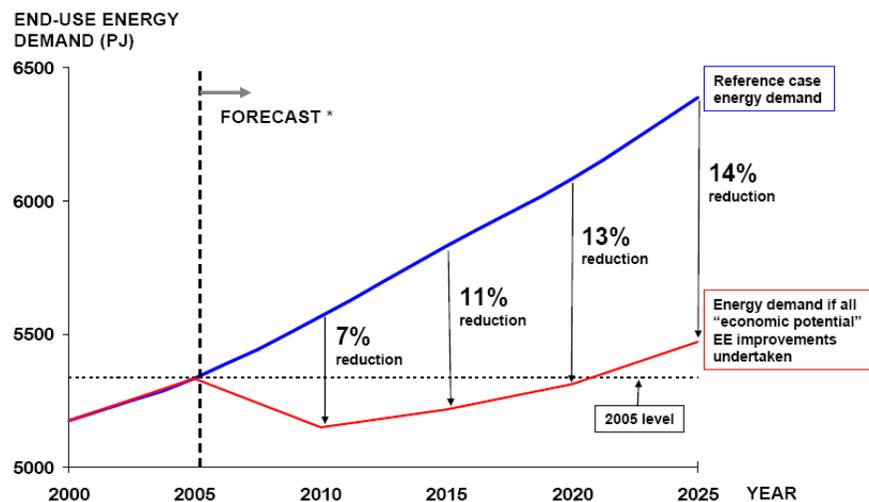


FIGURE 3: ENERGY EFFICIENCY POTENTIAL IN CANADA⁶



Source: Marbek Resource Consultants and MK Jaccard and Associates Ltd (2006). *Demand Side Management Potential in Canada – Energy Efficiency Study*.

* data for both the reference and "economic potential" scenarios incorporate projected economic and population growth

Unfortunately, there are many barriers to improving energy efficiency that need to be overcome before its full potential can be realized. These barriers include lack of appropriate price signals, product and service availability, lack of energy literacy and awareness, capital financing, technology development and commercialization, transaction costs, perceived risks and rewards, split or disconnected incentives, and institutional or regulatory barriers.⁷

Many jurisdictions have taken steps to overcome these barriers and their efforts have demonstrated quantifiable results. For example, in 2007 the state of Vermont offset all of its growth in electricity demand through energy efficiency.⁸

The Government of Alberta has also placed a high priority on improving energy efficiency within the province. Both the Provincial Climate Change and Energy Strategies list **wise and efficient energy use** as one of their top three focus areas.

“Albertans will be leaders in using energy more effectively and efficiently.”

Alberta's 2008 Climate Change Strategy, p. 14

“Government will encourage energy efficiency and conservation at all levels”

Alberta's Provincial Energy Strategy 2008, p. 21

“Strategic support for increased efficiency and conservation ... will be one of Alberta's most critical levers in meeting the challenges that the future will pose”

Alberta's Provincial Energy Strategy 2008, p. 38

All of Canada's Premiers have also committed to achieving “a 20 per cent increase in energy efficiency by 2020 in their respective jurisdictions.”⁹

Energy efficiency contributes to meeting provincial goals related to:

- Energy
- Clean Air
- Climate Change
- Land Use Planning
- Public Infrastructure
- Affordable Housing and Community Services
- Economic Development, Competitiveness and Productivity



THE ROLE OF LEGISLATION

Energy efficiency legislation fits within a broader energy efficiency strategy – both of which share the goal of improving the energy efficiency of equipment, vehicles, buildings, industries and infrastructure. Legislation is the mechanism by which laws are created to support the strategy. Legislation is enacted because there is a need for authoritative government action on an opportunity or a problem.

Legislation is particularly effective in policy situations where there is some urgency to making a desired change—as is the case with climate change. To ensure that legislation can be effectively implemented, and to reduce the cost of enforcement, parallel education and awareness measures can be used.

After a review of legislation in other jurisdictions, several common approaches to energy efficiency legislation were identified. Specifically, it was identified that legislation in other jurisdictions: ^{10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25}

- Defines energy efficiency targets
- Mandates energy regulators to advance efficiency
- Creates an energy efficiency agency
- Enables the collection of statistics
- Sets requirements for energy retailers and distributors to achieve certain levels of energy efficiency (e.g. conservation portfolio standards, GHG reduction targets, and investigation of efficiency opportunities prior to network expansion)
- Establishes tax incentives for purchasing efficient products
- Defines energy efficiency requirements for building codes
- Establishes equipment efficiency standards
- Establishes insulation standards
- Mandates efficiency audits for industries
- Enables distributed generation
- Advances smart grids
- Promotes co-generation and district heating systems
- Requires product labeling
- Sets direction for land use and transportation planning

An overall energy efficiency strategy includes:

- Analysis of energy use patterns and barriers to energy efficiency
- Increasing the availability of efficient products and services
- Codes and standards
- Legislation
- Awareness building (including education programs and labelling)
- Appropriate price signals (including incentives)
- Increasing the availability of funding or financing
- Programs targeted to low-income households

Note that this paper does not discuss the non-legislative aspects of a strategy.

- Creates an energy efficiency fund
- Provides a basis for the government to direct resources to energy efficiency projects and promotion
- Sets limits on inefficient practices
- Establishes government procurement guidelines
- Requires reporting on the application and enforcement of the legislation

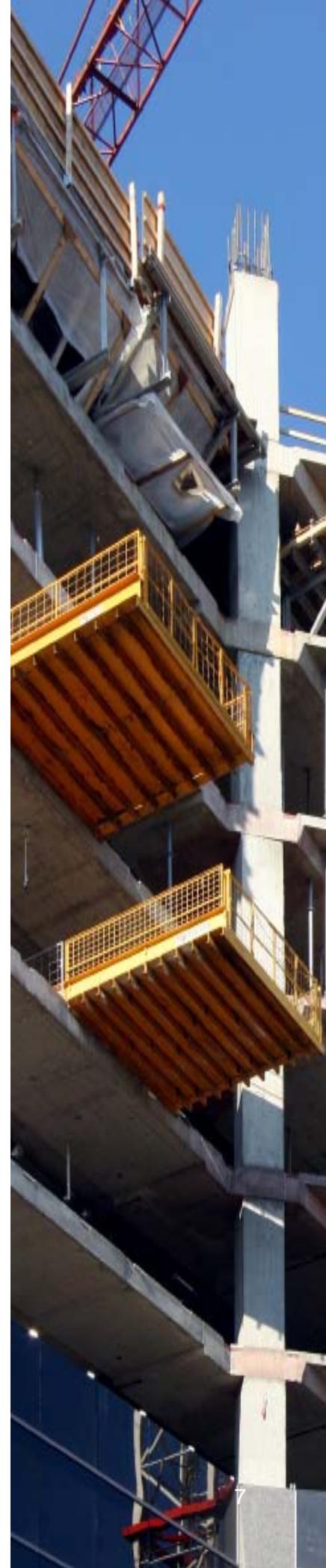
In addition to the existing legislation, it was identified through the research process that other opportunities exist to use legislation to increase energy efficiency, such as preventing the resale or operation of an existing product that does not meet minimum efficiency levels. As well, some participating stakeholders suggested legislation could be used to ensure energy efficiency is addressed within the education curriculum, within relevant post-secondary programs and through public advertising campaigns.

POTENTIAL LEGISLATION FOR ALBERTA

After reviewing energy efficiency legislation in other jurisdictions, it was determined that most of the legislation could be applied in Alberta to some degree, although it would need to be developed to be consistent with the overall regulatory system within the province.

Each legislative option is described in the following pages with the exception of one—tax incentives for purchasing energy efficient products. Several jurisdictions provide incentives for purchasing energy efficient products by waiving the collection of the sales tax associated with the item. Since Alberta does not have a sales tax and has been providing financial incentives by other means, this legislative option was not described further.

The following list is quite broad, and covers all sectors (i.e. electricity, heating, transportation and industrial processes) and many possible approaches to energy efficiency legislation. It is recognized that the government may choose to pursue each of these areas in different ways, which may or may not include their incorporation into the Energy Efficiency Act (e.g. through programs, policies or other legislation).



LEGISLATED ENERGY EFFICIENCY TARGETS

A review of jurisdictions with leading energy efficiency programs identified that most of these jurisdictions had legislated energy efficiency targets.²⁶

New Jersey Legislation: 100 per cent of electrical load growth will be met with energy efficiency or renewable energy.

Feedback from invited stakeholders that commented on this option showed strong support for establishing aggressive, but achievable, energy efficiency targets for the province. Targets are seen to provide guidance, a foundation and a reference point for efficiency improvements. There was also feedback that the targets should allow for a variety of approaches to meeting them, and that they should also be specific, measurable, regularly updated, based on data obtained from members and developed using a consensus process. Adequate resources or means also need to be allocated to reaching the targets.

EFFICIENCY MANDATE FOR REGULATORS

The mandate of energy regulators in Alberta (the Energy Resources Conservation Board and the Alberta Utilities Commission) focuses primarily on energy supply with little or no focus on demand side management. Since these organizations have a substantial influence on Alberta's energy market, it would be beneficial for their mandates to include an increased emphasis on efficiency and conservation.

In 2009, Ontario added **conservation, smart grid, renewable power generation and wires infrastructure** to the objectives of the energy regulator.

Feedback from invited stakeholders that commented on this option also showed strong support for an added or increased efficiency mandate for regulators. It is seen as necessary for the regulators to have legislative guidance to consider energy efficiency within their decisions, and it is critical for the regulators to be involved in order to change behaviour within industry. It was, however, acknowledged that implementation of the new or enhanced mandate may have challenges given the regulators' current lack of attention towards system-wide energy efficiency. It was also suggested that any changes to the mandate of regulators needs to be consistent with the overall structure of Alberta's energy market.

PROVINCIAL ENERGY EFFICIENCY ORGANIZATION

Jurisdictions have used legislation to establish or better define the powers of a jurisdiction-wide energy efficiency organization. These organizations typically have a mandate to improve energy efficiency in a variety of sectors and can be a significant driving force in working with other

organizations, companies and government departments to advance energy efficiency.

Invited stakeholders that commented on this option largely agreed that it would be beneficial to have a government or independent body to advance energy efficiency in the province, but differed regarding the form and mandate of the organization.

Regarding form, several stakeholders suggested an existing organization such as Climate Change Central, Alberta Environment or Alberta Energy undertake the responsibilities of a broad-reaching energy efficiency organization in order to reduce costs and avoid the effort required to start up a new organization. The objectives and mandate of the organization would need to be further developed in order to assess whether any of these existing organizations would be a good fit, or whether it would be more effective to establish a new body.

Regarding mandate, several stakeholders feel the organization should play a prominent role in coordinating and implementing energy efficiency programming, while there is a mixed opinion about whether this should be left to energy retailers. Further discussion of this occurs in the next section.

There were also comments that no organization in the province is currently advancing energy efficiency to the same degree as energy efficiency agencies in other jurisdictions.

RETAILER AND DISTRIBUTOR PARTICIPATION IN ENERGY CONSERVATION AND EFFICIENCY

Many jurisdictions require electricity and natural gas retailers and distributors (i.e. LDCs) to undertake demand side management (DSM) with their customers. Currently in Alberta, there is limited ability for retailers or distributors to recover this cost. Therefore, a mechanism would need to be established for this, whether building it into customer charges or funding through another mechanism. Alternatively, DSM could be undertaken by a non-supplier such as Climate Change Central or Alberta Environment. There are several benefits and disadvantages with each approach that would need to be further considered.

Invited stakeholders that commented on this option broadly acknowledged that energy retailers and distributors are in a good

Some examples of provinces and states with energy efficiency agencies include:

- Ontario
- Nova Scotia
- Quebec
- New Brunswick
- Vermont
- New York
- Oregon

New South Wales (NSW), Australia was the first jurisdiction to adopt an energy efficiency trading system for electricity retailers and other participating organizations. (Note: NSW has a competitive electricity market.)

Under the NSW Greenhouse Gas Abatement Scheme, retailers and other participants are required to reduce GHG emissions. One of the options available to meeting these requirements is to generate 'white certificates' by undertaking demand side management activities.



position to deliver DSM programs, but currently have no direct DSM method to recover the costs of such a program; thus a mechanism for funding DSM programs would need to be established. It was also noted that retailers have a built-in disincentive to promote energy efficiency as this may result in a lower volume of sales. A strong financial incentive for DSM based on performance, or an independent DSM provider, were suggested as approaches to overcoming this disincentive. A single independent energy efficiency agency also has the potential benefits of greater economies of scale, no perceived conflict of interest, the potential for better reception by consumers, and coordinated and consistent delivery of programs covering the entire province and all sectors, rather than many different programs delivered by individual energy retailers and distributors. A hybrid system, where an energy efficiency agency works with retailers, distributors or other organizations (e.g. municipalities) was also suggested.

Some jurisdictions have also instituted requirements for distribution companies to investigate demand management opportunities so they can be considered alongside proposals to expand supply networks.

Regardless if energy retailers and distributors are directly involved with demand side management, there are other ways for them to participate in energy conservation within the province. For example, energy retailers and distributors could also be required to provide information regarding residential, commercial and industrial energy use to all levels of government to assist with local energy planning and the design of energy efficiency programs. Ideally, energy retailers and distributors in the province would participate in these initiatives voluntarily, but the Energy Efficiency Act could act as a backstop to help establish clear expectations and manage potential conflicts between the province and other parties.

Invited stakeholders that commented on this option were generally supportive of energy retailers and distributors participating in these types of energy conservation and efficiency activities. One stakeholder suggested that these companies should be consulted regarding how they wish to participate.

EQUIPMENT STANDARDS

Setting standards for minimum equipment efficiencies is a widely used approach to improving the overall efficiency of a region. This has been done at both the federal and provincial levels within Canada; however,

there are continually new opportunities to improve equipment efficiency standards.

One opportunity for Alberta is to close the 'loophole' within federal legislation whereby federal standards do not apply to products that do not cross a provincial or territorial border (i.e. the standards do not apply to products sold in Alberta that were also manufactured, assembled or modified here).

Another opportunity for Alberta is to establish standards for products that are regulated in other provinces, but not regulated federally. This would serve to prevent inefficient products from being 'dumped' in Alberta because they could not be sold in other jurisdictions.

Finally, there are always new products emerging or advancing that could have minimum efficiency levels mandated, including new 'smart' appliances (see Smart Grids on p. 16). An analysis of potential products has not been completed, but further research in this area could identify areas where Alberta could establish itself as a leading jurisdiction.

Most invited stakeholders that commented on this option agreed that equipment standards are an effective method of improving energy efficiency within a region. Stakeholders also commented that the standards should be consistent with, and supportive of, the energy efficiency targets, and that codes and standards also have a role to play in enabling new technologies to be introduced in the marketplace by ensuring they are safe and can interconnect with existing systems. The Canadian Standards Association was noted as a leading organization in this area.

One comment was received that questioned whether establishing a large number of new standards would be very resource intensive, although building off the work of other jurisdictions is one method of reducing the resources required. Comments were also received that there is a positive return on the investment into developing new standards.

Another comment suggested raising public awareness and product labelling should be sufficient to shift the market without standards. This was disputed by several other stakeholders, who noted the significant role standards have played in advancing energy efficiency in the past.



Products that are regulated by some provinces, but not federally, include low efficiency:

- Gas dryers
- Ceiling fans
- Water **coolers**
- Swimming pool heaters
- Windows, doors and skylights
- Roadway lights

Inefficient products in these categories could be '**dumped**' in Alberta.



STANDARDS FOR MECHANICAL INSULATION

Jurisdictions have also set minimum requirements for thermal insulation on mechanical systems such as heating, ventilation and air conditioning (HVAC) equipment and piping. Insulation is one of the most cost effective methods of reducing energy use on both commercial and industrial applications, although it is not always used to its maximum potential or installed properly. Additional cost effective energy savings can be achieved by establishing minimum levels of insulation for HVAC systems as well as other industrial processes – both new and existing. Installation standards or certification is also important to ensure performance and longevity.

This area is considered ‘low-hanging fruit’ by many invited stakeholders that commented on this option. Standards for mechanical insulation are supported for their ability to reduce costs, spur economic development and reduce emissions. There was one suggestion to quantify the scale and scope of this opportunity.

ENERGY AUDITS OR ASSESSMENTS

Experience in multiple jurisdictions²⁷ has shown that energy efficiency audits or assessments often identify significant energy saving opportunities within buildings and industrial facilities. The Energy Efficiency Act could require or incent audits or assessments to be undertaken for facilities over a certain size as a method of enabling energy efficiency upgrades. Supporting programs, including financing mechanisms such as capital depreciation, allowances or rebates would encourage upgrades to be undertaken following the audits.

It is important to note that commercial and industrial customers are the largest users of energy in the province.

Invited stakeholders that commented on this option generally supported the performance of audits or assessments for commercial and industrial facilities, but some respondents are concerned about the impact on the cost of doing business, and have suggested that the audits be paid by government or a maximum cost ceiling be defined.

One stakeholder has also indicated that the scope of the audit or assessment needs to be defined as some approaches are more effective than others.

Australia: Significant energy savings have been realized after energy efficiency audits were required for industries, starting in 2006. This legislation was first implemented at the regional level before it was adopted nationally.²⁸

Responding stakeholders were also clear that a program to support implementation of the audit or assessment recommendations is also important in order for the efficiency recommendations to be acted upon. It was also suggested that the audits could be part of a larger DSM program.

BUILDING CODE

Building codes are often referenced within energy efficiency legislation. While there are processes underway to increase energy efficiency requirements within the Alberta Building Code and to instill energy efficiency as a fifth core objective within the National Building Code, it may be worthwhile to reinforce Alberta's intention to increase efficiency requirements for new buildings and homes by including it in the Energy Efficiency Act. This would serve to reinforce earlier statements and provide a clear signal to industry and the public.

Invited stakeholders that commented on this option supported the inclusion of building code standards within the Energy Efficiency Act and suggested that they should be consistent with energy efficiency targets and consider any cost implications. One stakeholder has also suggested that training and technical support be provided to builders, and testing should be undertaken to ensure standards are being met.

Incentives could also be used to encourage builders to construct buildings to higher efficiency standards. These incentives could then be phased out as higher standards become common practice.

DISTRIBUTED GENERATION

Distributed electricity generation improves the overall efficiency of the electricity system by reducing transmission requirements and system losses, and diversifies energy supplies. Alberta already has a Micro-generation Regulation that allows electricity customers to generate their own electricity and receive credit for any electricity they send to the grid. The Energy Efficiency Act could be used to increase the ability of Albertans to generate their own power and participate in the electricity market through new pricing structures, and to further streamlined approval processes at the local level (e.g. development permits are required in some communities to install a photovoltaic system on a rooftop).

Invited stakeholders that commented on this option are generally supportive of enabling distributed generation. Some stakeholders feel



The **U.S. DOE** found the following benefits of distributed generation²⁹:

- Increased system reliability, power quality, security and resiliency
- Emergency power supply
- Reduced peak load
- Cost savings on generation, transmission and distribution facilities and right-of-way acquisition
- Reduced land-use effects

distributed generation is adequately addressed through the existing Micro-generation Regulation, whereas others see additional bureaucratic and economic barriers that could be addressed through legislation such as time of day pricing, streamlining of development approvals and updated land use policies. Some stakeholders have also identified the need for declining feed-in tariffs to allow consumers to recover the cost of low emission technologies, but not be overcompensated.

SMART GRIDS

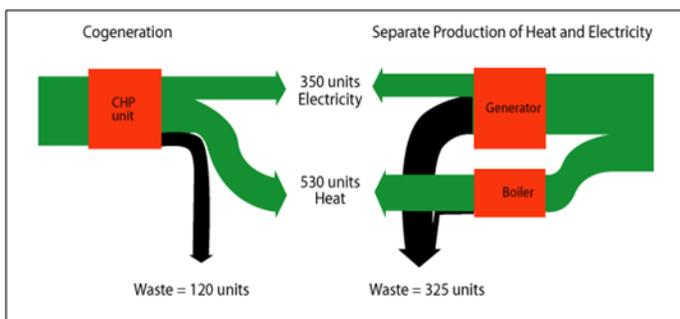
Smart grids can:

- Reduce the amount and therefore the cost of infrastructure
- Improve system stability and reliability
- Enable consumers to better manage electricity use
- Enable high penetration of renewable energy and distributed generation

Developing a smart grid in the United States has the potential to **reduce peak electricity demand by 20 per cent**³⁰.

The electricity system, in particular, can become much more efficient through the adoption of smart grid technologies. These technologies include smart meters to provide consumers with information and greater control over their electricity use; smart appliances and other equipment that responds to changes in system conditions; distributed generation plants; electricity storage; system-wide automation and optimization of grid operations; and communication and interoperability standards. The Alberta Energy Efficiency Act could enable the development of a smart grid for Alberta by providing direction to the Alberta Utilities Commission and the Alberta Electric System Operator to begin implementing changes to the electricity system which facilitate the adoption of smart grid technologies and ensure that Alberta is one of the first jurisdictions with a fully operational smart grid.

Invited stakeholders that commented on this option are supportive of the advancement of smart grid technologies, but have identified that mechanisms for funding smart grid improvements will need to be developed. Some stakeholders have also suggested that the primary value of smart grids is the improved customer response it provides, shorter outage times, reduced operating costs and lower energy losses.



The Efficiency Benefits of Co-Generation (Source: WADE)

CO-GENERATION AND DISTRICT HEATING

Co-generation, or even tri-generation, of heat, power and cooling greatly increases the efficiency of energy systems. For example, a natural gas combined cycle power plant can operate at efficiencies up to 60 per cent, whereas co-generation of heat and power can reach efficiencies up to 90 per cent. Installing co-generation systems into buildings also has the ability to greatly increase the efficiency and reduce the transmission

requirements of Alberta's electricity system. Unfortunately, co-generation systems are still an emerging technology for small-scale applications, and they are not often considered for mid- or large-scale applications. The Energy Efficiency Act could enable the Minister to promote or require co-generation to be installed instead of conventional heating or power generation equipment once a technology has been successfully demonstrated for a given application.

District heating, heating several buildings or facilities from a central source, can be combined with a medium or large scale co-generation plant to create a high efficiency, local energy system. District heating can also be used to deliver heat from biomass burning or industrial processes more efficiently than using many small systems. Unfortunately, district heating is often difficult to establish as it typically requires many different parties to work together and increases the complexity of their projects. This additional effort, however, can result in significant efficiency improvements that benefit all parties involved through lower energy costs. It also benefits the broader public through the conservation of energy resources and lower environmental impact. The Energy Efficiency Act could be used to reduce the regulatory barriers associated with district heating projects. As well, the Act could enable the Minister to incent or require district heating to be adopted in particular areas with a good district heating opportunity.

Invited stakeholders that commented on this option agreed that there is a need and benefit to promoting greater use of co-generation and district heating, but caution was recommended when considering requiring (i.e. legislating) these technologies be used before they are sufficiently advanced.

PRODUCT LABELLING

Improved product labelling is essential for consumers to make well informed decisions regarding energy efficiency. Many products, such as appliances and vehicles, are currently labelled in Alberta with their expected energy operating costs, but other products, such as industrial equipment, buildings and homes, are not. (See Nova Scotia, Ontario and B.C. for examples of building labelling.) Increasing the number of products with energy labels enables more efficient decisions within the marketplace.

Invited stakeholders that commented on this option were supportive of expanding product labelling for energy efficiency, including industrial



EnerGuide Label (Source: NRCan)



equipment. It was identified that labels need to be clear and unambiguous for consumers.

LAND USE AND TRANSPORTATION PLANNING

Passenger transportation is an area that is not always considered within energy efficiency strategies, but there are many opportunities for improving the efficiency of our passenger transportation system – a major energy end-use. These opportunities include improvements to vehicle efficiencies, a shift to more efficient fuels, a shift to walking, cycling and transit, transportation demand management, and influencing travel distances.

A significant determinant in influencing transport behaviours is the design of communities and transportation infrastructure. While this is often led by local governments, the province has a role to play regarding the Municipal Government Act, regional planning and managing the overall impacts of land use and transportation planning decisions. Legislation could be used to provide a framework for local governments to plan and develop efficient transportation networks. This could involve establishing minimum development standards and coordinated planning approaches.

Invited stakeholders that commented on this option acknowledged that the Energy Efficiency Act is likely not the best place to introduce legislation related to land use and transportation planning as this area is currently being addressed within Alberta's Land Use Framework. Nonetheless, opportunities for greater efficiencies in this area were acknowledged.

CREATING AN ENERGY EFFICIENCY FUND

The Energy Efficiency Act could be used to establish a fund for provincial energy efficiency programs. This fund could be generated using general revenues of the provincial government, or the legislation could establish a new funding mechanism such as an Energy Efficiency Bond, a System Benefit Charge (also known as a “public benefit charge”), or financial penalties for not complying with other energy related legislation.

An Energy Efficiency Bond, as used in Montana, California and Colorado, can be used to bring together a large amount of capital to fund energy efficiency loan programs. Financial institutions can be used to manage the risk associated with the loans, which is typically very low for energy efficiency programs.

A study commissioned by The City of Calgary concluded that a **33 per cent decrease** in energy use from passenger transportation could be achieved through changes to land use and transportation planning alone³¹.

A System Benefit Charge is used in many jurisdictions where a small charge (e.g. 0.1 cents per kWh) is applied to utility bills to fund energy efficiency programs that benefit consumers both directly through incentive programs, and indirectly by improving the operability and affordability of the entire system.

A dedicated funding mechanism for energy efficiency provides a stable source of funding for energy efficiency initiatives, which is an important contributor to the success of any program. A portion of the fund could also be dedicated to low-income households to help reduce energy costs and increase their resilience to changes in energy prices.

Response to this opportunity by participating stakeholders was varied. Some stakeholders viewed it as an important mechanism to fund efficiency and conservation programs within the province while others were concerned about the collection and distribution of the funds. There were concerns that another charge should not be added to energy bills and retailers may be perceived to be benefiting from the charge. Other comments suggested a charge should be applied to all steps within the supply chain including production/generation, transmission and distribution companies. Stakeholders also commented that the other alternative of using general revenues would put the cost on the tax base as opposed to the energy users and may be an unreliable source of funding.

Stakeholders also indicated that the funds should be regularly audited to ensure they are being used effectively. Some stakeholders preferred an open competition for funds based on well defined criteria, while others suggested a centralized approach led by a single agency to minimize duplication of effort and allow for economies of scale.

TIMELY REPLACEMENT

There are some products in use that are so inefficient, they are more costly to keep than replace.³³ These products should be replaced as soon as possible in the interests of the owner, the operator and the general public. One method to do this is to make it illegal to sell, trade or operate these items. This could apply to the importing and exporting of grossly inefficient items as well.

While it is not possible to inspect every home and business for such products, a law will reduce the resale market for such products as

New York, New Jersey, Wisconsin, Vermont and California all fund energy efficiency programs through a type of system benefit charge. The Vermont charge has been in place since 1999 and funds an independent agency to deliver efficiency programs. **Efficiency Vermont** has won national awards for its work and continues to expand its programming³².



second-hand businesses will no longer accept them. It also has the potential to send a strong message to Albertans that continuing to use inefficient products is in no one's interest. Since the return on investment is so great on these items, low interest loans or grants could be offered for their replacement based on \$15 per tonne of GHG reduction or another appropriate amount³⁴. Legislating the replacement of obviously inefficient products also prepares the public for more substantial legislation in the future.

Response to this opportunity from participating stakeholders was varied. Some stakeholders support this approach while others have concerns about it. One stakeholder questioned the ability to enforce such legislation, while others suggested this could be adequately addressed by focusing outreach and enforcement on retailers. There were other concerns regarding the potential impact on low income individuals, while again, other comments suggest this could be addressed through targeted support in these areas, and still other comments suggested that loan or financial assistance programs may cost more to administer than the benefit to its customers. Another stakeholder suggested old products will eventually be replaced over time, but if accelerated replacement is desired, then this could be done through an incentive program.

INEFFICIENT PRACTICES

There are some practices that are equally as inefficient as an old product. Examples of this are patio heaters, overcooling or overheating of buildings, and unnecessary vehicle or equipment idling. With respect to idling, several jurisdictions have enacted rules that put limits on vehicle idling while parked (with exemptions for vehicles such as police cars, ambulances and other service vehicles). Modern engines are designed to be started and stopped regularly, resulting in cost savings if a vehicle is to be parked more than 60 seconds. Two to five minutes are typically the maximum amount of idling permitted, allowing for enough time to warm a vehicle properly during cold days. Even raising the possibility of legislation in areas such as this would greatly increase the awareness that these practices are not necessary, and would result in changes in behaviour.

There was mixed response to this opportunity by stakeholders that commented on this option. Several stakeholders preferred to use education and outreach to address inefficient behaviours, citing potentially better effectiveness through education and the difficulty of enforcing behavioural legislation. Other stakeholders did see value in

the government defining appropriate and inappropriate activities, comparing a ban on inefficient practices to speed limits, which also cannot be enforced 100 per cent of the time, but still play a useful role in traffic safety.

EDUCATION

Energy efficiency legislation could also be used to require or enable greater education and awareness-building either generally or among target audiences. This includes greater energy efficiency training within primary, secondary and post-secondary institutions, and with the general public.

All of the invited stakeholders that commented on this option were supportive of energy efficiency education; although one comment suggested that it should not be done through legislation. Stakeholders also suggested that the information needs to be balanced, science based and not politicized. One stakeholder suggested energy efficiency education should fall within the mandate of Alberta Energy. Another suggested that stakeholders should be given the opportunity to fund education activities (monetary or in-kind) in exchange for acknowledgement or branding opportunities, although there was some hesitancy by other stakeholders around this idea.

For schools, there were several suggestions that energy efficiency education needs to be integrated into existing curriculum and activities.

For education targeted at energy consumers, one stakeholder suggested that energy retailers need to be involved, although it was acknowledged that regulators have a role to play to enable this to occur within Alberta's current regulatory framework.

Finally, some stakeholders suggested that the impact of education activities could be enhanced by coordinating them with other initiatives such as incentive programs or regulatory changes.



The **U.S. Energy Independence and Security Act** of 2007 enhanced the ability of federal agencies to use Energy Savings Performance Contracts and identified minimum levels of energy efficiency and renewable energy technologies to be used at government facilities.

GOVERNMENT PROCUREMENT POLICY

Governments have used legislation to establish procurement policies for their own facilities and operations. The Government of Alberta could add to its current green building policy with legislation that applies to a broader set of purchasing decisions.

Invited stakeholders that commented on this legislative option saw it as a positive initiative for government to undertake.

REPORTING

Energy efficiency legislation often includes requirements to report on progress towards meeting the legislation's goals. This helps with effective implementation of the legislation, and assists with improving the design of policies and programs over time.

Invited stakeholders that commented on this option generally supported the concept of reporting on progress towards legislative goals. It was noted, however, that for energy efficiency legislation it is important to develop consistent and verifiable reporting systems. This will require appropriate protocols to be developed and resources to be made available for these activities. One stakeholder suggested that protocols should be harmonized with other provinces to enable comparison across jurisdictions. An industry stakeholder suggested that reporting should also be undertaken by all large corporations.

CLOSING

Many different opportunities for the Alberta Energy Efficiency Act were identified by looking at energy efficiency legislation in other jurisdictions. These jurisdictions provide opportunities for the Government of Alberta to benefit from their experience when developing its own legislation.

A set of stakeholder organizations were invited to provide feedback on these legislative options. These organizations have demonstrated significant support for some of the options presented, and have voiced questions or concern for others. The Alberta Energy Efficiency Alliance hopes that these perspectives will be considered throughout the development process of a provincial Energy Efficiency Act.





**REPRESENTATIVES FROM THE FOLLOWING
ORGANIZATIONS HAVE REVIEWED THIS PAPER
AND THEIR FEEDBACK HAS BEEN DULY
INCORPORATED**

The City of Edmonton

The City of Calgary

Direct Energy

ENMAX Energy

Fortis Alberta

ATCO Gas

EnCana

Heat and Frost Insulators and Allied Workers Local 110

North American Insulation Manufacturers Association - Canada

Stantec

Golder Associates

Renewable Energy Solutions Inc.

Climate Change Central

The Pembina Institute

Canadian Energy Efficiency Alliance

Canadian Standards Association

Natural Resources Canada



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