

# Incremental Ethane Extraction Program Guidelines

Revised May 1, 2011

Alberta Department of Energy  
Value-Added and Strategic Integration Branch

## Introduction

The petrochemical industry in Alberta is currently based on adding value to natural gas liquid (NGL) feedstocks, mainly ethane, ethylene and ethane/ethylene mixes<sup>1</sup> with some manufacturing based on propane and butane. Forecasts indicate that the supply of NGL feedstocks will likely continue to decline due to the decline of conventional gas production from the Western Canadian Sedimentary Basin and as new gas sources from the basin become drier – containing little or no NGLs. In order to preserve and/or expand Alberta's petrochemical industry, new supplies of secure, cost competitive feedstocks will be required. Significant re-investment in supply infrastructure in Alberta may be required to take advantage of the potential petrochemical growth opportunities.

The petrochemical industry in Alberta is a value-adding industry that results in many benefits for Albertans. Alberta is Canada's largest petrochemical producing area, with annual shipments (including chemicals) of almost C\$9.2 billion and exports of more than C\$5.4 billion in 2009 the petrochemical industry employs over 7,500 Albertans. While nameplate capacity of Alberta's four ethane crackers is 270,000 barrels per day, total ethane feedstock available for value-adding falls far short of this minimum requirement. It is in the mutual interest of the government and industry to have a policy framework that maximizes the value of Alberta's energy resources, lowers the carbon intensity of a barrel of oil, and contributes to Alberta's value-added petrochemical sector.

In September 2006, the Minister of Energy (Minister) released the Government's Incremental Ethane Extraction Policy (IEEP) after several months of consultation with industry representatives from various petrochemical, midstream, pipeline, and natural gas industries. The IEEP is a key component in the on-going development of an energy value-added strategy for Alberta and its intended purpose is to:

- encourage value-added upgrading in Alberta;
- address the tight supply of ethane in Alberta and fill existing petrochemical capacity;
- encourage new investment in ethane extraction facilities (upgrades to existing plants, new plants, and off-gas processing); and
- attract new investment in petrochemical derivative plants.

This program provides Fractionation Credits to the petrochemical companies that consume incremental ethane and ethylene for value-added upgrading (e.g. production of higher valued products, such as ethylene, polyethylene and other derivatives) and its objective is to sustain and grow the petrochemical industry in Alberta. The program is not company, project nor project type specific. The program provides opportunities for all NGL producers and oil sands refiners and upgraders to participate in the program through partnerships with the petrochemical industry. Ethane that is used for other purposes, such as, export for its heating content, or in Enhanced Oil Recovery (EOR) schemes are not eligible for fractionation credits.

These guidelines are intended to be the operational document in support of the Incremental Ethane Extraction Regulation approved July 2007 and the amendment to remove the program cap in September 2009. Guidelines were amended again in 2011 to extend the program to 2016

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<sup>1</sup> For the purpose of this program and within these guidelines, the use of the term "ethane" includes an ethane, ethylene and/or ethylene mix where appropriate (e.g. ethane/ethylene mix from off-gas capture).

and to make revisions based on industry feedback gathered in fall, 2010, especially with regard to supply from off-gas projects. These guidelines are applicable to all existing approved projects.

## **Definitions**

For the purpose of this program the following are common terms and their meanings:

Company or companies: a company that has an ownership interest in a petrochemical facility.

Consumption (or Consumed): means the use of ethane/ethylene as feedstocks in the manufacture of value-added petrochemical products at a Facility.

Cubic Metre of Ethane: means the volume of pure liquid ethane/ethylene that at 15 degrees centigrade and equilibrium vapour pressure fills a space of one cubic metre.

Facility: means a petrochemical facility located in Alberta that uses ethane/ethylene as feedstock to manufacture petrochemical products.

Fractionation Credits: means fractionation credits calculated and established by the Minister.

Incremental Consumption: means industry-wide consumption of ethane from a new source.

In-service date: the first date a project can be deemed to have commenced full operation.

Unit Fractionation Credit: means a dollar amount per cubic meter of ethane/ethylene (but which may also be expressed in dollars per barrel) established by the Minister, by order, for each year.

Off-gas: means the alkane/alkene rich by-products produced from refining and upgrading of bitumen processes.

Year: 12 consecutive months from date of project start-up.

## **Eligibility**

Fractionation Credits under this program are earned by companies based on the amount of actual, eligible ethane they consume. For a Company to qualify for Fractionation Credits it must be a company that is or will be an owner in a facility located in Alberta that consumes eligible ethane as feedstock. Fractionation Credits only apply to ethane produced in Alberta.

Eligible volumes must be incremental from a new supply source as of April 1, 2007; examples of eligible sources may include: increased extraction capacity at existing gas processing plants, new extraction capacity and off-gases from oil refiners or oil sands upgraders. However, it is important to note that a new ethane source must not be available for consumption at a facility as of the date of the application.

Although the regulation in compliance with most legislation uses metric measurements and states “ethane/ethylene as measured in cubic metres”, for the purposes of this program and in keeping with the common industry practice in Alberta, applications and reporting under this program will be in barrels (where one cubic metre of ethane/ethylene is equal to 6.28981 barrels<sup>2</sup>). For off-gases, and in the absence of an operating facility at this time, the ethane mixture may be considered eligible and will be measured as an ethane equivalent.

During the period of April 1, 2007 to December 31, 2016, all approved incremental ethane may be eligible for Fractionation Credits. After January 1, 2017, only ethane consumption related to “tagged” sources (specific projects tagged on or before December 31, 2016) as identified in an advanced ruling process may be eligible for Fractionation Credits until December 31, 2021.

Incremental consumption from tagged projects will be eligible for credits for 60 consecutive months from when the project begins producing ethane. The blue cells in the table below illustrate ethane consumption in different years that are eligible for credits.

**Incremental Ethane Fractionation Credit Eligibility Table - Illustration**

		Eligible for Credits - Year									
		2007	2008	2009	2010	2011	2012	2013	2014	....	2021
Ethane/ethylene Consumption Start Date	2007										
	2008										
	2009										
	2010										
	2011										
	2012										
	...										
	*2019										

\* Projects were “tagged” before December 31, 2016 but in-service date should occur before December 31, 2019 to be eligible to claim credits. In this case an eligible project will receive credits for less than five years.

### Incrementality Criteria

Incrementality for any project will be determined at the Advanced Ruling Application phase, based on various characteristics of the project such as traditional output of the proposed facility and issues regarding the incremental nature of the ethane. Once approved, volumes consumed in accordance with the program will be deemed incremental.

<sup>2</sup> \* In accordance with Alberta Ethane Gathering System Ethane Specifications and Operating Guidelines Issue #4.

## Calculation of Credits

The value of the Unit Fractionation Credits is a fixed dollar per unit of ethane or “Fractionation Price” as prescribed by the Minister. The Unit Fractionation Credit value at the start of the program has been set at \$1.80 per barrel for natural gas derived ethane.

Recognizing that further capture of off-gas to the ethane level is considerably more capital intensive than conventional ethane, the Unit Fractionation Credit value is set at \$5.00 per barrel for off-gas ethane. The premium for off-gas capture down to the ethane level further recognizes that off-gas use in Alberta can reduce emissions by up to one million tonnes of emissions annually – equal to about 10% of Alberta’s current reduction obligation under the Specified Gas Emitters Regulation. Using off-gases in value-added production contributes to a reduced greenhouse gas intensity of a barrel of oil from Alberta’s oil sands.

The Minister will announce the value prior to February 1 each year thereafter. Tagged projects will receive the higher of the Unit Fractionation Credit in effect at the time it was approved or the current Unit Fractionation Credit.

The Incremental Ethane Extraction Program expires in 2021 or when fully expended. Unused Credits accrue to the following year for a total program cap of C\$350 million from 2007 to 2016. This feature recognizes the timeframes required to bring new projects from application through to in-service date when credits first apply.

## Application Process

The Company must submit a written application to the Minister in the form of a letter containing details described below. Documentation is provided in one of two types: (1) Advanced Ruling Application (ARA) or (2) Annual Eligibility Application (AEA).

### **(1) - ARA:**

This type of application allows the Company to identify specific ethane producing facilities (projects) and request they be “tagged”. The Minister will review the ARA and indicate if the ethane consumption and associated new ethane supply project appear to be eligible for Fractionation Credits and if funding is available. This application process is intended to provide some certainty to the Companies that their proposed incremental ethane consumption (and associated ethane production facilities) may be eligible for Fractionation Credits and at a Unit Fractionation Credit value no lower than that which was in effect at the time of application.

Projects that are subject to regulatory approval will still undergo any necessary regulatory and permit applications required by the applicable regulatory authority. Approval of the ARA is not a guarantee of a facility approval.

In each year of the program to 2016, or until program funding has been fully committed to tagged projects, Alberta Energy will hold an application season, typically two months, for the Companies to submit their ARAs. The Application season is held annually from April 1 to May 31. There will be no further application seasons or tagging after December 31, 2016.

The ARA must be submitted by a Company and include the following two main sections:

(1) Project Identification:

The applicant will identify a new source of ethane (i.e. not available or in operation at the time of the ARA application) (“project”) and corresponding incremental ethane consumption. The following specific details about the project must be included in the ARA:

- general description;
- design and operating capacity;
- estimated in-service date;
- the Company’s estimated incremental ethane/ethylene consumption and associated value-added production; and
- project owner.

Specific ARA projects approved by the Minister will be tagged and eligible for Fractionation Credits for 60 consecutive months following the in-service date under the following conditions:

- the applicant consumes incremental ethane produced by an approved ARA project; and
- the project is in-service within three years of the application. Note: the three-year in-service period may be extended upon request and at the discretion of the Minister, for capital intensive projects that may require longer than 36 months to design and construct.

Incremental volumes approved in the ARA represent the maximum allowed credit level.

(2) Business Case:

The ARA must also include a detailed business case to justify the need and support for the Fractionation Credits for the project. The business case should include:

- reasons/need for the credit (likely with an alignment to the source and increased cost of the incremental ethane/ethylene);
- benefits to Albertans - government, public, other (e.g. tax revenue, royalty revenue, skilled jobs, developing new markets, etc.);
- identifies any potential negative impacts on existing infrastructure and markets;
- forecasts incremental ethane consumption and associated production, and identifies external factors that could influence results; and
- illustrates to the Minister that the incremental ethane/ethylene consumption is providing long-term benefits that outweigh the costs of the credit to the Crown.

Alberta Energy will review each application for completeness.

ARAs received during the application season will be posted as they are received on the Alberta Energy’s website. This information will be updated at the end of the application season to show approved tagged projects. Information shown will be the posted date, Company, project description, ethane design capacity and in-service date. Once the information is posted on the Department of Energy’s website, potentially affected stakeholders will have 10 working days to submit written concerns about the project to the Alberta Energy.

Alberta Energy will issue a letter to the applicants advising of their ARA status by the end of June following the application season.

Anticipating that the basis for each project may change during the detailed design and engineering phase, an application to amend an existing ARA may be made, provided that the project is not in service at that time. Amendment requests will be evaluated on a project by project basis and must be consistent with program guidelines.

**(2) - AEA:**

An AEA must be submitted by each Company annually prior to March 1 to report their consumption in the prior calendar year. The AEA must include:

- actual ethane consumption by their facilities;
- sources, amounts produced, and actual in-service dates of tagged ethane;
- evidence of ethane consumption and value-added production including but not limited to invoices, meter readings, senior management affidavit or other auditable documents;
- the value of the credits earned; and
- the name of the royalty payer, the type of royalty account (natural gas or bitumen) to which the credits are to be applied and the distribution of those credits where more than one royalty payer or royalty account is identified.

Alberta Energy will issue a letter to confirm the value of the credits earned and the date on which the credits are applied to the royalty payer's account.

The individual ARA and annual AEA submissions are to be addressed to:

Anne Denman  
Executive Director  
Value-Added and Strategic Integration  
Alberta Department of Energy  
6<sup>th</sup> Floor, North Petroleum Plaza  
9945 - 108 Street  
Edmonton, Alberta T5K 2G6

**Issuance of Fractionation Credits**

Alberta Energy will issue Fractionation Credits to royalty accounts as identified in the Company's annual AEA by June 1 of each year, unless identified otherwise. The aggregate value of Fractionation Credits issued for each year, and for the IEEP program to-date, will be posted on the Department of Energy's website shortly thereafter.

**Using Fractionation Credits**

Fractionation Credits are used by way of a reduction to royalties' payable on bitumen or natural gas and natural gas by-products and must be monetized by the Company during the fiscal year in which they are issued (April 1 to March 31). If the Company that receives fractionation credits

is not a royalty client of Alberta Energy, the credits will have to be transferred in whole or in part to one or more royalty clients. The types of commercial arrangements between industry participants to transfer the credits will not be restricted by the government.

A Company must provide sufficient information in its annual AEA submission for Alberta Energy to allocate royalty credits. In the event these allocations need to be amended, the Company may advise Alberta Energy by letter until such time as the credits have been applied by Alberta Energy to the royalty client accounts.

Natural gas royalty clients will see the deduction for the earned credit value applied as a line item on their royalty invoice under the Other Financial Transactions portion of the invoice. This will occur in the month following application of the credit.

Bitumen royalty clients will see the value of the Fractionation Credits in their annual statement.

Fractionation Credits are non-interest bearing.

### **IEEP Key Dates**

<b>Date</b>	<b>Activity</b>
<b>Annual Eligibility Application (AEA) present to 2021</b>	
March 1	Company submits AEA for volumes from tagged projects in previous calendar year
March 1 to June 1	Department reviews and confirms AEA and advises Company in writing when credits applied to royalty payer account(s)
June	Department posts value of credits issued in current year and program total to date on website
<b>Advanced Ruling Application (ARA) 2011 to 2016</b>	
April 1 to May 31	Company submits ARAs during Application Season Department reviews then posts on website for stakeholder comment
June 1 to June 30	Minister review and approval Applicants advised in writing and website updated

### **Record Keeping**

For the purposes of the regulation, Companies are required to retain documents related to the consumption of ethane for the duration of this program and five years after the issuance of the last annual Fractionation Credits under this regulation.

The Minister may request that Alberta Energy’s Auditors have access, on a confidential basis, to all documents including production reports, ethane purchases and commercial agreements from time to time.

## **Limitations**

Companies may not retroactively amend applications for Fractionation Credits after the credits have been issued unless granted specific authority of the Minister.

The Minister may refuse to grant credits under the IEEP to a person/company if the Minister believes that the regulations have been contravened, or that business arrangements were made that artificially affected the determination of the credits. Also, the Minister may cancel and/or reduce accordingly the value of any credits approved under such circumstances.

If credits were allocated and redeemed, and the Minister subsequently determines that all or parts of the incremental consumption submitted is ineligible, the Company will be required to repay the Fractionation Credits, including compound interest (Alberta Treasury Branch prime rate plus 1%).

## **Contact**

For further information please contact:

Alberta Department of Energy  
Value-Added and Strategic Integration Branch  
9945 - 108 Street Edmonton, Alberta T5K 2G6