



**INTERIOR**  
**MARKET PRICING SYSTEM**  
**Tenure Obligation Adjustments**



Updated July 1, 2014  
Timber Pricing Branch

# Interior Market Pricing System: Tenure Obligation Adjustments

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## 1. Introduction

In the Interior MPS, it is important that the costs incurred by long-term tenure holders fulfilling tenure obligations are recognized.

Licensees with long-term tenures have tenure obligations – they manage the public forest on behalf of the Province – including the costs of road construction and maintenance, silviculture, forest planning and administration. BC Timber Sales (BCTS) licensees do not have similar obligations because the Province, through BCTS, manages those forests. An adjustment to stumpage must be made for the differences in obligations.

This adjustment will be done through tenure obligation adjustments (TOA). This paper and the appendices provide the technical methodology for calculating the tenure obligation adjustments<sup>1</sup>.

## 2. Policy and Procedure

Industry surveyed and audited cost data will provide the basis for the following TOAs. This list may change over time as new obligations become recognized.

### Forest Management Administration (FMA)

- Forest Management administration.

### Roads

- Development costs (DC).
- Road management costs (RM).
- Market logger cost (MLC).

### Silviculture

- Basic silviculture costs (BS).

### Return to Forest Management

- Return to forest management (RFM).

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<sup>1</sup> This paper is not intended to provide the basis for calculating stumpage rates nor should it be used as guidance for interpreting the legal policies and procedures for calculating stumpage rates, which will be contained in the *Interior Appraisal Manual*. The *Interior Appraisal Manual* contains the policies and procedures referred to in Section 105 of the *Forest Act*.

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Two general principles will be followed in creating the above detailed TOA estimates.

1. *Interior Appraisal Manual (IAM)* procedures and estimates will be used where available.
2. Data directly related to tenure obligations will be collected and audited according to established standards (see Appendix 1, Interior Forest Planning Administration Cost Standard).

### **3. Forest Management Administration Cost**

#### **a. Forest Management Administration Costs (FMA)**

Forest management administration costs are those costs directly related to supervision and administration of the activities listed below. They are the costs that the long-term licensee bears, but that a market logger does not.

The forest planning and administration costs do not include business related or discretionary costs such as certain legal fees, corporate aircraft, stumpage, directors fees and expenses, sales expenses, restructuring costs, etc., unless portions of these costs are directly attributable to the management of the forest.

Costs may include:

- Office Operations
- Cruising
- Right-of-Way Easements
- Road Use Charges
- Environmental Protection
- Consultants Fees
- Archaeological Surveys
- Foreshore and Other Land Leases
- Tree Marking, Beetle Probing and Pheromone Baiting
- Engineering (road layout, survey including geotechnical surveys, and design, other than those applicable as engineered cost estimate).
- Suitable Secondary Stand Structure Survey

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## 4. Roads

### a. Development Costs (DC)

Road development costs will be estimated using procedures in the IAM. This will include:

1. New construction.
2. Reconstruction and replacement.

IAM policies and procedures for the following items will apply:

- Tributary volume.
- Tabular cost estimates.
- Detailed engineering cost estimates.
- Drainage structure cost estimates.
- Development cost allocation.
- Extended road amortization.

### b. Road Management Costs (RM)

Where the licensee is obliged to carry out road management, the TOA includes, but is not limited to, costs for the following activities estimated using procedures in the IAM:

- grading
- snow plowing and freezing in
- sanding
- spot gravelling (< 0.3 km distance)
- culvert repairs and thawing
- culvert removal (< 950 mm)
- culvert replacement (< 950 mm)
- non-structural maintenance of bridges
- bridge re-decking/wearing surface replacement
- road use charges paid to other licensees
- all access management
- ditching
- seasonal erosion control
- roadside treatments
- sign maintenance
- dust control
- brushing
- minor flood and storm damage repair
- slough removal
- water bar construction (seasonal)
- road ripping
- cross ditch construction
- grass seeding
- all deactivation

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### c. Market Logger Cost

1. The market logger cost (MLC) is used in the calculation of the tenure obligation adjustment in an appraisal or reappraisal of a cutting authority area.
2. MLC is expressed in \$/m<sup>3</sup> and is calculated from the MPS data set

$$MLC = \left[ \left( \frac{1.17}{1 - LG} \right) + 0.06 \right] \times \left[ \frac{CPI}{138.1} \right]$$

Where:

\$1.17/m<sup>3</sup> is the average market logger development cost for the auction dataset.

LG is the low grade percent adjustment from Tables 4-6 or 4-7 (for cruise based cutting authorities, LG = 0).

\$0.06/m<sup>3</sup> is the market logger specified operation cost from the auction dataset.

CPI is the monthly BC Consumer Price Index (refer to section 3.3).

138.1 is the average CPI for the cost base (2011/12).

## 5. Basic Silviculture Cost

### a. Basic Silviculture Costs (BS)

Silviculture cost estimates are determined for all cutting authorities where basic silviculture is required, using the procedures in the IAM.

Silviculture cost estimates include all treatment costs that are required to achieve the free-growing stocking standards.

## 6. Return to Forest Management

### a. Return to Forest Management (RFM)

The RFM recognizes the difference in financing costs incurred by long-term licensees and BCTS licensees. Licensees with long-term tenures incur costs over time – prior to and after harvest – in managing the public forests. The majority of planning and road development costs, for example, are incurred over several years prior to harvest. The costs of silviculture are mainly incurred after harvest. Since the costs incurred by the long-term tenure holder are not recouped until the time of harvest, the RFM recognizes the cost of capital employed making the pre-harvest (offset by the post-harvest) expenditures. BCTS licensees do not have these pre- and post-harvest costs. For the derivation of the RFM, see Appendix 2.

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### 7. Low Grade Percent Adjustment (LG)

The TOAs noted above have to take into account the timber priced at the statutory rate. The cost data for the TOA is expressed as a cost per cubic metre of the total harvest. The costs reported represent the total cost of tenure obligations divided by the total harvest, comprised of all grades of timber. However, from a cost accounting perspective, these tenure obligation costs are properly charged against the saw log timber, and hence a low grade adjustment is required.

### 8. Tenure Obligation Adjustment

With the above information, the total TOA is calculated as follows:

$$TOA = \left[ \frac{FPA + DC + RM + BS}{1 - LG} \right] * RFM - MLC$$

### 9. Summary

TOAs are an important part of the Interior MPS and will be updated annually.

## APPENDIX 1

# Interior Market Pricing System: Tenure Obligation Adjustments

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## **Appendix 1: Forest Planning Administration Costs**

Forest planning administration costs are only those costs directly related to administration and supervision of the TOA, which are forest planning, road development, road maintenance and basic silviculture.

These costs do not include harvesting costs (direct or indirect), business related or corporate costs, discretionary costs, director's fees and expenses, unless portions of these costs are directly attributable to the management of the forest, nor do they include sales expenses, restructuring expenses or other expenses, which have been deemed unacceptable.

### **ALLOWABLE COSTS**

Provided the "cost items" listed below are directly related to the tenure obligations adjustments described above, they are allowable costs for appraisal purposes:

#### Licenses, Fees, Insurance:

- License permits/water/special use permits
- Environmental fees
- Memberships fees/dues and subscriptions to associations
- Insurance on building/office equipment/supplies

#### Taxes, Leases, Rentals:

- Business property and municipal tax
- Land leases
- Office building rents/leases
- Property rentals

#### Wages, Salaries, Benefits:

- Wages salaries and benefits
- Bonuses (management and staff)
- Relocation costs

#### Vehicle Expense:

- Fuel and lubricants
- Insurance and licenses
- Repairs and maintenance
- Leases

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### Office Expense:

- Audit fees
- Corporate aircraft (directly charged to forest planning only)
- Information technology/data processing/service agreements
- Fire protection supplies
- Human resources/training development/recruitment costs
- Legal fees (directly charged to forest planning only)
- Meals and entertainment
- Office building repairs/cleaning/maintenance
- Office equipment repairs/rentals/leases
- Office and computer supplies/postage/courier
- Safety supplies
- Travel and accommodation/room and board
- Telephone/telex/radio communication
- Utilities/light/heat/power)

### Consulting Services:

- Archaeological studies and reports
- Certification (ISO etc.)
- Cruising Contractual beetle (beetle detection, beetle planning, probing and baiting)
- Development Engineering (includes road layout, geo-technical and design, excluding engineered cost estimates)
- Environmental protection
- Forest protection
- Inventory
- Planning/layout/mapping/drafting
- Right of way easements
- Stream classification/terrain analysis

### Depreciation (Administration Only):

- Office buildings and equipment
- Vehicles

### Basic Silviculture:

- Include any administration and supervision cost, which is included in basic silviculture

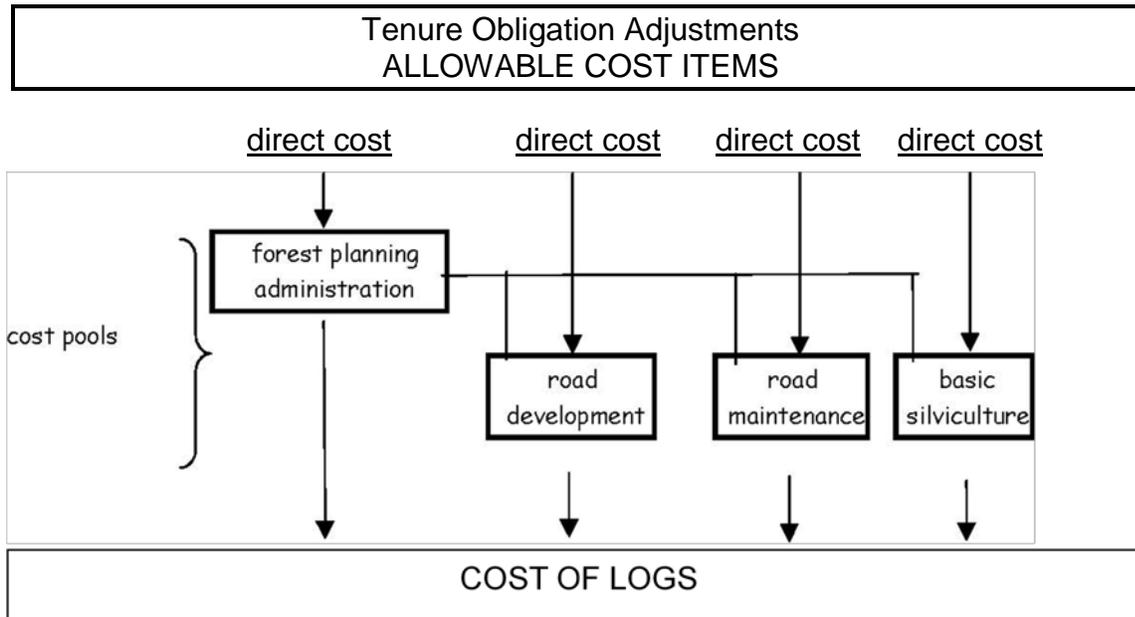
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## UNACCEPTABLE COSTS

The following “cost items” are unacceptable costs for appraisal purposes unless portions of these costs are directly attributable to the management of the forest:

- Allocated costs<sup>2</sup>, i.e., Corporate head office and plant operations (lumber mills, veneer, plywood, oriented strand board, pulp, paper etc.)
- Annual rents (Section 111 of the *Forest Act*)
- Corporate aircraft
- Executive bonuses
- Freight charges/leased car costs (all deducted from AMVs)
- Income taxes and logging taxes
- Loss/gain on disposal of fixed assets/investments
- Privately Owned/Purchased/Sold/Logs
- Legal Fees
- Political/corporate donations
- Restructuring expenses (accounting and consulting)
- Research and development
- Scaling costs
- Selling expenses/export duty/entry charges (deducted from AMVs)
- Shareholder expenses (dividends, notices, transfer agent costs etc.)
- Share purchase plans
- Stumpage fees and royalties
- Waste and Residue costs

## TENURE OBLIGATION ADJUSTMENTS - COSTING MODEL



<sup>2</sup> Allocated Costs are not acceptable for MPS. Costs must be directly charged to “Forest Planning Administration” and supported by relevant and reliable audit evidence

## APPENDIX 2

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### Appendix 2: Calculation of the Return to Forest Management

The Weighted Average Cost of Capital (WACC) can be expressed as:

$$WACC = w_d k_d (1 - T) + w_p k_p + [r_f + \beta (k_e - r_f)] w_e$$

Where:

- $w_d$  = The weighting or share of debt or leverage used by the firm/sector in its capital structure.
- $k_d$  = The weighted average yield on debt instruments held by the firm/sector.
- $T$  = Average corporate tax rate.
- $w_p$  = Weighting or share of preferred shares used by the firm/sector in its capital structure.
- $k_p$  = The required return of preferred shares paid on preferred shares issued by the firm/sector.
- $w_e$  = The weighting or share of equity/retained earnings used by the firm in its capital structure.
- $\beta$  = The relative volatility of the firm/sector to the overall market where a Beta of one indicates that the firm/sector experiences share prices that move in the same levels as the overall market. A Beta of greater than one indicates a more volatile share price movement than the overall market.
- $k_e$  = The average expected return from the overall equity market.
- $r_f$  = The risk of free rate of return.

Data sources:

- $r_f$  = The current yield for the Government of Canada bonds with 10 year maturity (source: Statistics Canada/Bank of Canada).
- $w_d$  = The current weighted average net debt to total capital ratio for publicly traded British Columbia forest products (source: Salman Partners).
- $T$  = The current average corporate tax for publicly traded British Columbia forest products companies (source: PriceWaterhouseCoopers).
- $k_d$  = The current weighted average nominal yield on BBB grade corporate debt with 10 year maturity (source: CIBC World Markets).
- $w_e$  = The current weighted average equity to total capital ratio for publicly traded British Columbia forest products companies (source: Salman Partners).
- $k_e$  = The 10 year average year end nominal total return (including dividends) of S&P/TSX Composite Index (source: Statistics Canada).
- $\beta$  = The two year average relative volatility of S&P/TSX Paper and Forest Products Subindex compared to the S&P/TSX Composite Index (sources: Statistics Canada and Bloomberg).
- $w_p$  = 0, no preferred shares issued by British Columbia forest products companies.

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For the purposes of calculating the WACC, the following parameters will be used:

Values/Calculations:

$$r_f = 4.22\%$$

$$w_d = 32.3\%, \text{ based on the following current debt/capital ratios and market capitalizations:}$$

Ainsworth	70.9%	\$419 million
Canfor	25.0%	\$2,176 million
Interfor	08.3%	\$361 million
Norske Skog	45.3%	\$735 million
West Fraser	31.6%	1,929 million

$$k_d = 6.11\%, \text{ based on 189 bps spread between current weighted average yield on 10 year BBB grade corporate debt and current yield for Government of Canada bonds with 10 year maturity (i.e., 4.22\%).}$$

$$w_e = 1 - w_d = 67.7\%.$$

$$k_e = 10.95\% = 10 \text{ year average nominal year end total return (including dividends) of S\&P/TSX Composite Index.}$$

$$\beta = 1.12 = 2 \text{ year average relative volatility of S\&P/TSX Paper and Forest Products Index compared to S\&P/TSX Composite Index calculated from weekly data.}$$

With these parameters, the WACC is 9.243% and the RFM is 4.9%.

The WACC and the RFM will be updated periodically and the methodology of the RFM will be revisited if the underlying assumptions in the timeline and expense stream of activities changes materially.