the allocation of FDI, for the plant mix selected, and is used in calculating the New Distribution, DLC to FDI and Electronic and FDI segments of the OSP facilities

There are nine density zones designed in BCPM. The model sponsors were asked to make inputs available for each of the density groups.

5.8.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

5.8.4 Rationale

Based on where the company builds their OSP facilities determines the percentage for the type of plant to be deployed. Thereby, resulting in specific percentages of Underground, Buried or Aerial plant favorable to the topology of the OSP area being constructed. This plant mix table allows the user to input their company specific percentages of plant mix used in their selected study area.

5.9 Fiber Plant Mix Table (Loop) [FbrLoopHardMixTable]

5.9.1 Definition

This table represents the percentages, by density, when facility placement [Fiber] occurs in Hard Rock Terrain situations for Underground, Buried and Aerial. Generally, in low densities there is a greater percent of Buried plant than Underground, and conversely, in higher densities more UnderGround than Buried plant.

5.9.2 Suggested Input Value

The following table is applied when fiber facilities are being placed in Hard Rock Terrain conditions for a given density. There are two input fields available to the user: Underground Percent and Buried Percent. The Aerial Percent is calculated upon entering the other two percentages.

The Model algorithms, in the Loop.xls module, use these percentages in determining, Part2 Aerial Fiber Distance, Part2 Buried Fiber Distance, and Part2 Underground Fiber Distance. The percentage adjusts the material and structure costs, for the plant mix selected, and used in calculating Subfeeder Part2 segments of the OSP facilities

There are nine density zones designed in BCPM. The model sponsors were asked to make inputs available for each of the density groups.

5.9.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

5.9.4 Rationale

Based on where the company builds their OSP facilities determines the percentage for the type of plant to be deployed. Thereby, resulting in specific percentages of Underground, Buried or Aerial plant favorable to the topology of the OSP area being constructed. This plant mix table allows the user to input their company specific percentages of plant mix used in their selected study area.

5.10 Fiber Plant Mix Table (Loop) [FbrLoopNormMixTable]

5.10.1 Definition

This table represents the percentages, by density, when facility placement [Fiber] occurs in Normal Terrain situations for Underground, Buried and Aerial. Generally, in low densities there is a greater percent of Buried plant than Underground, and conversely, in higher densities more UnderGround than Buried plant.

5.10.2 Suggested Input Value

The following table is applied when fiber facilities are being placed in Normal Terrain conditions for a given density. There are two input fields available to the user: Underground Percent and Buried Percent. The Aerial Percent is calculated upon entering the other two percentages.

The Model algorithms, in the Loop.xls module, use these percentages in determining, Part2 Aerial Fiber Distance, Part2 Buried Fiber Distance, and Part2 Underground Fiber Distance. The percentage adjusts the material and structure costs, including ducts and manholes for Main Feeder, and manholes for Subfeeder plant mixes selected, which are used in calculating Subfeeder Part2, Subfeeder and Main Feeder segments of the OSP facilities

There are nine density zones designed in BCPM. The model sponsors were asked to make inputs available for each of the density groups.

5.10.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

5.10.4 Rationale

Based on where the company builds their OSP facilities determines the percentage for the type of plant to be deployed. Thereby, resulting in specific percentages of Underground, Buried or Aerial plant favorable to the topology of the OSP area being constructed. This plant mix table allows the user to input their company specific percentages of plant mix used in their selected study area.

5.11 Fiber Plant Mix Table (Loop) [FbrLoopSoftMixTable]

5.11.1 Definition

This table represents the percentages, by density, when facility placement [Fiber] occurs in Soft Rock Terrain situations for Underground, Buried and Aerial. Generally, in low densities there is a greater percent of Buried plant than Underground, and conversely, in higher densities more UnderGround than Buried plant.

5.11.2 Suggested Input Value

The following table is applied when fiber facilities are being placed in Soft Rock Terrain conditions for a given density. There are two input fields available to the user: Underground Percent and Buried Percent. The Aerial Percent is calculated upon entering the other two percentages.

The Model algorithms, in the Loop.xls module, use these percentages in determining, Part2 Aerial Fiber Distance, Part2 Buried Fiber Distance, and Part2 Underground Fiber Distance. The percentage adjusts the material and structure costs, for the plant mix selected, and used in calculating Subfeeder Part2 segments of the OSP facilities

There are nine density zones designed in BCPM. The model sponsors were asked to make inputs available for each of the density groups.

5.11.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

5.11.4 Rationale

Based on where the company builds their OSP facilities determines the percentage for the type of plant to be deployed. Thereby, resulting in specific percentages of Underground, Buried or Aerial plant favorable to the topology of the OSP area being constructed. This plant mix table allows the user to input their company specific percentages of plant mix used in their selected study area.

5.12 Fiber Plant Mix Table (Transport) [FbrTransHardMixTable]

5.12.1 Definition

(Documentation under development, presently not being used in BCPM)

5.12.2 Suggested Input Value

5.12.3 Source

5.12.4 Rationale

5.13 Fiber Plant Mix Table (Transport) [FbrTransNormMixTable]

5.13.1 Definition

(Documentation under development, presently not being used in BCPM)

5.13.2 Suggested Input Value

5.13.3 Source

5.13.4 Rationale

5.14 Fiber Plant Mix Table (Transport) [FbrTransSoftMixTable]

5.14.1 Definition

(Documentation under development, presently not being used in BCPM)

5.14.2 Suggested Input Value

5.14.3 Source

5.14.4 Rationale

5.15 Average Number of Housing Units per Dwelling [HousingUnitsPerDwelling]

5.15.1 Definition

This table reflects the census data on the number of dwellings. The data is resident in the respective Base_Loop3_ETRS.csv files for each of the states. The ETRS input file shows the number of dwelling for each Grid within that state and is used in the Loop.xls modules during processing.

5.15.2 Suggested Input Value

The table consists of 10 columns. Column one reflects the Units per Dwelling or the number of livable units per dwelling [building] defined by the Census Bureau and reflects the count of dwellings in the given ranges. The remaining nine columns represent the nine density zones in BCPM. Within these nine columns are the user adjustable inputs that represents the average number of occupied Households in a dwelling. These inputs should be representative of the company's occupied dwellings for each of their respective serving areas being studied.

The Model algorithms, in the Loop.xls module, load the census data from the respective states Base_Loop3_ETRS.csv file in to the Grid data. This data is then used in Grid Demographics to determine the required cost of Term, Drop and NIDs for each of the designated unit per dwelling for all quadrants.

5.15.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

5.15.4 Rationale

Allows the user to adjust for specific multi-dwelling units to ensure proper sizing and cost for Terminals, Drops, and NIDs.

5.16 Structure Allocation Table [Over4200]

5.16.1 Definition

This table determines the allocation of structure costs (trench, poles) between copper and fiber facilities when both are present.

5.16.2 Suggested Input Value

The following table is applied when copper and fiber facilities are being placed for a given density. There is one input field available to the user, Cable Structure Percent. The Fiber Structure Percent is calculated as 1 minus the Cable Structure Percent.

The Model algorithms, in the Loop.xls module, use these percentages in determining the structure costs in the Main Feeder and Subfeeder OSP segments for UnderGround, Buried and Aerial copper. The percentage of structure assigned to the facilities is based on the number of copper and fiber pairs needed in the Subfeeder and Main Feeder segments of the OSP facilities. For example, if the total copper Main Feeder require 7355 pairs a 4200 pair cable is configured with the residual Main Feeder size calculated as 3600 pair cable. The structure allocation would then be based on the percentage for that cable size greater than 4200 pairs. Conversely, if the total copper Main Feeder require 3913 pairs, the structure allocation would then utilize the percentages that is based on a cable size of 4200 pairs

There are six cable sizes allocated in this table, zero, 200, 900, 2400, 4200, and greater that 4200. The model sponsors were asked to make inputs available for each of the cable sizes.

5.16.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

5.16.4 Rationale

To allocate the proper cable sizes between copper and fiber.

5.17 Structure Allocation Table StructureAllocationTable]

5.17.1 Definition

This table determines the allocation of structure costs (trench, poles0 between copper and fiber facilities when both are present.

5.17.2 Suggested Input Value

The following table is applied when copper and fiber facilities are being placed for a given density. There is one input field available to the user, Cable Structure Percent. The Fiber Structure Percent is calculated as 1 minus the Cable Structure Percent.

The Model algorithms, in the Loop.xls module, use these percentages in determining the structure costs for Main Feeder and Subfeeder OSP segments for UnderGround, Buried and Aerial copper. The percentage of structure assigned to the facilities is based on the number of copper and fiber pairs needed in the Subfeeder and Main Feeder segments of the OSP facilities. For example, if the total copper Main Feeder require 7355 pairs a 4200 pair cable is configured with the residual Main Feeder size calculated as 3600 pair cable. The structure allocation would then be based on the percentage for that cable size greater than 4200 pairs. Conversely, if the total copper Main Feeder require 3913 pairs, the structure allocation would then utilize the percentages that is based on a cable size of 4200 pairs

There are six cable sizes allocated in this table, zero, 200, 900, 2400, 4200, and greater that 4200. The model sponsors were asked to make inputs available for each of the cable sizes.

5.17.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

5.17.4 Rationale

To allocate the proper cable sizes between copper and fiber.

5.18 Voice Grade Ratio Table [VoiceGradeRatioTable]

5.18.1 Definition

This table is used to determine the percent of switched voice grade lines that are terminated in a CBG or grid at a digital PBX via DS1 facilities. The table is also is used to determine the percent of private line voice grade channels that are terminated at the DS1 level at the customer premise. The Number Switched Lines in CBG range from zero to 20,000. The reason for a smaller percent of voice grade lines in the highest range constitutes the fact that in urban areas businesses in large office complexes deploy extensive use of DS1 levels of service. The zero to 2017 number of switched lines generally constitute a rural environment, while 10,000 switched lines represents a suburban environment were a small percentage of businesses deploy DS1 levels of service.

5.18.2 Suggested Input Value

The following table is applied when copper and fiber facilities are being placed for a given density. There are two input fields available to the user, Percent Switched to Voice Grade [VG] and Percent Special to Voice Grade [VG]. The Percent Switched and Special to DS1 columns are calculated by taking 1 minus the respective voice grade percentage.

The Model algorithms, in the Loop.xls module, use this percentage in determining Grid or CBG lines provisioned as DS1's and the number of voice grade lines equipped at the DLC terminals.

5.18.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

5.18.4 Rationale

To determine the percent of switched voice grade lines that are terminated in a CBG or grid at a digital PBX via DS1 facilities

6 *DLC & Electronic Inputs*

The DLC placement in BCPM uses Integrated Digital Loop Carrier technology for both the large and small systems. This technology eliminates many of the costs associated with standard or "universal" systems. Sizes of DLC systems in BCPM range from 24 to 2016 channels. This allows the flexibility and the economics of deploying sizes based on density and growth. Given engineering fill factor of 90%, a small DLC would be less than 216 lines i.e. 240 times 90%. Large DLCs are greater than 240 lines. Defaults are provided for the convenience of users who may not have access to more specific data.

6.1 Digital Carrier Remote System Cost Table

6.1.1 Definition

These cost reflect the fixed costs for the DLC remote end for the system and the Per Line Cost or variable. A minimum variable cost for the Voice Grade [VG] line cards is required for pricing out Universal Service [USF]. The remaining eight Per Line Cost columns reflect inputs that are used for Unbundled Network Elements [UNE] pricing. Reference Section 7.41 and 7.42 Miscellaneous Inputs on per line card cost for Extended Range line cards.

6.1.2 Default Input Value

There are ten COST input fields available to the user. Fixed Cost All, VG, ISDN, DS1, DDS, 4W, EBS, COIN, ADSL and HDSL. The Fixed Cost All assumes all installed first costs associated with the placement of DLC systems at the remote end. The cost includes common equipment, site preparation, right-of-way cost, remote cabinets, commercial power, protection, fiber optic terminal (FOT), taxes, engineering and installation costs. The Per Line Cost is the installed cost of line cards on a per line basis [installed cost of line cards divided by 6 services per line card at the Remote Terminal]. The first column DLC Fiber Size represents the number of lines for a given system. For Example; If the Model calculates that a CSA has 106 DLC lines the cost for that DLC will be priced out at a Remote system size of 121 lines.

6.1.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of the LEC engineering Team subject matter experts.

6.1.4 Rationale

Allows the user to input their company DLC cost requirements on a company-specific basis.

6.2 DLC COT Investment Table

6.2.1 Definition

These reflect the fixed costs for integrate type DLC central office end systems. No line cards are installed. However, Reference Section 7.10 and 7.12 Miscellaneous Inputs on per line card cost for COT Extended Range line cards.

6.2.2. Suggested Input Value

There is one COST input field available to the user. Fixed Cost. The Fixed Cost assumes all installed first costs associated with the placement of DLC systems at the central office end. The cost includes common equipment, power, central office fiber optic terminal (COT/FOT), taxes, engineering and installation costs. The first column DLC Fiber Size represents the number of lines for a given system. For Example; If the Model calculates that the central office end requires 106 DLC lines from the remote sites the cost for that DLC will be priced out at a size of 121 lines.

6.2.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

6.2.4 Rationale

Allows the user to input their company DLC cost requirements on a company-specific basis.

7 *Miscellaneous Inputs*

Miscellaneous inputs in the BCPM Model encompass other data such as Financial and Tax. However, this section only addresses those miscellaneous inputs related with Loop.

7.1 Break Point [BreakPoint]

7.1.1 Definition

This input sets the break point for total loop distance (wire center to subscriber) at which the Model changes from copper cable to fiber. The 12,000 feet default is designed to allow for provisioning of services up to and including DS1. This also means that copper will be the transport medium from the wire center to the subscriber when the total loop length is 12,000 feet or less. Loop lengths beyond 12,000 feet fiber will be deployed in the feeder along with digital loop carrier.

7.1.2 Default Input Value

BreakPoint
12,000

The user has five valid selections to choose from on a pull down menu to set their own break point for sensitivity analysis. Break points available to the user are 6000, 9000,12000, 15000, and 18000 feet; with the default listed above. To extend the breakpoint, a user must assume a 26/24-gauge feeder and adjust cable cost accordingly. In addition, cost for load coils and other transmission requirements must be taken into consideration when extending copper loop lengths. NOTE: It is not recommended to use load coils as the impair the ability to offer enhanced services over they copper plant facilities.

7.1.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The 12,000 feet default is based on CSA design criteria from the Lucent Technologies outside plant engineering handbook or comparable practices used by all LECs to build the loop network.

7.1.4 Rationale

Allows the user to input their company specific break point used in placing plant and perform sensitivity analysis.

7.2 Break Point Extended Range [BreakPointExRange]

7.2.1 Definition

This input sets break point for loop distance (wire center to subscriber) which exceed 13,600 feet. Those distances exceeding the 13,600 break point feet of loop plant deploys extended range line cards in the DLC systems.

7.2.2 Default Input Value

BreakPointExRange

13,600

7.2.3 Source

This footage represents the maximum loop loss allowable before using extended range line cards in the systems. It is taken from the electrical characteristics of 24-gauge cable.

7.2.4 Rationale

Sets the break point that triggers the use of extended range line cards in DLC system, allowing for longer loops that will handle enhanced services.

7.3 Business Premise [BusinessPrem]

7.3.1 Definition

This input is census data, state specific, and allows the user to adjust the minimum number of business lines per location.

7.3.2 Default Input Value

BusinessPrem
10

7.3.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

7.3.4 Rationale

Allows the user to enter their state specific average number of business lines per location. Whereby, the number of business premises will vary by state by location as dictated by the census data.

7.4 Combination Slope Factor [CombSlopeFactor]

7.4.1 Definition

Slope triggers are set at the present slope when facilities must be placed along the contours of the hillside rather than in a point-to-point placement. Slope factors are the multipliers used to add the additional distance that the facilities must travel as they wind their way across the higher slope terrain. This factor is a secondary change and comes in to play when both the minimum and maximum slope triggers are exceeded the distance is adjusted by the combined slope factor. NOTE: The minimum slope factor of 1.10 and maximum slope factors of 1.05 will never add to the combined slope factor of 1.20. Reason being; if either one of the minimum or maximum factors, based on the predominate slope in the given terrain is reached, neither slope factor is used and the combination slope factor is deployed.

7.4.2 Default Input Value

CombSlopeFactor
1.20

7.4.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

7.4.4 Rationale

Since more cable is required when winding along contours of hillsides rather than cable placement in straight flat terrain, this input allows for the additional distance that facilities will require when traveling along this higher sloped terrain. Thereby, triggering the Model to compensate cable and structure costs.

7.5 Copper Cable Discount

7.5.1 Definition

This miscellaneous input is set at zero percent as discounts are already applied to the copper cable data. To apply additional discounts to cable in this table, a user should adjust the total amount of the discount to account for the inclusion of labor in the cable cost tables Section 1.0 of this manual.

7.5.2 Default Input Value

CopperCableDiscount
0.00%

7.5.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts. **Discounts are set to zero if the cable prices already reflect the appropriate discounts.**

7.5.4 Rationale

Allows the user to adjust for additional cable discounts for their company specific cable costs.

7.6 Copper Cost Ratio

7.6.1 Definition

This miscellaneous input is calculated based on the users setting for CopperCableDiscount Section 7.5. The value is computed by taking 1 minus the CopperCableDiscount value, and represents the copper cable cost after the discount. The ratio is used in costing out the buried and aerial copper plant that the Model estimates in the Subfeeder Part 2, New Distribution, DLC to DI, Main Feeder and Subfeeder facilities.

7.6.2 Default Input Value

CopperCostRatio
100.00%

7.6.3 Source

Not Applicable

7.6.4 Rationale

Discounts are set to zero if the cable prices already reflect the appropriate discounts.

7.7 Copper Gauge

7.7.1 Definition

In order to provide adequate transmission capacities for fax and dial-up modems, BCPM, along with loop length and break point defaults, BCPM uses 26 gauge in the feeder and 26/24 gauge in the distribution. This is a calculated value in the inputs based on the breakpoint setting. For example; if breakpoint in less than 12,000 feet 26 gauge is used otherwise, 24 for gauge is deployed.

7.7.2 Default Input Value

CopperGauge
26

7.7.3 Source

These inputs are based on CSA design and copper cable resistance criteria.

7.7.4 Rationale

Input is based on cable resistance for 26 gauge cable and the normal CSA design.

7.8 Copper T-1

7.8.1 Definition

This input is the average cost per DS1 on copper (both terminals and one repeater). The table provides the cost of electronics for terminating private line and digital PBX services at the DS1 signal level.

7.8.2 Default Input Value

CopperT1
$2,500.00

7.8.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

7.8.4 Rationale

Used for the provision of non-voice grade services over copper.

7.9 COT DLC Large Per Line Investment [COTDLCLPerLine]

7.9.1 Definition

This input defines the cost per line investment for the Central Office Terminal used in calculating of large electronic costs in the Loop.xls module. The default per line cost represents several DLC vendors such as RELTEC and DSC. The value is derived by dividing the cost of a DS1 card by 24; the number of circuits on one card.

7.9.2 Default Input Value

COTDLCLPerLine
$15.58

7.9.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

7.9.4 Rationale

Provide the user the ability to place company specific per line cost for large DLC units.

7.10 COT DLC Large Per Line Investment Extended Range [COTDLCLPerLineExRange]

7.10.1 Definition

This input defines the cost per line investment for the Central Office Terminal used in calculating of large electronic costs in the Loop.xls module. The default per line cost represents several DLC vendors such as RELTEC and DSC. The value is derived by dividing the cost of a DS1 card by 24; the number of circuits on one DS1 card. DS1 cards are deployed at the COT end since the DLC units are configured as an integrated system.

7.10.2 Default Input Value

COTDLCLExRange
$15.58

7.10.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgement and experience of The LEC engineering Team subject matter experts.

7.10.4 Rationale

Provides the user the ability to place company specific per line cost for large DLC units with DS1 cards that allow for longer loops and retain the ability to offer advanced services in a forward looking network.

7.11 COT DLC Small Per Line Investment [COTDLCSPerLine]

7.11.1 Definition

This input defines the cost per line investment for the Central Office Terminal used in calculating of large electronic costs in the Loop.xls module. The default per line cost represents several DLC vendors such as AFC and NEC. The value is derived by dividing the cost of a DS1 card by 24; the number of circuits on one DS1 card. DS1 cards are deployed at the COT end since the DLC units are configured as an integrated system.

7.11.2 Default Input Value

COTDLCSPerLine
$18.54

7.11.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

7.11.4 Rationale

Provides the user the ability to place company specific per line cost for large DLC units with DS1 cards that allow for longer loops and retain the ability to offer advanced services in a forward looking network

7.12 COT DLC Small Per Line Investment Extended Range [COTDLCSPerLineExRange]

7.12.1 Definition

This input defines the cost per line investment for the Central Office Terminal used in calculating of large electronic costs in the Loop.xls module. The default per line cost represents several DLC vendors such as AFC and NEC. The value is derived by dividing the cost of a DS1 card by 24; the number of circuits on one DS1 card. DS1 cards are deployed at the COT end since the DLC units are configured as an integrated system.

7.12.2 Default Input Value

COTDLCSPerLineExRange
$18.54

7.12.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

7.12.4 Rationale

Provides the user the ability to place company specific per line cost for large DLC units with line cards that allow for longer loops and retain the ability to offer advanced services in a forward looking network

7.13 Copper Maximum Distribution Length [CprMaxDistr]

7.13.1 Definition

In order to design a least cost network that provides adequate transmission capabilities for fax and dial-up modems, BCPM designs an outside plant system that typically maximizes loop lengths for copper using 26 gauge copper. The engineering protocols most central to the design of this model include an average maximum loop length for each CSA that is less than 12,000 feet for both feeder and distribution. This value eliminates problems arising from loading and resistance. NOTE: In changing this value the breakpoint value should equal this value to ensure adequate results in plant design.

7.13.2 Default Input Value

CprMaxDistr
12,000

7.13.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

7.13.4 Rationale

To eliminate the use of load calls within the forward looking network which impairs the deployment of advanced services and remain in compliance with the Standards set in the AT&T/Lucent and US practices covering loop resistance and electrical db loss.

7.14 Critical Water Depth

7.14.1 Definition

This input is the depth, in feet, at which water impacts placement costs. If the water table depth is equal to or less than the critical water depth, the water multiplier factor activates and a percent cost increase is applied for cable placement.

7.14.2 Default Input Value

CriticalWaterDepth
3

7.14.3 Source

The source is taken from the State Soil Geography (STATSGO) data based produced by the United States Department of Agriculture.

7.14.4 Rationale

As the water table decreases in depth placing cable becomes more costly. This input sets the trigger at which additional cost for placing cable is required due to lower water tables.

7.15 D 4 Bank

7.15.1 Definition

This input represents the material and installation for a standard D4 channel bank common equipment.

7.15.2 Default Input Value

D4Bank
-

7.15.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts.

7.15.4 Rationale

This input allows the user to input their company specific D4 Channel Bank cost.

7.16 DLC Large Discount [DLCLDiscount]

7.16.1 Definition

This miscellaneous input is calculated based on the users setting for Large DLC Electronic Discount Section 7.24. The value is computed by taking 1 minus the Large DLC Electronic Discount value, and represents the DLC large cost after the discount. The ratio is used in costing out large DLC systems, which the Model required to price out the network.

7.16.2 Default Input Value

DLCLdiscount
100.00%

7.16.3 Source

Not Applicable

7.16.4 Rationale

Discounts are set to zero if the DLC prices already reflect the appropriate discounts.

7.17 DLC Small Discount [DLCSDiscount]

7.17.1 Definition

This miscellaneous input is calculated based on the users setting for Small DLC Electronic Discount Section 7.43. The value is computed by taking 1 minus the Large DLC Electronic Discount value, and represents the DLC small cost after the discount. The ratio is used in costing out the small DLC system that the Model required to price out the network.

7.17.2 Default Input Value

DLCSDiscount
100.00%

7.17.3 Source

Not Applicable

7.17.4 Rationale

Discounts are set to zero if the DLC prices already reflect the appropriate discounts.

7.18 Electronic Fill

7.18.1 Definition

This input represents the percent of line cards to be engineered for a given DLC system. The Model allows for two DLC categories, each providing multiple size options of remote and central office terminal sizes. The decision to use either a small or large DLC is based on the number of lines the DLC can serve. For example, given an electronic fill factor of 85 percent, a small DLC would be placed if the CSA serves less than 204 lines, i.e. 240 times 85%. It is designed to allow for growth that applies to the line cards in the channel units.

7.18.2 Default Input Value

ElectronicFill
85.00%

7.18.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts

7.18.4 Rationale

Allows the user to adjust their company specific fill factor for electronics based on their company guidelines and serving area being studied.

7.19 Fiber Terminal Frame [FbrTermFrame]

7.19.1 Definition

This miscellaneous input the material and installation for one Fiber Termination frame at the central office end when pricing out Unbundled Network Elements [UNEs].

7.19.2 Default Input Value

FbrTermFrame
-

7.19.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts

7.19.4 Rationale

Allows the user to enter company specific material and installation costs for fiber termination equipment used primarily with pricing Unbundled Network Elements [UNEs].

7.20 Fiber Cable Discount

7.20.1 Definition

This miscellaneous input is set at zero percent as discounts are already applied to the fiber cable data. To apply additional discounts to cable in this table, a user should adjust the total amount of the discount to account for the inclusion of labor in the cable cost tables Section 1.0 of this manual.

7.20.2 Default Input Value

FiberCableDiscount
0.00%

7.20.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts. **Discounts are set to zero if the cable prices already reflect the appropriate discounts**

7.20.4 Rationale

Allows the user to adjust for additional cable discounts for their company specific cable costs.

7.21 Fiber Cost Ratio

7.21.1 Definition

This miscellaneous input is calculated based on the users setting for FiberCableDiscount Section 7.20. The value is computed by taking 1 minus the FiberCableDiscount value, and represents the fiber cable cost after the discount. The ratio is used in costing out the underground, buried and aerial fiber plant that the Model estimates in the Subfeeder Part 2, Main Feeder and Subfeeder .

7.21.2 Default Input Value

FiberCostRatio
100.00%

7.21.3 Source

Not Applicable

7.21.4 Rationale

Discounts are set to zero if the cable prices already reflect the appropriate discounts.

7.22 Hi Capacity Fill [HiCapFill]

7.22.1 Definition

(Documentation under development)

7.22.2 Default Input Value

HiCapFill
95.00%

7.22.3 Source

7.22.4 Rationale

7.23 Investment Loop Cap Expense [InvLoopCap]

7.23.1 Definition

This input on investment loop cap can be evaluated at a national or wire center level and provides user the ability to perform sensitivity analysis. For example, if the user sets a cap at the default value, each loop whose investment potentially exceeds $10,000 is capped at $10,000. This is also designed to give the user a technology substitute for a technology not currently in the model such as wireless. Use of the cap assumes the alternative technology is available at the cap price or lower.

7.23.2 Default Input Value

InvLoopCap
10,000

7.23.3 Source

A user based adjustment available for wireless or other technology alternatives at the present time.

7.23.4 Rationale

Provides the Modeler the option of establishing a cap on the maximum loop investment. Reason being 1) a possibility that regulatory/public policy may limit the maximum investment level per line that USF can support and 2) for technological alternatives for providing basic service beyond some user specified investment threshold.

7.24 Large DLC Electronic Discount [LargeDLCDiscount]

7.24.1 Definition

This miscellaneous input is set at zero percent as discounts are already applied to the DLC and electronic cost data. To apply additional discounts to DLC investment in this table, a user should adjust the total amount of the discount to account for the inclusion of vendor material discounts in the DLC cost tables Section 6.0 of this manual.

7.24.2 Default Input Value

LargeDLCDiscount
0.00%

7.24.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for the company under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts. **Discounts are set to zero if the DLC prices already reflect the appropriate discounts**

7.24.4 Rationale

Allows the user to adjust for additional DLC discounts for their company specific Digital Loop Carrier costs.

7.25 Maximum COT DLC Large [MaxCOTDLCL]

7.25.1 Definition

The maximum DLC Large Central Office Terminal the user wishes considered in the model. The value of this input must coincide with a DLC size from the DLC &

Electronic Input tables in Section 6.0. NOTE: The maximum line capacity for a large DLC system is 2016.

7.25.2 Default Input Value

MaxCOTDLCL
2016

7.25.3`Source

These inputs should be obtained from Outside Plant planning or engineering experts for those cable sizes the company utilizes under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts

7.25.3 Rationale

Based on vendor design of their Digital Carrier Loop systems.

7.26 Maximum COT DLC Small [MaxCOTDLCS]

7.26.1 Definition

The maximum DLC Small Central Office Terminal the user wishes considered in the model. The value of this input must coincide with a DLC size from the DLC & Electronic Input tables in Section 6.0. NOTE: The maximum line capacity for a small DLC before deploying a large DLC system is 672.

7.26.2 Default Input Value

MaxCOTDLCS
672

7.26.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for those cable sizes the company utilizes under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts

7.26.4 Rationale

Based on vendor design of their Digital Carrier Loop systems.

7.27 Maximum Copper Feeder Cable Size [MaxFeederSize]

7.27.1 Definition

The maximum copper feeder cable size the user wishes considered in the model. The value of this input must coincide with a cable size from the cable cost input table in Section 1.0 "Loop Cost Inputs." NOTE: the largest copper cable size supported by the Model is 4200 pairs.

7.27.2 Default Input Value

MaxFeederSize
4200

7.27.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for those cable sizes the company utilizes under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts

7.27.4 Rationale

7.28 Maximum Fiber Cable Size [MaxFiberSize]

7.28.1 Definition

The maximum fiber feeder cable size the user wishes considered in the model. The value of this input must coincide with a cable size from the cable cost input table. NOTE: the largest fiber cable size supported by the Model is 288 strands.

7.28.2 Default Input Value

MaxFiberSize
288

7.28.3 Source

These inputs should be obtained from Outside Plant planning or engineering experts for those cable sizes the company utilizes under study, if possible. The values supplied with BCPM are defaults and represent the judgment and experience of The LEC engineering Team subject matter experts