

EASEMENT COMPENSATION FOR TRANSMISSION LINE RIGHTS-OF-WAY

by J. E. Partaker

Transmission line routes are designed by Manitoba Hydro to cause the least possible conflict upon land while recognizing economic and technical considerations.

In keeping with these objectives, 500 kV transmission lines require four structures per mile. In the majority of cases the structures are centered on a 250 foot wide right-of-way and no closer than 125 feet from the boundary of productive areas. This design minimizes the area being removed from production, the time required to maneuver equipment around towers, and the reduction of yields in the area surrounding structure bases.

Manitoba Hydro's policy of compensation for the granting of transmission easements on the basis of 75% of market value is outlined as follows:

Area removed from production

A variety of structure designs are used in major transmission lines, having base areas from 589 square feet to 878 square feet. For this discussion the maximum area of 878 square feet or 0.02 acres has been used. Random sample field measurements have indicated that the maximum area removed from production is equivalent to no more than 1½ times the base area of the structure or 0.03 acres. This can be expressed as 2 structures per half mile of right-of-way times 0.03 acres per structure resulting in 0.06 acres removed from production. This is a generous calculation as evidence indicates the dexterity of farmers enables them to work within less than two feet of structure perimeters.

Value of area removed from production

The value of the area removed from production varies proportionately to the market value of the land. Land having a market value of \$700 per acre establishes (700 x 0.03 acres) \$21 as the value of that land removed from production on a per structure basis including the peripheral

buffer.

The rental value of this same land out of production (0.03 acres) at, say, \$30 an acre per annum would amount to 90 cents annually.

The annual gross income (value of yield) for the 0.03 acres on the basis of an average yield of 35 bushels an acre of #3 CW Red Spring Wheat at \$5.50 a bushel and assuming summerfallow every fourth year would amount to \$4.33 (annually).

Normal expenses not incurred because of the 0.03 acres of land area being out of production (operating and fixed costs—\$93.25 per acre x 0.03) would amount to \$2.80 (annually) resulting in loss to the operator of: \$0.90 + \$4.33 — \$2.80 = \$2.43.

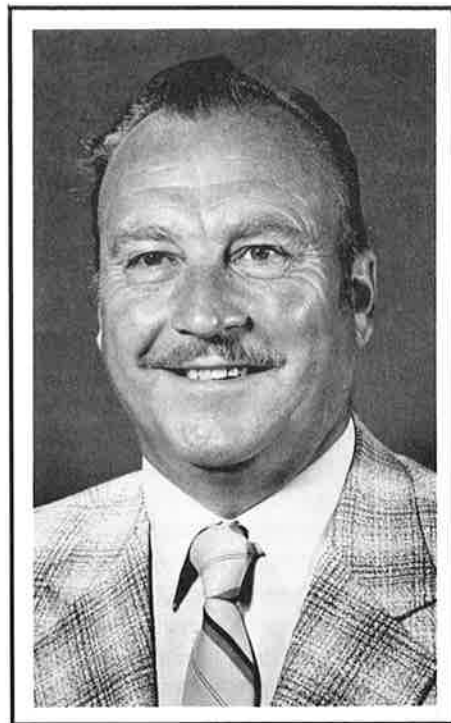
Value of increased work associated with working around structures

Farmers have stated¹ that there is an increase in operating time when structures are located on agricultural lands. The consensus indicates that a 3-minute increase in operation time per structure per operation is required for the usual eight operations per year. Consequently, a structure (tower) installed on a grain cropped right-of-way will increase operating time by 3 minutes or 0.05 hrs. x 8 operations per year or 0.4 hours per year. The additional annual cost to the farmer of this increased operating time can be expressed as 0.4 hrs. x \$85² hr. = \$34.

Value of reduced productivity surrounding structures

The productivity and quality of yield around the tower sites due to backtracking and circling the structures is recognized as being somewhat inferior. The unavoidable partial duplication of seeding, fertilizing, and chemical applications results in lower yields. As equipment is designed to operate at maximum efficiency in a straight line pattern, this operation is affected when structures or other obstructions are encountered. In addition,

(see Easements, pg. 18)



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His educational background includes studies in Business Management at the University of Manitoba and additional Management Studies at the University of Michigan, Ann Arbor. He is a Professional Manager as accredited by the Canadian Institute of Management, and is a member of the Winnipeg Real Estate Board, the Manitoba Electrical Association and the Canadian Electrical Association.

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The Appraisal of
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COURSE 401

Easements (cont. from pg. 17)

tion, the compaction of the soil by the large equipment used during construction of the transmission line may have an effect on yields depending on the soil structure, the time of year the line is being constructed and the moisture content of the soil. Studies³ indicate that yields following initial construction are reduced to as much as 20% of normal because of double tillage, double seeding, etc. Consequently, the reduction in yield can vary according to the productivity of the land.

Based on the Saskatchewan Power Corporation report, the area of decreased returns is 50 feet in width surrounding the area removed from production, or 0.39 acres per structure on the cultivated portion of the right-of-way. (Area A—Area B+Area C)

With yields being reduced to 20% of normal and summerfallowing occurring every fourth year, causing no yields in that fourth year, the result is yields of 75% of cyclic time period. Yield is assumed to be 35 bushels an acre of #3 CW Red Spring Wheat at \$5.50 a bushel.⁴ Therefore, reduction of yield is: 80% of normal x 35 bushels per acre x \$5.50/bushel x 75% (summerfallow) \$115/acre x 0.39 acres—\$45.05 per structure.

Increased material application around structures

The additional activity in the area surrounding the structures (0.39 acres) results in increased application of seed, fertilizer, herbicides and insecticides. The normal application rate of \$46.80 an acre is increased a further 40% or \$7.30 per tower.

Summary

The area removed from production, land rental rate, wages, loss or partial loss of yield, and increased operating and application costs represents a loss of \$88.78 annually to the operator for each tower or structure on cultivated land.

Analysis of costs associated with yield vary from 25 to 45 bushels an acre with a 70% mean of 35 bushels an acre and the remaining 30% above or below the mean.

With the two structures per half-mile for a 500 kV transmission line right-of-way 250 feet in width, 15.15 acres are required for the entire right-of-way.

A capitalized loss to the operator based on a rate of 10% return annually (which would also allow for escalation and any marginal tax rate) amounts to:

$$\$88.78 \times 2 \text{ structures} = \frac{177.56}{.10} = \$1,775.60$$

This represents a one time payment to compensate only for a perpetual operating loss on an annual basis for one-half mile of transmission line.

This could also be interpreted as an impact on market value of agricultural lands occupied as the right-of-way, i.e. based on the model market value of \$700 an acre for 15.15 acres before installation of transmission line, or $15.15 \times \$700 = \$10,605.00$, and $\$10,605.00 - \$1,775.60 = \$8,829.40$ for market value of right-of-way after installation. (Representing a reduction of 16.7% between the before and after value of the property.)

The 16.7% reduction, therefore, represents a tangible relationship between production and marketability relative to loss in returns, labor, expense and opportunity.

The intangible variables, including the voluntary granting of the easement, the imposition of the structures, present or foreseeable land uses, potential limitation (however minimal in a speculative or more intensive use of land) and possible effects on soil compaction must also be acknowledged in valuation of just compensation for the granting of a right-of-way easement.

To respond to both tangible and intangible factors, utilities have generally valued "taking" of the rural limited interest as a percentage of the market value of the property. As land represents the common denominator with regards to agricultural resource market returns, the use of land valuation as a basis for compensation has gained wide acceptance. Both property owners and the acquiring agencies readily accept value on the basis of analysis of comparable recent land sales on the open market. However, as easement rights are not freely traded in the open market, "the worth" of these rights being granted cannot be readily determined under the market value concept.

This is readily discernible by the various evaluations made to determine the impact, if any, that electrical transmission lines may have on the value of agricultural lands. These studies indicate that the granting of an easement does not appear to affect value relative to the spe-

cific right-of-way or adjacent lands. This does not necessarily hold where lands may be utilized imminently for residential, commercial, or industrial purposes. In these instances, valuation on the basis of limitations or restrictions on subdivision development can be readily estimated by an economic analysis of encumbered and unencumbered development.

To summarize, the "percentage of market value concept" as compensation for the granting of perpetual easements acknowledges the tangible or specified losses—which in this instance represents a 16.7% impact on market value for that portion of lands within the right-of-way. It also recognizes the intangible variables associated with the area of incompatibility regarding limiting present or future land use, unspecified damages, and an entitlement associated with the voluntary granting of the easement, as opposed to a forced taking by statute. Adjoining or nearby lands are not severed by the easement and therefore not a factor.

The combination of tangible and intangible factors represents the compensation process. Contingent upon attitude as opposed to affect, utilities normally compensate the property owner in the range of 25% to 100% of the underlying fee value. The 16.7% loss in terms of land represents a 2.6% reduction in productive area (0.40 acres out of 15.5 acres of right-of-way per one-half mile of line) relative to the entire right-of-way imposition. As there is no definable or conventional approach to evaluate the granting of the easement right and other intangible damages, a judgement decision of a further 20% to 30% must also be considered as appropriate. The results represent a compensation package of something less than 50% of the full value and falls well within the range of compensation for the imposition of the easement.

In this instance an offer of 50% of the underlying fee value as compensation for granting the easement for a transmission line with no more than two structures placed or installed on the right-of-way would be appropriate. In comparison with the amount of compensation paid by the various utilities, this amount represents the lower range (but on a site specific basis it could be justified).

It must be concluded, therefore, that a 50% to 100% range would be appropriate

(see Fee, pg. 19)

Fee (cont. from pg. 18)

in addressing compensation for acquisition of right-of-way easements. This range responds to various tangible specified affects which may include something in addition to 16.7% previously defined and possibly something more than the 20% to 30% judged as appropriate in the particular instance mentioned.

Conclusion

Allowing that the mean may be 50% or greater, it would be administratively appropriate to suggest rounding to an absolute maximum percentage based on the average of 50 to 100% or 75% of the underlying fee value to establish the market value of an easement in perpetuity for the purpose of constructing and maintaining a transmission line in an agriculturally oriented activity.

In an instance or unique circumstance where the majority of the owner's rights are removed or taken (75 to 100%) and the compensation (75% of market value) appears to be inadequate, acquisition in fee simple title at full market value would then be the only appropriate method for resolution.

As an example: *Station Site*

Area of site—17 acres

Market value of land = \$700 an acre or \$11,900. The owner is paid \$700 per acre x 17 acres = \$11,900. Allowing that the owner is subject to a federal capital gains tax, the tax comprising one-half the increase in value from December 31, 1971 (valuation day) to the sale price and applied against the individual's rate of taxation. Assuming the value of the land on December 31, 1971 is considered to be \$150 the amount taxable is

$$\frac{\$700 - \$150}{2} = \$275$$

/acre or \$4,657. If the rate of taxation for the individual is 25%, the payable tax would be 24% of \$4,675 or \$1,168.75. The actual net return to the individual would be \$11,900.00 - \$1,168.75 = \$10,731.25 or \$631.26/acre. Based on a single deposit calculated at a safe rate of 10% return annually, this can be expressed as

$$\frac{\$63.13}{\$700.00} = 9\% \text{ annual return to land}$$

The potential annual income of the land is 35 bushels an acre #3 CW Red Spring Wheat at a value of \$5.50 bu/acre for 17 acres = \$3,272.50 or \$192.50/acre. The

potential expenses associated with the land = \$2,337.50 or \$137.50/acre (which includes operating costs, depreciation and reality taxes). The net profit is, therefore, \$55/acre annually or \$935, which can be expressed as

$$\frac{55}{700} = 7.85\%$$

annual return on the land.

Compensation in this instance represents 115% of productivity valuation, or an increase of 15% above the rate of return as a viable agricultural operation (the above value of acquisition is based on market value and calculated value of production to the owner).

FOOTNOTES:

1. *Alberta Agriculture Assessment of Effects of Power Lines on Farming Operations in Central Alberta—April/79.*
2. *1981 Manitoba Farm Management and Machinery Special—Manitoba Co-operator—including all equipment and labour costs—average for all operations.*
3. *Saskatchewan Power Corporation—Compensation Review Report.*
4. *Based on information supplied by the local Pool Grain Elevator Agent.*

Public (cont. from pg. 16)

alize that public agency real estate assets represent a significant taxpayer investment. How public agencies manage these crucial real estate assets can have a very important effect on their ability to maximize income or decrease costs. A centralized real estate staff together with an effective property management program utilizing the property management team concept, should result in significant benefits to public agencies in the management of their real estate assets.

For further information and a copy of the Revenue Lease Administration Procedure write:

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