Royalty Review Implementation

Technical Briefing

Modernized Royalty Framework Strategic Programs & Early Opt-in to the Modernized Royalty Framework

Updated December 16, 2016

Purpose

- Introduce and provide details on Alberta’s two new strategic royalty programs:
  - Emerging Resources Program
  - Enhanced Hydrocarbon Recovery Program
- Addition – Early election to MRF

Modernized Royalty Framework Implementation

Advisory Panel Final Report January 29, 2016

Release of Formulas April 21, 2016

Strategic Overlays: Detailed Rules July 14 2016

Industry Training Sessions Fall/Winter 2016

New Framework takes effect January 2017

Recommendation: Modernize Alberta's Royalty regime for crude oil, liquids and natural gas.

- Harmonize royalty structures across crude oil, liquids and natural gas.
- Retain and Improve existing structure to better function like revenue minus cost.
- Implement Strategic Royalty Programs.

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Emerging Resources Program

Overview

- Panel Recommendation: a strategic program for “high-risk experimental wells”
  - Wells that depart from the standard risk profile of oil and gas wells and with the potential to reduce costs, open up new play areas or both
- Program focuses on development of emerging new resources that can be unlocked with high risk, high cost wells in relatively undeveloped areas
- Promote innovation and industry experience
- Generate greater long-term royalties and other benefits to Albertans

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Application Based Program

- Program comes into effect January 1, 2017
  - 10 year program for drilling qualifying wells
  - 8 years to apply
- Applicant selects emerging resource and defines a project in program application.
  - Program specifies minimum and maximum project sizes.
- Project must demonstrate it meets all eligibility criteria.
- Project must be in the public interest to be accepted into the program, as determined by the Minister of Energy.

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ERP Eligibility Criteria

- Large resource potential
  - Resource estimates within Project Area and play or sub-play.
- Early stage of development
  - Level of existing activity in project and surrounding area (i.e. no more than <u>10%</u> of total well inventory has been drilled within Project Evaluation Boundary and no more than <u>15%</u> of total well inventory drilled in Project Area).
- Strong potential for project area to achieve commerciality
  - Demonstrate that the project is not currently commercial, and unlikely to achieve commerciality without the program (e.g. drilling and completion costs higher than 150% of C* for first wells or lack of required infrastructure in Project Area).
  - Provide line of sight as to how the project could achieve commerciality within a reasonable timeframe through a combination of reduced cost targets, improved well performance and infrastructure requirements, and how this will be achieved.
- Net royalty benefit to Albertans
  - Royalty revenues (in real terms) with the program from Project Area are expected to be higher than 150% of that without the program over the project life.

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Project Area

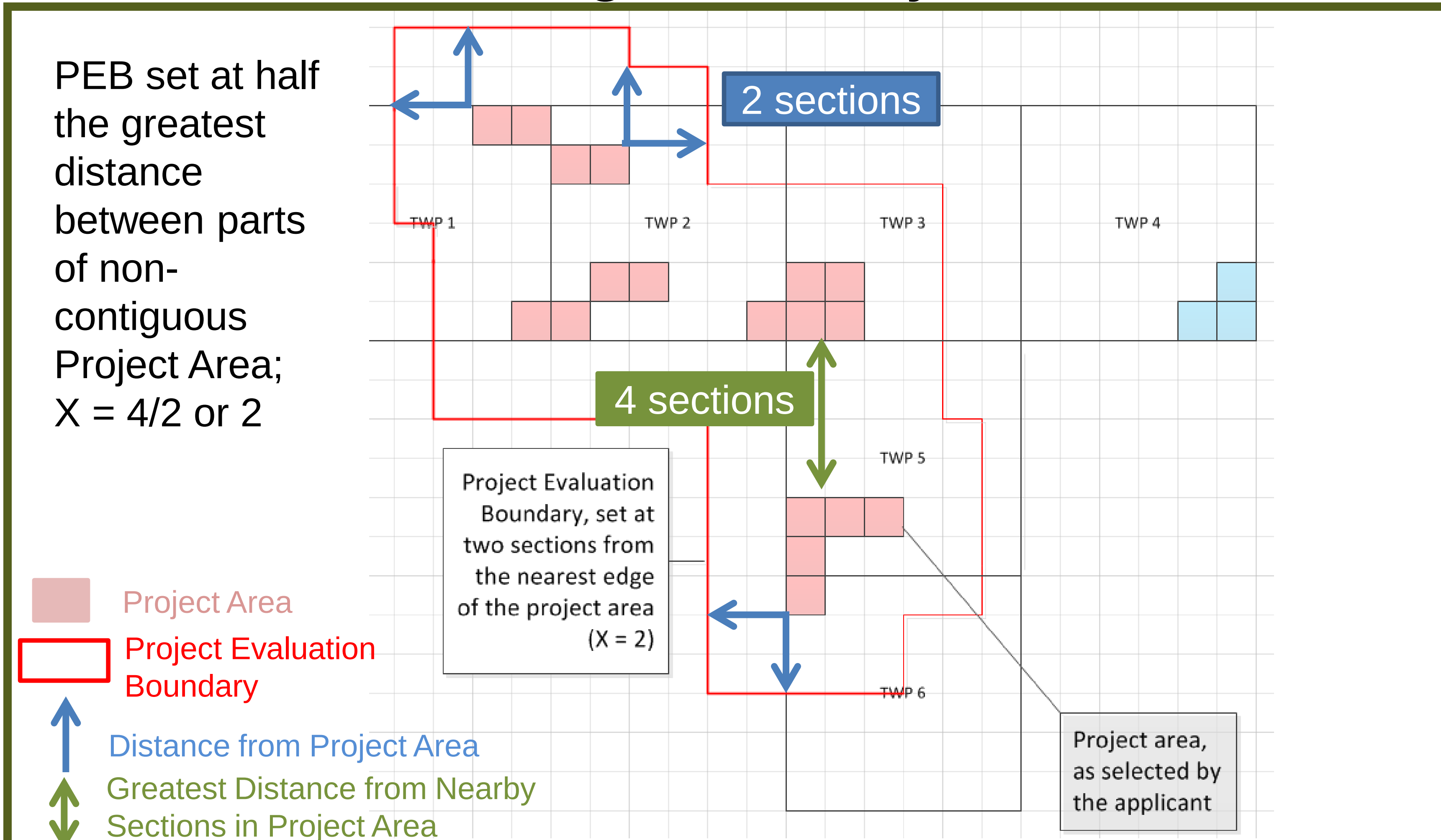
- Project area between 18 to 144 sections.
- Project area will only include lands where the leaseholders have secured the Crown mineral rights (freehold land & undisposed excluded).
- An application may be made for projects which include more than one leaseholder.
- Project area need not be contiguous if it is for the same interval, located within the defined Project Evaluation Boundary, and is covered by a project plan.
- A minimum of 5,000 BOE per day of projected peak production is expected from Project Area.

Project Evaluation Boundary

- The Project Evaluation Boundary (PEB) encompasses the Project Area plus a buffer zone around the Project Area.
- Applicants define the PEB for each project through the selection of Project Area:
  - The PEB follows a certain distance from the edge of Project Area; this distance (X) is measured in sections. Includes diagonals.
  - For a contiguous Project Area, the PEB distance from project area is a minimum 2 sections. Contiguous means connected on a side.
  - If the Project Area is non-contiguous, the PEB distance is set at the greater of 2 sections or half of the greatest distance between nearby sections in the Project Area. X is rounded up to nearest half section.

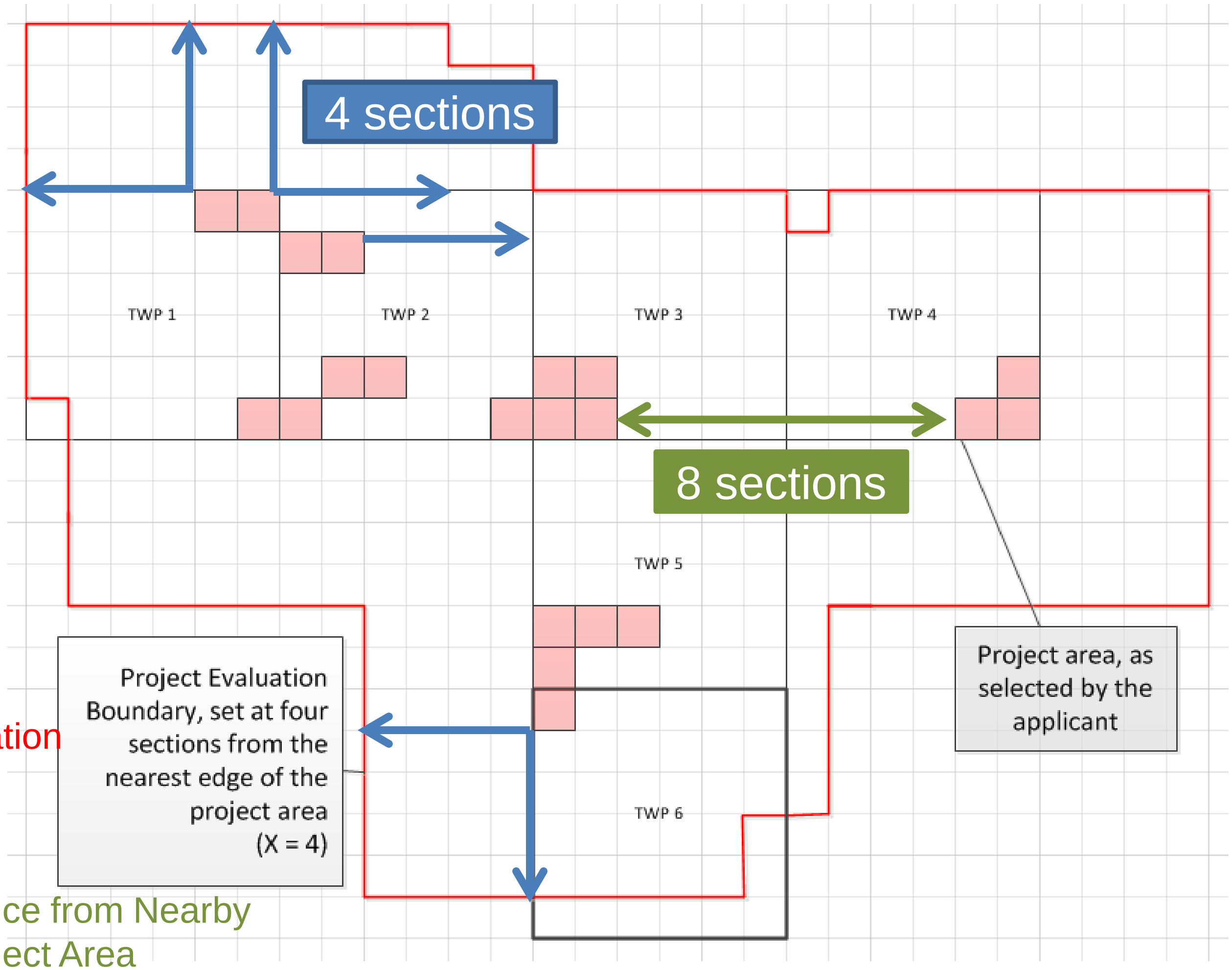
Project Evaluation Boundary Example 1
Non-Contiguous Project Area

PEB set at half the greatest distance between parts of non-contiguous Project Area; X = 4/2 or 2



Project Evaluation Boundary Example 2
Non-Contiguous Project Area

PEB set at half the greatest distance between parts of non-contiguous Project Area; X = 8/2 or 4



Project Area

Project Evaluation Boundary

Distance from Project Area

Greatest Distance from Nearby Sections in Project Area

Key Factors in Determining Program Benefits

Key Factors	Impact on a Project's Program Benefits	Related Program Benefit Parameters
Drilling activity within the Project Evaluation Boundary at time of application (limit of 10% of total well inventory)	• Affects program eligibility ("program entrance") • Sets initial program benefit and benefit period ("program benefit entry point")	• Defines a project's initial C* Multiplier • Defines benefit period, i.e. the time window to drill eligible wells
Drilling activity within the Project Area at time of application and during the program (limit of 15% of total well inventory)	• Affects program eligibility ("program entrance") • Program benefit cap ("program exit")	• Defines when a project will stop receiving benefits for any new wells drilled
The length of time a project has been in the program	• Determines program benefit for individual wells drilled in subsequent years ("benefit decline schedule")	• Defines C* Multiplier for wells drilled in subsequent years after the project is approved

Drilling Activity Measure

- Measured by number of wells drilled.
- Total well inventory will be calculated using 4 wells per section in both Project Evaluation Boundary and Project Area.
  - Applicants can provide rationale and evidence in their application for using a different wells per section value.

Existing Drilling Activity will Impact a Project's Program Benefits

Program Eligibility: Level of drilling activity within the Project Evaluation Boundary and within the Project Area at time of application limits program eligibility. May be eligible if:

- No more than 10% of total well inventory has been drilled within Project Evaluation Boundary; and
- No more than 15% of total well inventory has been drilled in Project Area.

Benefit Determination:

1) **Initial level of program benefits for a project is set at time of application:** Determined by the level of existing drilling activity within Project Evaluation Boundary.
2) **Total program benefits over the life of the project:** Determined by future drilling activity in Project Area during the program.

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Wells Counted for Drilling Activity

Information used in determining program eligibility and program benefits

Drilling activity within Project Evaluation Boundary (i.e. no more than 10% of total well inventory)

- Include producing wells, abandoned wells, dry holes and project participants' confidential wells penetrating the target formation
- Competitors' confidential wells are excluded.
- Bottom hole locations

Drilling activity in Project Area (i.e. no more than 15% total well inventory)

- Include producing wells in the target formation.
- Bottom hole locations

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Program Benefits for Approved Projects

- Program benefits are provided to producing wells drilled on or after January 1, 2017.
- A C^*_{ERP} will be provided to eligible wells from an approved project once the wells are on production (with a limit set for eligible wells at 15% of total well inventory in Project Area).
- C^*_{ERP} includes **both** the regular C* a well receives under the MRF, and the additional cost allowance provided by the Program.
- No adjustments will be provided to a well's C^*_{ERP} due to any subsequent drilling and completion activity such as re-entry, re-completion or other activity.

Pooling of C^*_{ERP}

- C^*_{ERP} for eligible wells in a project are pooled for purposes of the Program.
  - The pooled C^*_{ERP} will be applied against all eligible wells that have received a C^*_{ERP} in the same project.
  - The pooled C^*_{ERP} will be available to those eligible wells for up to 5 years after the approved benefit period ends.
  - Unused pooled C^*_{ERP} will expire upon program termination.

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C* Multiplier

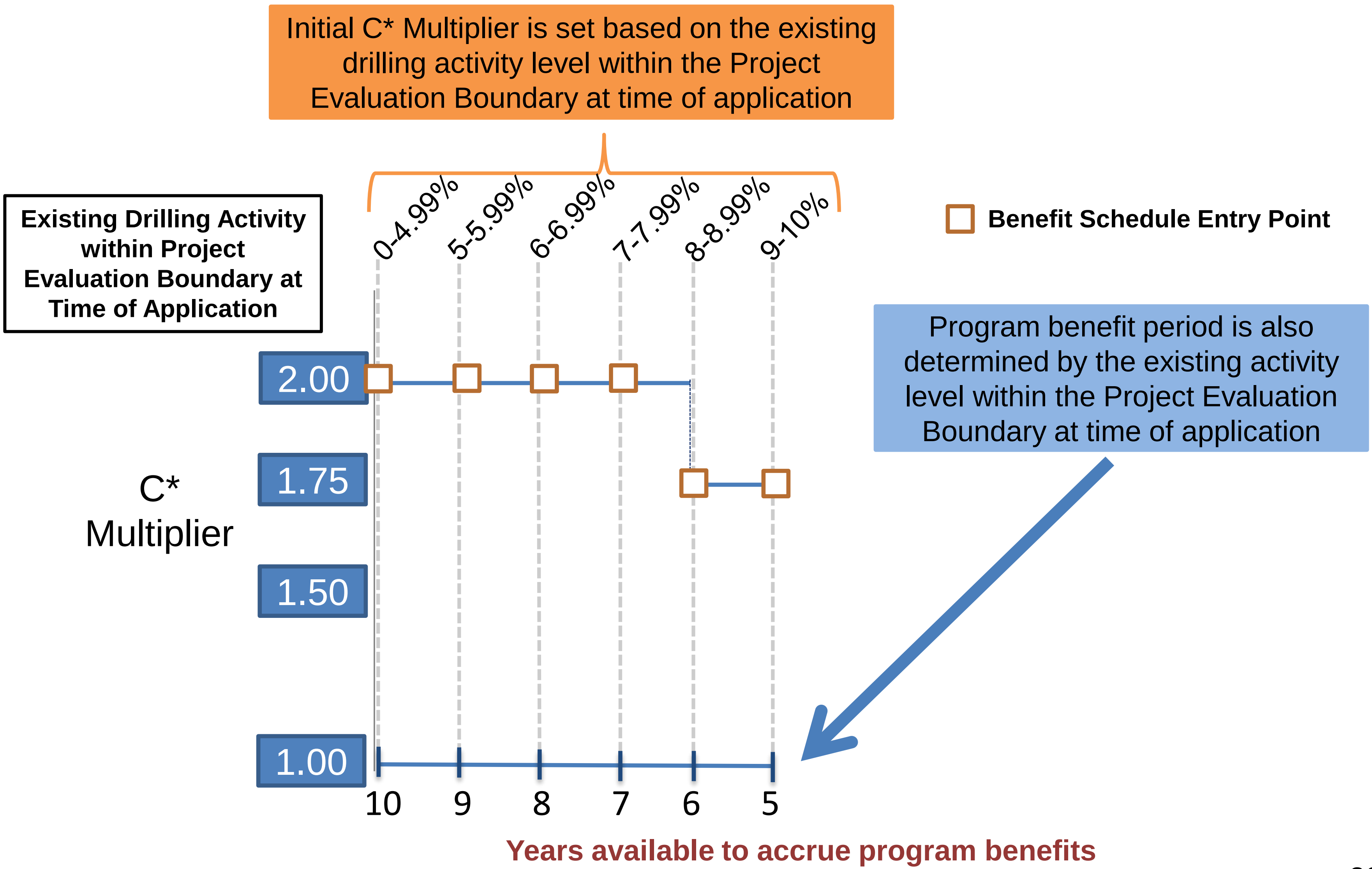
- C^*_{ERP} will be calculated as the regular C* times a C* Multiplier.
- The C* Multiplier ranges from 1.5 to 2.0.
- An initial C* Multiplier (a maximum of 2.0) will be set at time of project approval.
- The initial C* Multiplier will be determined by the level of existing drilling activity within the Project Evaluation Boundary at time of application.
  - The initial C* Multiplier is less when a project is more advanced in development at time of application (i.e. more drilling activity has occurred within the PEB).
- The C* Multiplier for additional wells drilled in the Project Area also declines over time.

Determination of Initial C* Multiplier

- For a project with more existing activity within its Project Evaluation Boundary, the initial C* Multiplier and the benefit period for the project will be reduced to reflect that the project started at a more advanced early stage of development.

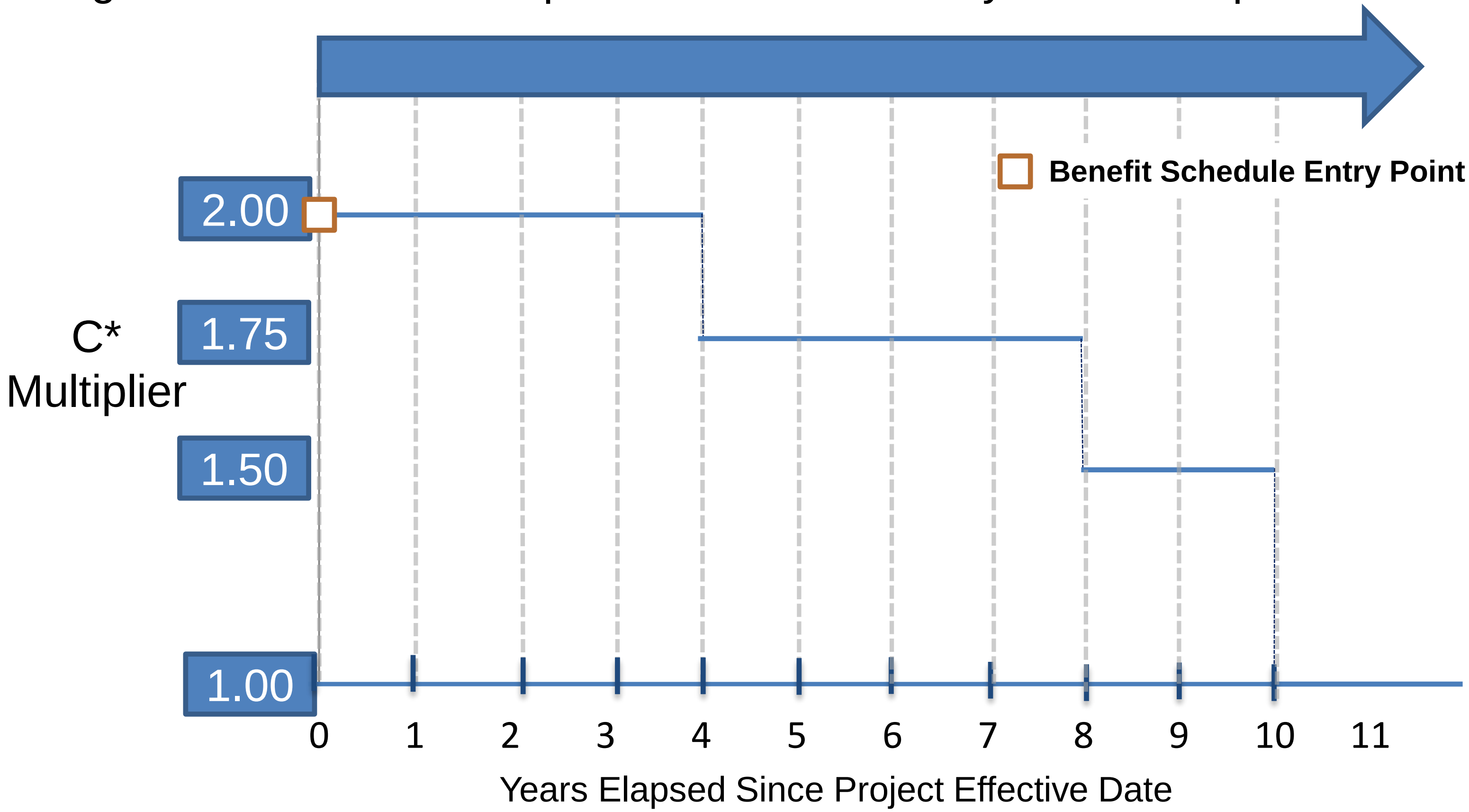
Existing Drilling Activity within Project Evaluation Boundary at Time of Application (% of total well inventory drilled)	Initial C* Multiplier	Benefit Period (i.e. the time window to drill eligible wells)
0 - 4.99% 5 - 5.99% 6 - 6.99% 7 - 7.99%	2.00	10 years 9 years 8 years 7 years
8 - 8.99% 9 -10%	1.75	6 years 5 years

Visual of Initial C* Multiplier ("Entry Point")



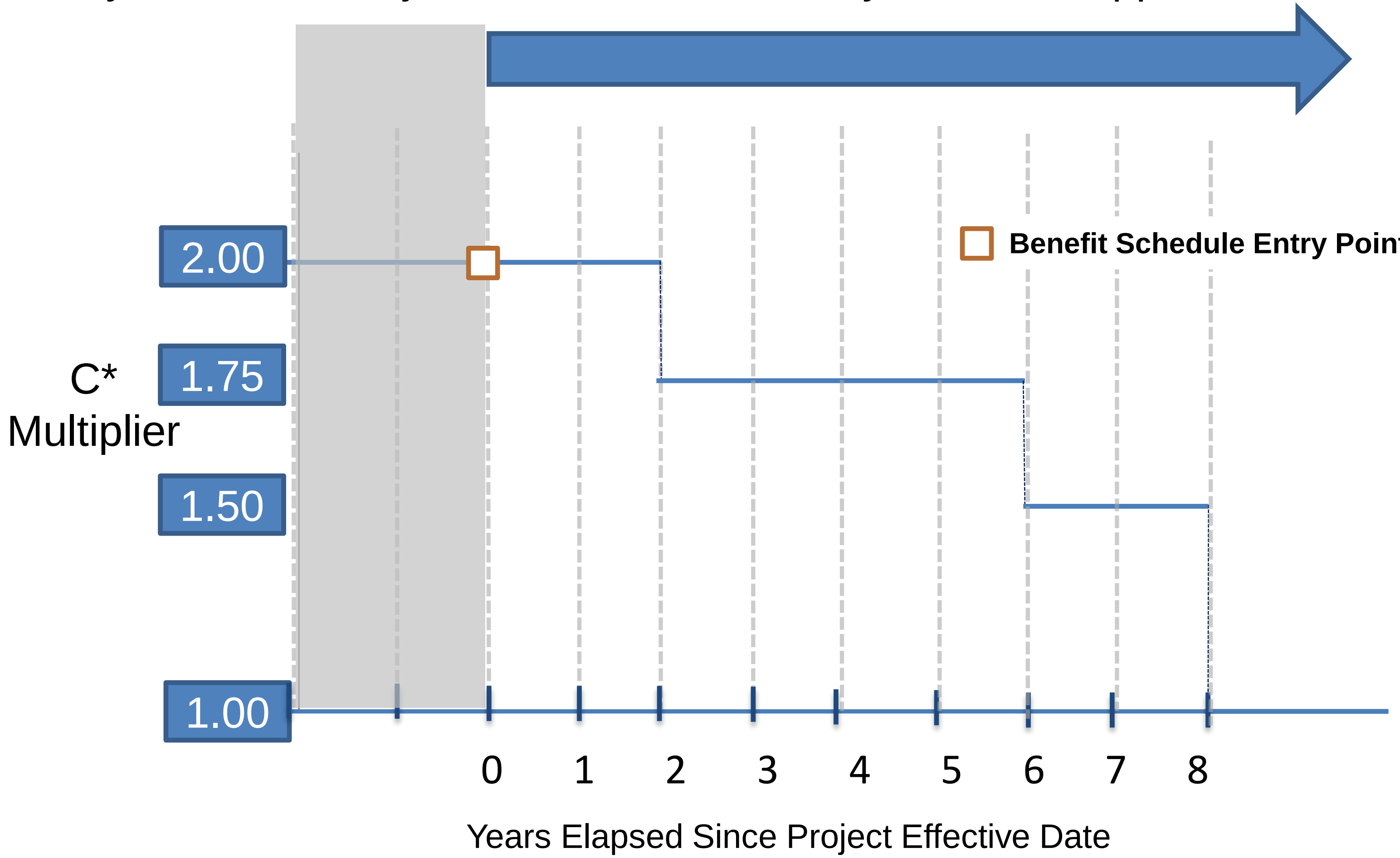
C* Multiplier Declines Over Time

- Once an initial C* Multiplier is set for a project, the C* Multiplier declines over time. The C* Multiplier for an individual well depends on when the well is drilled.
- The chart below shows the C* Multiplier Decline Schedule if a project was assigned an initial C* Multiplier of 2.00 and a 10 year benefit period.



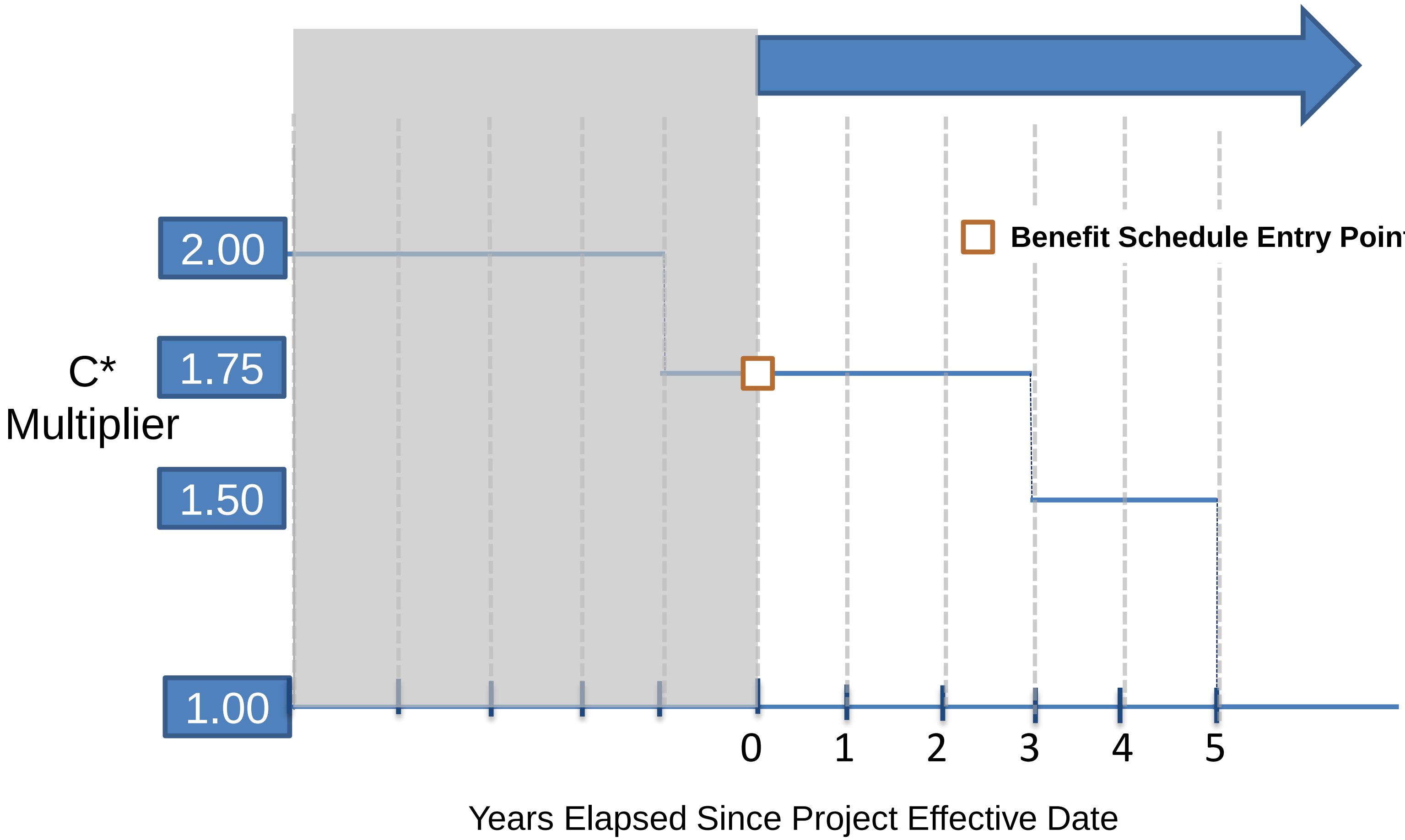
C* Multiplier Decline Schedule Example 1

- The chart below shows the C* Multiplier declines for a project with an initial C* Multiplier of 2.00 and an 8 year benefit period to drill eligible wells. This would be the case for a project when there is 6-6.99% existing drilling activity within the Project Evaluation Boundary at time of application.



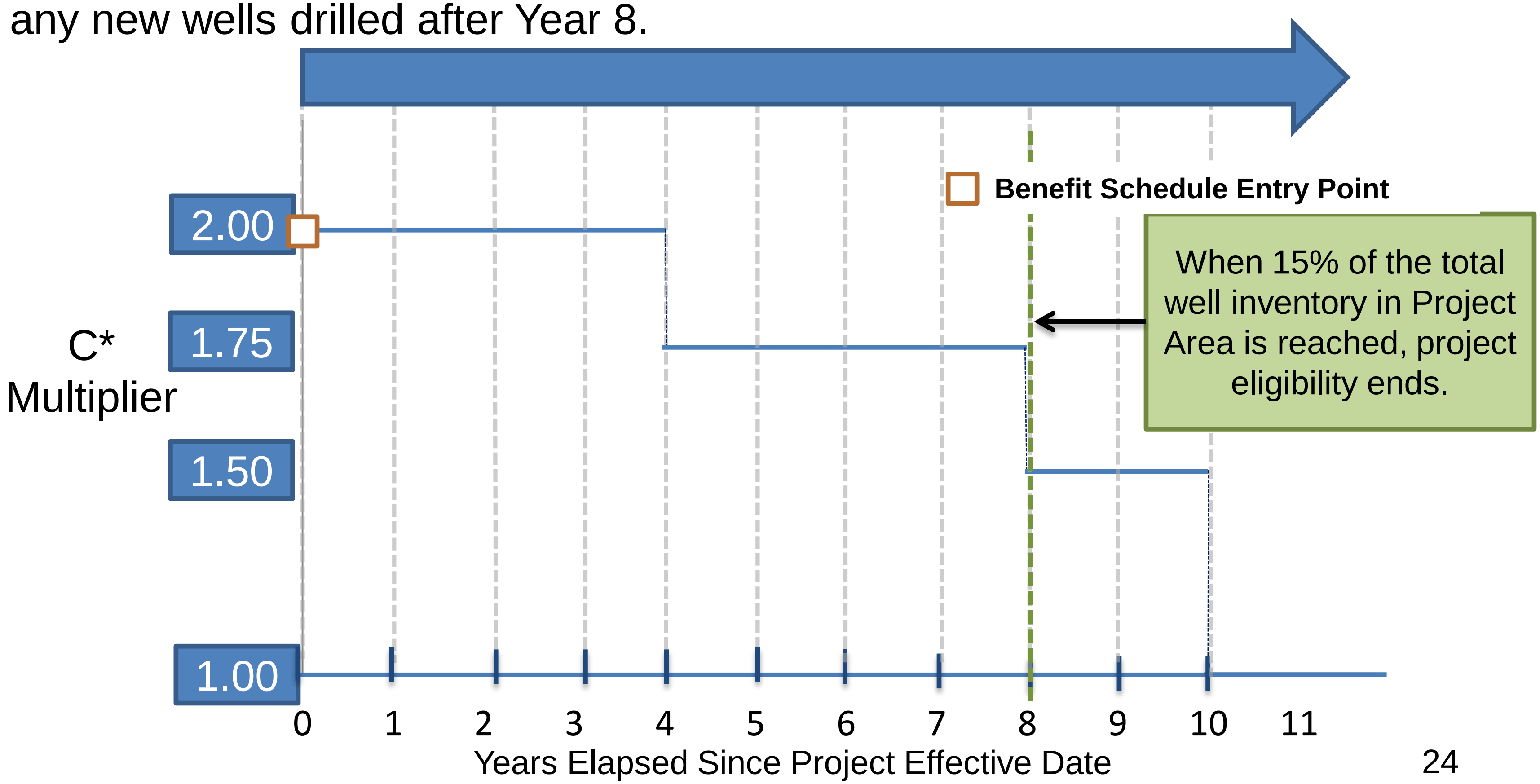
C* Multiplier Decline Schedule Example 2

- The chart below shows the C* Multiplier declines for a project with an initial C* Multiplier of 1.75 and a 5 year benefit period to drill eligible wells. This would be the case for a project when there is 9-10% existing drilling activity within the Project Evaluation Boundary at time of application.



End of Eligibility

- If <u>15%</u> of the total well inventory in Project Area has been drilled before the approved benefit period ends, the project will no longer be eligible to receive a C^*_{ERP} for any wells drilled after that under the program.
- In this example, 15% of the total well inventory in Project Area has been drilled by Year 8 and the project is no longer eligible to receive a C^*_{ERP} for any new wells drilled after Year 8.



Project Effective Date

- Project Effective Date
  - The operator has the option of requesting the start date of the benefit schedule up until three months after project approval.
  - The start date must be on the first of the month, no earlier than the first of the month in which the program application was received and no later than 3 months from the project approval date.
- Wells drilled in the Project Area prior to the Project Effective Date will not be eligible to receive benefits.

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Project Area Amendments

- An amended Project Area must continue to meet the minimum and maximum project size requirements for the program.
- Project Area Expansion:
  - Project Area expanded within the original approved Project Evaluation Boundary
    - A new application is NOT required and approved program benefits will not change by default.
    - A new application is required if operators request to revise the program benefits.
  - Project Area amendments are outside the original approved Project Evaluation Boundary
    - A new program application is required; program benefits may change.
- Project Area Decrease:
  - Project Area is decreased by 20% or less
    - A new application is NOT required and approved program benefits will not change.
  - Project Area is decreased by more than 20%
    - A new program application is required; program benefits may change.
- Leases that were part of an approved project under this program could become a part of another project under this program but will not form the basis for calculation of total well inventory for more than one project.

Enhanced Hydrocarbon Recovery Program

Overview

- Panel Recommendation: A strategic program to promote enhanced recovery projects in legacy fields
  - New program should expand on existing treatment
- Better aligns with the principles of the Modernized Royalty Framework
  - Applies to all hydrocarbons
- Program encourages incremental hydrocarbon production through fluid injection methods
- Generates incremental royalty revenue for Albertans
- Replaces existing Enhanced Oil Recovery Program
  - Expands eligibility to include all types of polymer floods, water floods, gas cycling and gas flooding

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EHRP Program Description

- Application based program
- Two elements
  - Tertiary recovery
  - Secondary recovery
- Wells in an approved enhanced recovery scheme will pay a flat 5% royalty rate for a prescribed benefit period.
- After the prescribed benefit period ends, wells in the scheme will pay regular post-C* royalty rates under the MRF.

Comparison of EORP and EHRP

Current EORP:

- ✓ Applies to oil wells only
- ✓ Eligibility restricted to select tertiary enhanced recovery methods
- ✓ Applies a maximum 5% royalty rate to wells for a prescribed benefit period

Proposed EHRP:

- ✓ Applies to all hydrocarbons (crude oil, natural gas and liquids)
- ✓ Eligibility expanded to include polymer floods, water floods, gas cycling and gas flooding
- ✓ Applies a flat 5% royalty rate to wells for a prescribed benefit period

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EHRP Eligibility Criteria

- Receive technical approval of the scheme with application submitted to the Alberta Energy Regulator (AER) on or after October 23, 2016.
- The scheme is an enhanced recovery scheme that uses either secondary or tertiary recovery methods involving injecting substances into an oil or gas pool.
- Produces more hydrocarbons from the pool than could be produced under the base recovery scheme for that pool.
- Costs are significantly greater than operating the base recovery scheme.
- Provides a net royalty benefit to the Crown over the life of the scheme as determined by a technical/economic review.

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Water Flood, Gas Cycling and Gas Flooding

- A water flood, gas cycling or gas flooding scheme may be eligible if it is a new scheme which is located in a pool or part of a pool where these activities have not occurred previously.
- The department will also consider applications for a water flood, gas cycling or gas flooding scheme if the scheme is extended vertically to target a pool or part of a pool where these activities have not previously occurred.
  - Only the extended portion of the scheme may be eligible.
  - The applicant will be required to provide necessary geologic and engineering data to demonstrate the extended portion is in rock with different characteristics that has not been impacted by an existing water flood.

Schemes Not Eligible

Schemes are <u>not</u> eligible to apply to the EHRP if:

- The scheme applied to the AER for technical approval prior to October 23, 2016;
- The scheme is amended through the AER on or after October 23, 2016 due to reasons other than changing injection material/recovery method; or
- For new water flood or gas cycling/flooding schemes, the scheme is located in a pool or part of a pool that has previously been water flooded, gas cycled or gas flooded.

Scheme Definitions for Program

- Secondary Recovery: enhanced recovery of hydrocarbons by water flooding, polymer flooding, gas cycling, gas flooding or other approved methods.
- Tertiary Recovery: enhanced recovery of hydrocarbons by immiscible flooding, solvent flooding, miscible flooding, chemical flooding or other approved methods.

EHRP Benefit Period Approach

- EHRP will provide benefits (flat 5% royalty) for a prescribed period for approved schemes for a two-year pilot period:
  - Tertiary recovery: benefit period will be based on the scheme’s tertiary T-factor (as determined by the Department) and a benefit schedule.
  - Secondary recovery: the benefit period will be determined on a case by case basis.
- Potential transition to a cost allowance approach for EHRP after 2018, to better align with the Modernized Royalty Framework.

Benefit Period Start Date

Tertiary Recovery: After material is first injected, operators will have up to 36 months to begin their benefit period.

Secondary Recovery: The benefit period start date will be determined on a case by case basis but no later than 36 months after the month in which the first injection occurs.

Old Wells in EHRP Schemes

- Wells drilled <u>before</u> 2017 that become part of an EHRP scheme will be fully transitioned to the MRF:
  - Similar to new wells, old wells will pay a flat 5% royalty rate when the scheme is receiving benefits under EHRP.
  - After the benefit period ends, old wells will pay regular post-C* royalty rates under MRF.

New Wells in EORP Schemes

- Any <u>new</u> production wells drilled into an EORP scheme on or after January 1, 2017 will receive a cost allowance (C*).
- New wells will pay a flat 5% royalty rate until its revenue equals the C* or the benefit period for the scheme ends, whichever occurs later.
  - The wells will then pay regular post-C* royalty rates under the MRF.

EORP Transitions

- The EORP will accept new applications until December 31, 2016.
- EORP will operate for 10 years for approved schemes, through December 31, 2026.
- EORP approved schemes with any benefit period remaining by December 31, 2026 will <u>not</u> transition to EHRP.
  - These wells will pay regular MRF royalty rates after 2026.

EORP Scheme Amendments

- As of January 1, 2017, new applications will be submitted to EHRP for amendments to existing EORP schemes involving:
  - A change in injection material or recovery technique; and/or
  - An expansion outside the scheme area that includes a new injection pattern (i.e. at least one producer and one injector well).

Early Opt-in to the Modernized Royalty Framework

Overview

- All new wells drilled after December 31, 2016 automatically fall under MRF as previously announced *
- Companies may apply to opt into MRF for non-crude bitumen wells drilled in the remainder of 2016.
  - An application for the well must be received by Alberta Energy on or after July 13, 2016
  - Companies must demonstrate to the satisfaction of the Minister that the wells would not otherwise have been drilled in 2016
  - If an application is not received or approved, wells spud before January 1, 2017 will continue to operate under the Alberta Royalty Framework until end of 2026

* excludes new crude bitumen wells drilled under an approved Oil Sands Royalty Project

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Application & Eligibility Criteria

- The application must be received by Alberta Energy prior to the well's spud date
- Applications must include the following:
  - Statement that the well would not have been drilled in 2016 without approval to opt into MRF
  - Rationale for why the well would not have been drilled in 2016
  - Background material to support the rationale
- Alberta Energy may request additional information
- Eligibility of opted in wells for programs has not been determined
- Wells spud prior to July 13, 2016 are not eligible

Application & Eligibility Criteria

- Royalties for a well approved for early opt in to MRF will continue to be calculated under the existing framework until early 2017, at which time royalties will be recalculated in accordance with MRF formulas

- Questions should be submitted to oil.gas.royalty@gov.ab.ca
- More information is available at: http://www.energy.alberta.ca/About_Us/Royalty.asp

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