2015 COST OF SERVICE METHODOLOGY REVIEW

Manitoba Hydro Undertaking # 11

Manitoba Hydro to provide detail of the cost difference among the three (3) types of poles.

Response:

The cost associated with the three types of pole structures is based on the basic tangent pole structure.

It should be noted that the costs shown below are based only on the construction of a new tangent 45'pole structure as part of a green field installation supporting a single three phase overhead feeder and service without the use of any anchoring or supporting structures. Though this is a basic structure, there are a large number of variations. Poles can range from 30' to 70', can hold up to 8-12 overhead lines of varying voltage levels and may require multiple cross arms and insulators. Depending on the location of the pole, guying/anchoring may be required as might more advanced supporting structures such as rock anchors. Costs will also fluctuate from rural to urban environments due to equipment haulage, traffic coordination, underground line location or permit costs associated with the nature of the project.

The components used for each structure are as follows:

Option #1 - Cost of a pole supporting both primary and secondary lines:

- Estimated Cost: $1,700

- Structure Description: a new tangent 45'pole structure as part of a green field construction supporting a three phase primary line of 3x2/0acsr bare wire on an 8' cross arm with a secondary rack supporting four secondary lines with no anchoring or supporting structures.

- Material Used:
  - 1 x 45' class 3 CCA (green) pole
  - 1 x 25kV single 8' cross arm
  - 3 x 25kV porcelain insulators
  - 3 x 2/0 armour rod
  - 3 x preformed 2/0acsr pre-form poly tie
  - 1 x four spool secondary rack
  - 4 x #6 aluminum secondary tie wire

- Man-hours Used:
  - 1.0 hour of Engineering
  - 4.8 hours of Overhead Line Construction
  - 4.0 hours of Pole Installation

Option #2 - Cost of a pole supporting only primary lines:

- Estimated Cost: $1,500

- Structure Description: a new tangent 45'pole structure as part of a green field construction supporting a three phase primary line of 3x2/0acsr bare wire on an 8' cross arm with no anchoring or supporting structures.

- Material Used:
  - 1 x 45' class 3 CCA (green) pole
  - 1 x 25kV single 8' cross arm
  - 3 x 25kV porcelain insulators
  - 3 x 2/0 armour rod
  - 3 x preformed 2/0acsr pre-form poly tie

- Man-hours Used:
  - 1.0 hour of Engineering
  - 3.0 hours of Overhead Line Construction
  - 4.0 hours of Pole Installation

Option #3 - Cost of a pole supporting only secondary lines:

- Estimated Cost: $1,250

- Structure Description: a new tangent 45'pole structure as part of a green field construction supporting a secondary rack supporting four secondary lines with no anchoring or supporting structures.

- Material Used:
  - 1 x 45' class 3 CCA (green) pole
  - 1 x four spool secondary rack

- 4 x #6 aluminum secondary tie wire

- Man-hours Used:
  - 1.0 hour of Engineering
  - 1.8 hours of Overhead Line Construction
  - 4.0 hours of Pole Installation