

# Allocation of Costs and Non-Arm's Length Valuation for Oil Sands Projects

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Prepared by Alberta Energy for  
Oil Sands Royalty Business Training  
June 14, 2022

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# Outline

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- Requirement for Cost Allocation
- Determining Project Use of a Shared Cost
- Non-Arm's Length Transaction Valuation
- Cost Allocation Methodology Reporting

# Requirement for Cost Allocation

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# Requirement for Cost Allocation

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## Why do we have to allocate costs?

- The R – C system requires us to determine the revenues (R) and costs (C), from royalty Projects to determine the royalty owing
- Many royalty Projects share costs (goods, services or assets)
  - Bitumen Extraction and Upgrading
  - Two or more royalty Projects
  - Royalty Projects and conventional projects

# Requirement for Cost Allocation

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## Bitumen Royalty Projects which produce SCO – Issues Unique to the Oil Sands

- The most difficult allocations occur with Projects which produce SCO (Synthetic Crude Oil), but pay royalties based on bitumen – Integrated Projects
  - Market revenues from SCO sales
  - Costs incurred to produce SCO
- This requires a hypothetical royalty calculation:
  - To determine which portion of revenue is attributable to the bitumen production– BVM Bitumen Valuation Methodology
  - To determine which portion of costs are attributable to the bitumen production – cost allocation

# Requirement for Cost Allocation

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In consultation with CAPP, allocation rules have been developed for

- 16 Engineering Systems
- Fuels produced by the Upgrader and consumed by the Royalty Project (Manufactured Fuel Gases, Petroleum Coke, Diesel, Naphtha)
- Other Capital Assets (Cogeneration Units, Roads, Runways...)
- Shared Staff (Accounting, Maintenance, Procurement...)
- Heat Transfer

APPENDIX J in the Alberta Oil sands Guidelines covers business Rule Papers and Examples

<https://open.alberta.ca/dataset/faf9a465-eeb1-4af0-845a-a79898b6e208/resource/0b8c0eaf-0688-470a-af47-714550a0214a/download/osrglossaryappendix.pdf>

# Determining Project Use of a Shared Cost

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# Determining Project Use of a Shared Cost

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## Principles for Determining Project Use

1. Fairly allocate the costs attributable to the royalty Project
  - No subsidies of one operation by another
2. Implementable with reasonable effort and time
  - Balance between accuracy and simplicity
  - Cost and time to measure exactly vs. use of a proxy
  - Simplifying assumptions when necessary
3. Be able to be audited and confirmed on both an engineering and a financial basis
4. The basis of an allocation should be related to the nature of the cost

# Determining Project Use of a Shared Cost

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## Methods To Determine Project Use

1. Direct Measurement of Use
  - Large systems with measureable flows
  - Requires appropriate metering and measurement location
2. Design Intent/Engineering Calculation of Use
  - Contingency or emergency systems
  - Systems that are too small to measure
3. Indirect Calculation of Use
  - Costs which cannot be determined reasonable by more exact methods
  - Proxies related to origin of the cost

# Determining Project Use of a Shared Cost

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## Schedule 2 Oil Sands Allowed Costs (OSAC)

### Measured Use:

- Boiler feed Water Treatment System
- Raw Water System
- Fuel Gas System
- Electricity Transmission System
- Steam Generation System

### Design Intent:

- Control System
- Cooling Water System
- Instrument Air System
- Fire Water System
- Emergency Power System

### Ratio of Length/Geographic Boundary:

- Potable Water Lines
- Waste Water lines
- Sewer Lines
- Sour Water Lines
- Slop Oil Lines
- Pipe racks

# Determining Project Use of a Shared Cost

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## Measured Use Engineering Systems:

- Allocation between the royalty Project, integrated shared operations if any, and non project uses, if any, based on actual use
- COS calculation is required
- COS calculation done using the greater of 75% of design capacity or throughput. Except for raw water, BFW and steam, which will always use actual throughput

# Determining Project Use of a Shared Cost

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## Design Intent Engineering Systems:

- Partially includable system – no COS
- Allocation percent determined based the design of the system under normal operating conditions
- Only review the percent if there are major changes to the system

# Determining Project Use of a Shared Cost

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## Ratio of Length/Geographic Boundary Systems:

- Partially includable systems – No COS
- Allocation percent determined by looking at the geographic boundary of the system and determining how much is located on the Project, integrated shared operations (ISO), and non project.

# Determining Project Use of a Shared Cost

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## No measurement exists

- The measurement may not exist because
  - It has never been required before
  - It is not practical to measure
  - It is not physically possible to measure
- Could the use be measured if new meters were installed?
  - How large is the cost, and how much time and money would it take to measure it, vs. a reasonable proxy?
- If the use can't be measured practically, is there something close which can be reasonably measured?
  - How accurate can we be with a reasonable amount of complexity?

# Determining Project Use of a Shared Cost

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## Summary

- We must determine what percentage of any given shared cost is due to the royalty Project
  - This is most difficult on integrated projects which produce and sell SCO, but pay royalties based on bitumen production
- We choose between the following general methods balancing the principles of being Equitable, Implementable, and Auditable
  - Measurement of Use
  - Engineering Calculation of Use
  - Indirect Calculation of Use



# Non-Arm's Length Transaction Valuation

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# Non-Arm's Length Transaction Valuation

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## Non-Arm's length (NAL) transaction and its issues

- Any transactions between a royalty Project, and an affiliated party are subject to non-arm's length valuation rules
- These rules value the goods or services being sent across royalty Project boundaries between affiliated parties

### Examples:

- A royalty Project produces BFW, that is sent to another royalty Project with the same owner
- A royalty Project asset is used to treat emulsion from another affiliated royalty Project
- Oil sands Projects contain large numbers of these NAL transactions which must be valued to determine allowed costs and other net proceeds (ONP) of the royalty Project

# Non-Arm's Length Transaction Valuation

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A fair market value (FMV) for the NAL good or service can be determined three ways:

## 1. Market Based

- Where a functioning market exists, trading a comparable good
- If the good transferred is different than the good traded, adjustments may be required (Ministers discretion) to reflect the quality differences

## 2. Precedent

- Where an act or regulation of Alberta or Canada has specified a price for a comparable good or service, we may use that as our value

## 3. Calculated Value

- The use of engineering, economic or accounting principles to determine a value for the good or service provided

# Non-Arm's Length Transaction Valuation

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## Cost of Service (COS)

- If no fair market value exists, the cost of a good or service provided by an asset requires this calculation
- The value of the output is determined by the annual capital cost of running the asset, plus the annual operating cost of running the asset, per unit of output
  - Requires a depreciation schedule and return on capital determination, plus operating costs of the asset

# Non-Arm's Length Transaction Valuation

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## Cost of Service - Section 12.1 – 12.7 (OSAC)

- COS for a good or service is required for a non-arm's length transaction where a fair market value cannot be determined
- Annual per unit cost of service:
  - $$\frac{\text{Capital Charge}}{\text{Capacity}} + \frac{\text{Operating Charge}}{\text{Throughput}}$$
  - Capacity = greater of 75% of design capacity or actual throughput
  - For Raw Water, BFW and Steam, always use throughput



# Example COS

Chron Year	Cal Year	LTBR	Design Capacity	Through Put	Depr Rate	Cumulative Capital Cost	Initial Capital	Straight Line Dep'n	End Capital	Return on Capital	Annual Capital Charge	Annual Capital Charge per unit
1	2011	3.29%	1,000	800	4.00%	\$ 100,000,000	\$ 100,000,000	\$ 3,989,041	\$ 96,010,959	\$ 3,215,546	\$ 7,204,587	\$ 9,006
2	2012	2.43%	1,000	800	4.00%	\$ 100,000,000	\$ 96,010,959	\$ 4,000,000	\$ 92,010,959	\$ 2,284,466	\$ 6,284,466	\$ 7,856
3	2013	2.84%	1,000	800	4.00%	\$ 100,000,000	\$ 92,010,959	\$ 4,000,000	\$ 88,010,959	\$ 2,556,311	\$ 6,556,311	\$ 8,195
4	2014	2.73%	1,000	800	4.00%	\$ 100,000,000	\$ 88,010,959	\$ 4,000,000	\$ 84,010,959	\$ 2,348,099	\$ 6,348,099	\$ 7,935
5	2015	2.17%	1,000	800	4.00%	\$ 100,000,000	\$ 84,010,959	\$ 4,000,000	\$ 80,010,959	\$ 1,779,638	\$ 5,779,638	\$ 7,225
6	2016	1.92%	1,000	800	4.00%	\$ 100,000,000	\$ 80,010,959	\$ 4,000,000	\$ 76,010,959	\$ 1,497,810	\$ 5,497,810	\$ 6,872
7	2017	0.00%	1,000	800	4.00%	\$ 100,000,000	\$ 76,010,959	\$ 4,000,000	\$ 72,010,959	\$ -	\$ 4,000,000	\$ 5,000
8	2018	0.00%	1,000	800	4.00%	\$ 125,000,000	\$ 97,010,959	\$ 5,000,000	\$ 92,010,959	\$ -	\$ 5,000,000	\$ 6,250
9	2019	0.00%	1,000	800	4.00%	\$ 125,000,000	\$ 92,010,959	\$ 5,000,000	\$ 87,010,959	\$ -	\$ 5,000,000	\$ 6,250
10	2020	0.00%	1,000	800	4.00%	\$ 125,000,000	\$ 87,010,959	\$ 5,000,000	\$ 82,010,959	\$ -	\$ 5,000,000	\$ 6,250
11	2021	0.00%	1,000	800	4.00%	\$ 125,000,000	\$ 82,010,959	\$ 5,000,000	\$ 77,010,959	\$ -	\$ 5,000,000	\$ 6,250
12	2022	0.00%	1,000	800	4.00%	\$ 125,000,000	\$ 77,010,959	\$ 5,000,000	\$ 72,010,959	\$ -	\$ 5,000,000	\$ 6,250
13	2023	0.00%	1,000	800	4.00%	\$ 125,000,000	\$ 72,010,959	\$ 5,000,000	\$ 67,010,959	\$ -	\$ 5,000,000	\$ 6,250
14	2024	0.00%	1,000	800	4.00%	\$ 125,000,000	\$ 67,010,959	\$ 5,000,000	\$ 62,010,959	\$ -	\$ 5,000,000	\$ 6,250
15	2025	0.00%	1,000	800	4.00%	\$ 125,000,000	\$ 62,010,959	\$ 5,000,000	\$ 57,010,959	\$ -	\$ 5,000,000	\$ 6,250
16	2026	0.00%	1,000	800	4.00%	\$ 110,000,000	\$ 51,010,959	\$ 4,400,000	\$ 46,610,959	\$ -	\$ 4,400,000	\$ 5,500
17	2027	0.00%	1,000	800	4.00%	\$ 110,000,000	\$ 46,610,959	\$ 4,400,000	\$ 42,210,959	\$ -	\$ 4,400,000	\$ 5,500
18	2028	0.00%	1,000	800	4.00%	\$ 110,000,000	\$ 42,210,959	\$ 4,400,000	\$ 37,810,959	\$ -	\$ 4,400,000	\$ 5,500
19	2029	0.00%	1,000	800	4.00%	\$ 110,000,000	\$ 37,810,959	\$ 4,400,000	\$ 33,410,959	\$ -	\$ 4,400,000	\$ 5,500
20	2030	0.00%	1,000	800	4.00%	\$ 110,000,000	\$ 33,410,959	\$ 4,400,000	\$ 29,010,959	\$ -	\$ 4,400,000	\$ 5,500
21	2031	0.00%	1,000	800	4.00%	\$ 110,000,000	\$ 29,010,959	\$ 4,400,000	\$ 24,610,959	\$ -	\$ 4,400,000	\$ 5,500
22	2032	0.00%	1,000	800	4.00%	\$ 110,000,000	\$ 24,610,959	\$ 4,400,000	\$ 20,210,959	\$ -	\$ 4,400,000	\$ 5,500
23	2033	0.00%	1,000	800	4.00%	\$ 110,000,000	\$ 20,210,959	\$ 4,400,000	\$ 15,810,959	\$ -	\$ 4,400,000	\$ 5,500
24	2034	0.00%	1,000	800	4.00%	\$ 110,000,000	\$ 15,810,959	\$ 4,400,000	\$ 11,410,959	\$ -	\$ 4,400,000	\$ 5,500
25	2035	0.00%	1,000	800	4.00%	\$ 110,000,000	\$ 11,410,959	\$ 4,400,000	\$ 7,010,959	\$ -	\$ 4,400,000	\$ 5,500
26	2036	0.00%	1,000	800	4.00%	\$ 110,000,000	\$ 7,010,959	\$ 4,400,000	\$ 2,610,959	\$ -	\$ 4,400,000	\$ 5,500
27	2037	0.00%	1,000	800	4.00%	\$ 110,000,000	\$ 2,610,959	\$ 2,610,959	\$ -	\$ -	\$ 2,610,959	\$ 3,264





# Example COS

USAGE						ALLOCATED COSTS				
OSR Project 1	OSR Project 2	OSR Project 3	Non OSR Use	Total Throughput	Through put Check	OSR Project 1	OSR Project 2	OSR Project 3	Non OSR Use	Total Operating & Capital Costs
350	250	150	50	800	Match	3,589,507	2,563,934	1,538,360	512,787	8,204,587
350	250	150	50	800	Match	3,186,954	2,276,396	1,365,837	455,279	7,284,466
350	250	150	50	800	Match	3,305,886	2,361,347	1,416,808	472,269	7,556,311
350	250	150	50	800	Match	3,214,793	2,296,281	1,377,769	459,256	7,348,099
350	250	150	50	800	Match	2,966,092	2,118,637	1,271,182	423,727	6,779,638
350	250	150	50	800	Match	2,842,792	2,030,566	1,218,339	406,113	6,497,810
350	250	150	50	800	Match	2,187,500	1,562,500	937,500	312,500	5,000,000
350	250	150	50	800	Match	2,625,000	1,875,000	1,125,000	375,000	6,000,000
350	250	150	50	800	Match	2,625,000	1,875,000	1,125,000	375,000	6,000,000
350	250	150	50	800	Match	2,625,000	1,875,000	1,125,000	375,000	6,000,000
350	250	150	50	800	Match	2,625,000	1,875,000	1,125,000	375,000	6,000,000
350	250	150	50	800	Match	2,625,000	1,875,000	1,125,000	375,000	6,000,000
350	250	150	50	800	Match	2,625,000	1,875,000	1,125,000	375,000	6,000,000
350	250	150	50	800	Match	2,625,000	1,875,000	1,125,000	375,000	6,000,000
350	250	150	50	800	Match	2,362,500	1,687,500	1,012,500	337,500	5,400,000
350	250	150	50	800	Match	2,362,500	1,687,500	1,012,500	337,500	5,400,000
350	250	150	50	800	Match	2,362,500	1,687,500	1,012,500	337,500	5,400,000
350	250	150	50	800	Match	2,362,500	1,687,500	1,012,500	337,500	5,400,000
350	250	150	50	800	Match	2,362,500	1,687,500	1,012,500	337,500	5,400,000
350	250	150	50	800	Match	2,362,500	1,687,500	1,012,500	337,500	5,400,000
350	250	150	50	800	Match	2,362,500	1,687,500	1,012,500	337,500	5,400,000
350	250	150	50	800	Match	2,362,500	1,687,500	1,012,500	337,500	5,400,000
350	250	150	50	800	Match	2,362,500	1,687,500	1,012,500	337,500	5,400,000
350	250	150	50	800	Match	2,362,500	1,687,500	1,012,500	337,500	5,400,000
350	250	150	50	800	Match	2,362,500	1,687,500	1,012,500	337,500	5,400,000
350	250	150	50	800	Match	2,362,500	1,687,500	1,012,500	337,500	5,400,000
350	250	150	50	800	Match	1,579,795	1,128,425	677,055	225,685	3,610,959

# Non-Arm's Length Transaction Valuation

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## Cost of Service - Section 12.1 – 12.7 (OSAC)

- Operator must provide the proposed Initial Capital (IC) and Cumulative Capital Costs (CCC) and the Minister will review it.
- Capital additions/retirements made during a year are deemed to occur at the start of the next year
- Any costs of a capital nature that are less than 10% of the CCC are deemed to be operating costs

# Non-Arm's Length Transaction Valuation

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## Cost of Service - Section 12.1 – 12.7 (OSAC)

- First Year Rule – The year that an asset is first commissioned, the annual depreciation and ROC will be pro rated to reflect the actual number of operating days
- For assets that are commissioned on or after Jan 1, 2011, depreciation schedule is 4% over 25 years
- Assets that are commissioned before Jan 1, 2011, the depreciation schedule is whatever the operator chooses, until there is a capital addition, at which time the annual depreciation will be calculated at 4% of CCC

# Cost Allocation Methodology Reporting

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# Cost Allocation Methodology Reporting

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- Cost Allocation Order (CAO) issued as part of Ministerial Order (MO)
- Required to submit Cost Allocation Methodology Report (CAMR) as part of annual reporting
- CAMR's are submitted through ETS

# Cost Allocation Methodology Reporting

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## Common Errors on reporting

- COS calculation errors:
  - Wrong depreciation rate
  - Wrong LTBR
  - Addition of capital in the same year
  - Starting the COS schedule before an asset is commissioned
- Other Issues:
  - Not dividing by consumers AND producers for Transmission Infrastructure
  - Not following the “Greater of 75% of capacity of actual throughput” when determining the capital unit rate
  - Not showing the allowed cost or ONP to the Project.
  - Operators not providing the required supporting documentation

# Cost Allocation Methodology Reporting

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## Learnings

- Overall Operators and Alberta Energy have worked very well together in development.
- It takes significant time and effort to draft the CAO's and to review the CAMR's.
- The value of the NAL transactions is significant, so it is important to get the allocations correct.

# Useful Notes

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# Oil Sands Allowed Costs (Ministerial) Regulation – Useful notes

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## Section 8.1

Describes how to allocate costs for a Project that is part of an integrated project:

- Use Schedule 2 and 3 to allocate costs
- If Schedule 2 cannot be used, operator can apply for another method based on:
  - Head count ratio, geographic location, or capital cost ratio

## Section 8.2

Describes how to allocate costs for a Project that is not part of an integrated project.

- Use Schedule 2 to allocate costs
- If Schedule 2 cannot be used operator can apply for another method

# Oil Sands Allowed Costs (Ministerial) Regulation – Useful notes

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## *Section 8.3*

- Allows the Minister to request any information pertaining to allowed costs
  - Any allocation
  - Justification for the allocation
  - Documents supporting the allocation
- If the Minister is not satisfied with the allocation (s)he may make his (her) own determination for allowed costs
- If there is not enough information to make a determination, and the operator does not supply additional information, no costs are allowed

# Questions?

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