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BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

PUCO

In the Matter of the Commission's Investigation
into the Policies and Procedures of Ohio Power
Company, Columbus Southern Power Company,
The Cleveland Electric Illuminating Company,
Ohio Edison Company, The Toledo Edison
Company and Monongahela Power Company
Regarding the Installation of New Line Extensions.

Case No. 01-2708-EL-COI,

In the Matter of the Application of Columbus
Southern Power Company for the Approval
of an Additional Payment Option for Certain
Distribution Line Extensions.

Case No. 01-1356-EL-ATA

In the Matter of the Application of Columbus
Southern Power Company for an Accounting
Order to Defer the Carrying Costs of Certain
Line Extensions.

Case No. 01-1357-EL-AAM

In the Matter of the Application of Ohio Power
Company for the Approval of an Additional
Payment Option for Certain Distribution Line
Extensions.

Case No. 01-1358-EL-ATA

In the Matter of the Application of Ohio Power
Company for an Accounting Order to Defer
the Carrying Costs of Certain Line Extensions.

Case No. 01-1359-EL-AAM

DIRECT TESTIMONY OF
GREGORY A. EARL
ON BEHALF OF
COLUMBUS SOUTHERN POWER COMPANY
AND
OHIO POWER COMPANY

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GREGORY A. EARL

PUCO CASE NOS. 01-2708-EL-COI, 01-1356-EL-ATA,
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2 THE PUBLIC UTILITIES COMMISSION OF OHIO
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10 01-1357-EL-AAM, 01-1358-EL-ATA,
11 01-1359-EL-AAM
12
13

14 **Personal data**

15 Q. Please state your name and business address.

16 A. My name is Gregory A. Earl. My business address is 850 Tech Center Drive,
17 Gahanna, Ohio 43230.

18 Q. By whom are you employed and in what position?

19 A. I am employed by the American Electric Power Service Corporation as the
20 Customer Services Manager for the Columbus Region of the American Electric
21 Power (AEP) System.

22 Q. Please briefly describe your educational background and business experience.

23 A. I graduated from Rensselaer Polytechnic Institute, Troy, New York, with a B.S. in
24 Electric Power Engineering in 1981 and a Master of Engineering in Electric
25 Power Engineering in 1982. I joined American Electric Power Service
26 Corporation in June 1982 as a Transmission Planning Engineer. In this capacity
27 I performed area planning studies and summer performance evaluations for the
28 transmissions systems (40-kv to 138-kv) of Columbus Southern Power Company
29 (CSP). In July 1990, I became the Engineering Supervising Engineer for CSP
30 where I directed a staff of engineers in the development of distribution system

1 area plans for CSP. In April 1992, I was appointed Administrative Assistant to
2 the Columbus Division Manager for CSP. In this capacity, I directed a staff
3 responsible for liaison with suburban community leaders, local media relations
4 and community service programs. In July 1993, I became the Columbus Region
5 Engineering Manager. My department was responsible for all distribution system
6 design in the Columbus Region as well as the support functions of records
7 administration, rights-of-way acquisition and drafting. In January 1996, I was
8 appointed to my present position. My staff is responsible for managing
9 relationships with the largest commercial/industrial customers in the Columbus
10 Region. We are also responsible for performing field investigations for residential
11 and small commercial customers with respect to high bill inquiries, meter access
12 issues and the like. I am a registered Professional Engineer in the State of Ohio.

13 Q. Have you participated in negotiations relative to recovery of line extension costs
14 by CSP and Ohio Power Company (OPCo), collectively, the Companies?

15 A. Yes. In October 2000, I participated in discussions that ultimately lead to
16 negotiations, with the Building Industry Association of Central Ohio (BIA) and the
17 Ohio Home Builders Association (OHBA). I was an integral member of the
18 Companies' team that worked with OHBA/BIA and the Staff to negotiate a
19 comprehensive settlement which provided for: 1) the Memorandum of
20 Understanding (MOU) for single-family residential developments, signed on May
21 25, 2001; 2) the \$10.99 residential development customer surcharge application
22 pending before the Commission; and 3) the deferral application pending before

- 1 the Commission. I have represented the Companies' Distribution and Customer
- 2 Operations organizations throughout the evolution of the line extension issue.

1 **Purpose of Testimony**

2 Q. What is the purpose of your direct testimony in this proceeding?

3 A. The purpose of my direct testimony is to comment on various elements of the
4 Staff Report of Investigation – Line Extensions, to specifically explain the cost
5 basis for the Companies' line extensions associated with single-family residential
6 developments and multi-family residential developments and to discuss several
7 principles associated with the line extension issue, in general.

8 **General**

9 Q. Can you summarize the Companies' definition of a line extension?

10 A. A line extension required to serve a new or expanding customer load may involve
11 both local facilities and system improvements. Local facilities are best described
12 as those electrical facilities that are dedicated to the service of a single customer.
13 Generally, customers are required to pay for 100% of the cost of the local
14 facilities, the recovery of which is at issue in this proceeding, since they are
15 uniquely benefiting from the construction of such facilities. These local facility
16 charges would exclude the costs of any facilities specifically provided for by the
17 PUCO approved Terms and Conditions of the Tariffs such as metering
18 equipment and 100 feet of overhead service lateral. Examples of local facilities
19 for various customers include:

- 20 o **New rural residential customer** – primary line extension,
21 transformer and secondary wire
- 22 o **Residential developer (single-family or multi-family)** – primary
23 line extension throughout the development, distribution

- 1 transformers, secondary wire and pedestals (if underground
2 installation)
- 3 o **Single-family residential customer in a development –**
4 overhead service lateral in excess of 100 feet or incremental cost of
5 an underground service lateral in excess of the cost of a 100 foot
6 overhead service lateral
- 7 o **Commercial development –** primary line extension throughout the
8 development and any required primary enclosures/switches if the
9 facilities are underground
- 10 o **Commercial/Industrial customer –** primary line extension (from
11 existing Company system facilities if a stand alone entity or from a
12 developer-funded primary distribution system if located in a
13 preplanned commercial/industrial development), distribution
14 transformer (if secondary service), secondary wire and secondary
15 enclosure (if required)

16 System improvements are those electrical facilities that may be required, due to
17 a new or expanding customer load, and that will benefit the customer and others.

18 Examples of system improvements include:

- 19 o Rebuilding an existing 3-phase primary line with bigger wire to
20 accommodate added load
- 21 o Building a new 3-phase primary line to provide additional capacity
22 to an existing load area

1 o Installing an additional, or larger, distribution substation transformer
2 to provide additional transformation capacity to a growing load area
3 In the event that a new customer load requires the extension from existing
4 facilities to the customer's site where facilities do not presently exist, such an
5 extension would be considered a local facility and charged to the requesting
6 customer.

7 **Single Family Residential Developments**

8 Q. Would you please explain the derivation of the \$1300 line extension cost per
9 single-family residential development lot referenced in the Companies' pending
10 deferral and surcharge filings?
11 A. This cost represents an estimate of the "typical" per lot cost to install the
12 electrical distribution system for a single-family residential subdivision. The
13 electrical distribution system includes: primary voltage cable, padmount
14 distribution transformers, secondary voltage cable and service pedestals. The
15 installed cost of this electrical distribution system was found to range from
16 approximately \$675 per lot to over \$2250 per lot. The variations in "per lot" costs
17 can be attributed to such factors as primary distribution voltage (13-kv or 35-kv),
18 lot width, developer requirements (rear lot transformer placement), electrical
19 demand of the prospective homes etc. For the purposes of 1) adopting a flat fee
20 per lot for builders/developers, 2) calculating a corresponding customer
21 surcharge based on the flat fee and, 3) ultimately to calculate potential deferrals,
22 it was decided, with PUCO Staff concurrence, to settle on a single "typical" cost
23 figure based upon a weighted average cost for single family subdivisions with 70-

1 100 foot lot widths. This "typical cost" of \$1300 per single family lot served as
2 the background for the \$375/lot developer charge agreed to by the Companies
3 and the OHBA/BIA in the Memorandum of Understanding, as well as for the
4 \$10.99 per month customer surcharge requested, and agreed to by the Staff, in
5 the associated tariff filings by the Companies.

6 Q. Why is a "flat fee" approach appropriate for single-family residential development
7 line extension cost recovery?

8 A. The flat fee approach for developer and customer charges eliminates any non-
9 productive debate associated with the specific line extension costs for each
10 single-family residential subdivision. This approach provides prospective
11 developers with a definitive understanding of their development costs for electric
12 infrastructure without having to wait for the completion of the detailed
13 engineering. This approach makes the Companies' design technicians more
14 productive by relieving them of the burden to develop both budgetary and
15 detailed cost estimates. While flat fees are not appropriate for all types of
16 customer projects, the flat fee approach is viable for single-family residential
17 development projects due to the relative uniformity of most single-family
18 residential developments.

19 **Multi-family Residential Developments**

20 Q. Are there greater challenges associated with arriving at a "typical" per unit cost
21 for the electrical distribution system associated with multi-family residential
22 developments than for single-family developments?

1 A. Yes, In addition to the variables noted above for single-family residential
2 subdivisions, multi-family subdivisions are further affected by wide variations in
3 the number of units per building and the number of buildings per project.
4 Furthermore, there is greater variability for building layouts on the developed
5 property in multi-family projects than generally exists in a single-family
6 development. This makes it increasingly difficult to define a "typical" layout for
7 the utility infrastructure in a multi-family project. A sampling of projects yielded
8 the following comparisons:

Project	# of Bldgs	# of Units/Project	Avg. # of Units/Building	Project cost	Cost / unit	Cost/ Bldg
A	26	408	16	\$231,078	\$566	\$8,888
B	8	32	4	\$37,603	\$1,175	\$4,700
C	3	35	12	\$45,840	\$1,310	\$15,280
D	4	60	15	\$26,806	\$447	\$6,701
E	18	218	12	\$101,783	\$467	\$5,654
F	15	232	15	\$127,989	\$552	\$8,532

9
10 Although the bandwidth of costs is similar to that portrayed for the single-family
11 projects above, the projects are less likely to cluster around a "typical" cost
12 pattern due to the wide array of influencing factors noted above. This set of data
13 demonstrates the wide variability of costs for, and scope of, the required
14 electrical distribution system. Intuitively, projects with less than 4 units per
15 building (like duplexes) are more likely to resemble single-family subdivisions in
16 their costing per building. Beyond that observation, trends are difficult to predict
17 due to the competing influences described above. It might be assumed that
18 there would be economies of scale for the Company in line extension costs for
19 multi-family projects. The fact remains, however, that greater distances between

1 buildings drives up the primary voltage wire lengths and consequently the cost.

2 Furthermore, larger buildings with increased numbers of units may reduce the
3 overall number of transformers but larger buildings require increases in the size
4 of transformers that are required, thereby keeping the cost up.

5 Q. Is the "flat fee" approach appropriate for multi-family residential projects?

6 A. No. Considering the challenges presented above, the flat fee approach for multi-
7 family is not appropriate. Regardless of the intuitive expectations associated with
8 any of the variables, the fact remains that each project is quite unique which
9 makes these line extension projects more conducive to actual cost billing rather
10 than the flat fee approach. In the extreme comparison, the electrical
11 infrastructure required to serve a small group of duplexes is vastly different than
12 that required for a residential high rise such as Miranova, in downtown
13 Columbus.

14 Furthermore, the very nature of these multi-family projects as business
15 entities suggests that they should be treated under the line extension practices
16 for large, general service customers. Master metered projects with metering
17 points established either per building or per transformer are served under
18 General Service tariffs and clearly should be grouped with other commercial
19 ventures like strip shopping centers and commercial office parks. Although
20 multi-metered projects are an accumulation of residential accounts, the fact
21 remains that the project is fundamentally an on-going business entity despite the
22 tariff under which the tenants are being billed.

1 **General Service Customers**

2 Q. Is it appropriate for General Service customers to be classified, for line extension
3 purposes, by delivery voltage?

4 A. No. The Staff Report attempts to define Small General Service customers as
5 those who receive service at secondary voltage despite the fact that by tariff,
6 Small General Service customers are generally those whose demand is less than
7 10kw. Using the Staff's definition of Small General Service customers would
8 result in the inclusion of clearly large General Service customers such as:

- 9 o Most downtown office buildings with total demands as high as
10 7000kw/building
- 11 o Grocery stores at 500-1000kw per store
- 12 o Suburban office buildings with demands as high as 2500kw
- 13 o Hotels
- 14 o Retirement centers
- 15 o Warehouses
- 16 o Hospitals
- 17 o High Schools at 750-1000kw and Elementary Schools at 500-
18 750kw.
- 19 o Manufacturing sites

20 These hardly can be categorized as small General Service customers.

21 Q. Is the staff's recommendation to charge large general service customer for 100%
22 of the line extension cost appropriate?

1 A. Yes. The testimony of Mr. Gregory DeLizio substantiates the Companies'
2 contention that the existing distribution rates are only sufficient to cover the
3 ongoing operation and maintenance of the distribution system and to provide for
4 the required system improvements. The costs for local facilities should be borne
5 by those who cause the cost. The Companies have been educating their
6 customers on this issue since early in 2000 in order to allow them to prepare for
7 the impact of the increased customer contribution toward line extension charges.
8 Through this education and advance warning we believe that we successfully
9 prepared and informed this particular group of customers by clearly explaining
10 the changing circumstances and by giving them an adequate period to transition
11 to the increased contribution. The Companies have been securing CIAC
12 agreements with General Service customers, advising them of their responsibility
13 for the upfront payment of 100% of the local facility costs associated with new or
14 upgraded service to commercial and industrial customers, since January 1, 2001.
15 Over 2900 customers have signed agreements since January 1, 2001. Although
16 customers have expressed resistance to the increased contribution toward line
17 extension charges, the Companies' experience, to date, is that customers have
18 understood and accepted the charges.

19 Q. Did the Companies attempt to discuss the issue of increased contributions from
20 commercial/industrial builders/developers for line extension charges?

21 A. Yes. The Companies repeatedly attempted to initiate dialogue with the National
22 Association of Industrial and Office Properties (NAIOP) concerning this matter
23 but got no response from NAIOP. Duke-Weeks was essentially the only member

1 of this group to challenge the Companies' line extension cost recovery position.
2 After one meeting among the Companies, Duke and PUCO Staff, Duke-Weeks
3 made no further effort to discuss a resolution.

4 **Itemized Cost Estimates**

5 Q. Should the Companies be required to offer more detail in their cost estimates for
6 line extensions?

7 A. No. First of all, this information is not necessary for those projects with flat-fee
8 charges, such as those in the context of the Memorandum of Understanding.
9 However, beyond the flat-fee circumstances, the Companies generally have tried
10 to provide customers with a cost breakdown highlighting material, labor,
11 miscellaneous expenses and tax gross-up. To put this cost breakdown in
12 perspective, the Companies identify the major components included in the cost
13 estimate. The identification of major components may include such information
14 as:

- 15 o Number and size of transformers
- 16 o Length and size of underground primary cable
- 17 o Number of overhead poles plus length and size of overhead
18 conductor

19 The Companies have prepared over 6000 CIAC agreements since January 1,
20 2001 representing over \$14 million of local facilities cost and the dissatisfaction
21 with our current level of itemization has been very minimal.

22 Requirements for additional detail, as recommended by the Staff, would
23 force the Companies to share proprietary information associated with our

1 contract labor agreements. Under the Staff's proposal, unit costs associated with
2 our successful contract bidder would be available to the contractor's competitors,
3 thereby compromising the contractor's opportunity at the next bid event and
4 indeed the entire bidding process.

5 Generating separate detailed cost estimates beyond what is already
6 provided will result in additional work, which will increase the overall cost of the
7 job, and will slow down the entire service delivery process. The end product of
8 this effort provides no greater information for our customers to validate the line
9 extension estimate than the breakdown already provided. A sufficient validation
10 can be accomplished with the identification of the major project components and
11 the total material/labor breakdown described above.

12 **Incremental Cost of Line Extensions**

13 Q. How should the Companies value the services provided by a customer relative to
14 the construction of a new line extension?

15 A. First, it must be said that the Companies fully support the concept of customers
16 participating in the construction of line extensions as long as appropriate
17 processes and procedures are in place to ensure the qualifications of the
18 individuals performing the work and the acceptability of any customer-provided
19 materials. The construction of primary voltage electrical distribution systems is a
20 complex skill, particularly so for underground facilities. The operation and
21 maintenance requirements, and more importantly the resultant safety and
22 reliability of the installed system, are directly related to the quality of the
23 installation. The Companies cannot afford to allow the safety of its workers, the

1 level of its PUCO performance metrics or the satisfaction of its ultimate
2 customers to be compromised by inferior construction driven by line extension
3 cost issues.

4 In addition, material specifications are also critical with respect to
5 customer-constructed facilities that the Companies will ultimately own and
6 operate. Installed material must be exactly the same as that used by the
7 Companies in order to insure the safe and effective long-term operation and
8 maintenance of their power system. Our knowledge of product quality and the
9 necessity for an inventory of spare parts requires rigid controls on the allowable
10 materials. The Companies choose materials not simply by specifications and
11 price. We also factor into vendor and material approvals the past performance,
12 field experience and sample testing of the subject material. Finally, introducing
13 electrical components that our crews are not completely familiar with would
14 compromise the safety of the Companies' physical workforce.

15 That being said, in the event a customer chooses to participate in a line
16 extension by completing all, or a portion, of the required line extension, the
17 Companies intend to compensate/credit the customer based on the Companies'
18 avoided cost of the customer-provided work and materials.

19 Q. What is the rationale for basing credits on avoided costs?

20 A. The Companies develop a fully "loaded" estimate of the total cost to construct a
21 line extension for a new Commercial/Industrial customer project. If the customer
22 chooses to perform a portion of the work, the Companies would provide a credit
23 towards the line extension bill in an amount equal to the direct, avoided cost of

1 the labor and materials that the customer provides. "Overheads", or indirect
2 costs, in the fully loaded estimate reflect the Companies' average imbedded cost
3 for the design, engineering and company construction overheads, all of which
4 exist whether or not the Companies are the constructing entity on a particular
5 project. These overhead costs are not avoided when the customer provides
6 labor and materials.

7 Q. Should cost estimates presented to a customer be reduced to reflect that the
8 Companies use so-called "oversized facilities"?

9 A. No. The Companies must be allowed to install facilities using routine stock
10 material and standard design practices. As such, line extensions will always be
11 built using equipment that possesses capacity greater than that required by the
12 requesting customer. This is particularly true with respect to conductor, either
13 overhead or underground. Those facilities are not oversized. They represent
14 the normal size of facilities used by the Companies. It is common in the industry
15 for utilities to standardize a limited set of equipment where standard sizes are
16 spread out so as to minimize overlap, thereby making material inventory more
17 efficient. In the event that truly oversized facilities are installed, i.e., facilities
18 larger than the Companies' standards would dictate for the required customer-
19 driven construction, solely at the discretion of the Companies, then the
20 incremental cost of the excess capacity of such facilities should not be borne by
21 the customer.

22 Q. How is a customer compensated when another customer subsequently receives
23 service from facilities the first customer funded?

1 A. In the event that another customer comes along within 4 years and receives
2 service from the line extension funded by the first customer, the first customer
3 would receive a prorated refund of his original line extension payment. The
4 refund would reflect a cost sharing calculation recognizing that now 2 customers
5 are benefiting from a portion of the original extension and the second customer
6 would be responsible for the share returned to the first customer. Similarly, if a
7 new or expanding customer load requires that an existing 1-phase primary
8 distribution line be made 3-phase and no other customers require 3-phase, then
9 the requesting customer will be required to pay for the full cost of the 3-phase
10 construction. This payment would be subject to a similar refund concept during
11 an initial 4-year period if another 3-phase customer receives service from the
12 facilities funded by the first customer. It would be unfair to limit the Companies'
13 cost recovery based on the potential that other customers might take service off
14 these facilities in the future. Staff's proposal would penalize the Companies if
15 other customers did not come along.

16 **Response Time**

17 Q. Should the Companies be required to provide a detailed, firm price estimate for
18 line extensions in 10 days, as recommended by the Staff?
19 A. No. While the Companies could generally provide firm price estimates within ten
20 days if the requested service does not require primary line construction (simple
21 service request), firm price estimates cannot be produced under such restrictive
22 time expectations if primary line construction is involved (complex service
23 request). In such cases, customers rarely have all the information available to

1 complete a firm cost estimate when the project is first submitted. Required

2 information includes:

- 3 o Switch size
- 4 o Requested delivery voltage
- 5 o Total estimated load
- 6 o Listing of connected loads
- 7 o Survey site plan
- 8 o Site plan showing other utilities
- 9 o First floor elevation

10 With the preliminary information that is generally available at the time a complex
11 service request is submitted, the Companies would be forced to add contingency
12 factors to a hastily prepared, firm price estimate in order to meet a 10-day
13 requirement. This would ultimately drive up the cost and increase customer
14 dissatisfaction. In consideration of the ratepayers and shareholders alike, the
15 Companies' must try to minimize their financial risk and avoid being
16 compromised by the lack of detailed information and insufficient time to perform a
17 detailed engineering design. In contrast, it is reasonable for the Companies to
18 provide a "budgetary" estimate within 10 business days that will not be a firm
19 price for the service. The completion of the detailed cost estimate is often an
20 iterative process that begins with the "budgetary estimate". From this base, the
21 customer and the Companies, negotiate on facility routing, construction
22 responsibilities, delivery voltage and other cost-influencing parameters until a
23 final design is agreed upon.

1 Q. Are there other reasons why the 10-day requirement for firm cost estimates is
2 unreasonable?

3 A. Yes. Cost estimates are often requested outside the service request process by
4 land development organizations. It should be recognized that these requests are
5 not firm service requests but rather informal requests for budgetary information
6 so that business decisions/investments can be evaluated. Although important to
7 overall commerce, such requests are not requests, nor do they relate to specific
8 requests, for service. Consequently, the time taken to respond to such requests
9 does not stand directly in the way of a business or individual receiving service.

10 Such entities are represented in this proceeding by NAIOP. Cost
11 estimates requested by land development organizations can never be firm as
12 they are always for very speculative projects where no firm details are available.
13 Furthermore, many of the requests never materialize into actual projects in a
14 timely manner, if at all. The time invested in preparing budgetary estimates for
15 such projects takes time away from other service projects.

16 In a recent example, Duke-Weeks Realty worked with the Companies'
17 Customer Services organization to develop a preliminary/conceptual plan for a
18 140-acre development site outside Columbus. The Companies invested
19 approximately 15 man-hours designing the required local facilities, 24 man-hours
20 designing and estimating the required system improvements and 40 man-hours
21 analyzing the impact of this project on the local transmission and distribution
22 system. In the end, Duke-Weeks abandoned the project. While such projects
23 can be expected to occur in the normal course of business, the Companies note

1 this example as one where customers have unrealistic expectations of the
2 amount of work required to complete even a preliminary evaluation of a large
3 project. If the 10-day requirement were adopted, the Companies would have to
4 stop providing this type of information to developers.

5 In summary, informal service requests, like land development projects, or
6 those requests for premium services, such as alternate feed services, are real life
7 examples of time-consuming projects that further exacerbate the unrealistic
8 burden associated with a 10-day firm cost estimate requirement. These types of
9 requests should be excluded from any requirements associated with firm service
10 requests, either simple or complex.

11 Q. Does this conclude your testimony?

12 A. Yes, it does.