Response of Allegheny Power
to the
Commonwealth of Virginia
State Corporation Commission

HJR 153 FEASIBILITY STUDY

GENERIC QUESTIONS

1. **Please identify the major issue/questions that should be addressed by the HJR 153 feasibility study.**

   Response:

   Major issues/questions would include the following:

   a. How will the projects be funded?
      i. State or local surcharges?
      ii. Project-by-project funding at the state or local level?
   b. Will Contribution in Aid of Construction taxes (gross-up tax) be applied?
   c. How will the projects be prioritized?
      i. Each utility performs certain % per year?
      ii. Each utility spends certain dollar value per year?
      iii. Govt agency prioritizes projects and provides funding?
   d. What is the time frame for meeting goal?
      i. Will financial resources be available to meet schedule?
      ii. Will physical resources (people and equipment) be available to meet schedule as well as normal new business and system improvement work?
   e. What is the scope of the overall project?
      i. What is the definition of "distribution" for the purposes of this project?
      ii. Is it defined by voltage level or purpose?
      iii. Is subtransmission included or excluded?
      iv. Who determines what facilities will be included?
      v. Is there an urban vs. rural division (see the first paragraph of HJR 153)?
      vi. If so, how will we determine what is urban?
         1. Customers/mile?
         2. Whole circuits or area-by-area division?
      vii. Does this include others attached to poles such as the telephone company and cable TV?
      viii. Should this be applied to all areas or only to those more susceptible to hurricanes.
   f. Will Virginia customers perceive that the benefit is worth the increased cost of electric service?
   g. Who will fund service entrance work and Right-of-Way acquisitions at customer's homes or businesses when required to complete the conversion?
      i. Customer-funded?
      ii. Government-funded?
      iii. Utility-funded? If so, what is the method of cost recovery?

2. Please describe the potential benefits to the public and utility companies associated with the undergrounding of overhead distribution lines.
Response:

Benefits

a. Extended outages on underground lines occur at a lower rate than on overhead lines and are not typically related to hurricanes or ice storms. On average, underground lines experience one third as many extended outages as overhead lines. (Extended outages as used here are outages lasting longer than 5 minute) Momentary outages (outages lasting less than 5 minutes) are virtually non-existent on underground lines.

b. Underground distribution facilities are less visually obtrusive to the public since all facilities are located underground out of site of the public (assuming submersible equipment). (With padmounted equipment, all conductors are submersible and the equipment is contained in low profile enclosures.)

c. Underground distribution facilities are less accessible to the public than overhead facilities, assuming the use of submersible equipment.

d. Lower O&M costs due to significantly reduced tree trimming expenses associated with underground equipment.

e. Less equipment is located along public roads reducing the chances of vehicle collisions with the distribution equipment.

f. Inadvertent contact with underground facilities is less likely and, therefore, presents some safety benefit to the public because of the insulation advantage of an underground system.

3. Please describe the potential negative impacts on the public and utility companies associated with the undergrounding of overhead distribution lines.

Response:

Negative Impacts:

a. Outage durations on underground systems are much longer than on overhead systems, typically underground outages are 5 to 6 times as long as overhead outages. In many areas, especially rural ones, feeder ties do not exist that would mitigate the longer outage times when they occur. Thus when an outage does occur (more likely possible in good weather times when customers are less tolerant of such occurrences, they will be out longer until repairs can be made.

b. Flood waters can cause serious damage to underground systems located in flooded areas.

c. Underground systems are more difficult to troubleshoot than overhead systems when there are system problems or outages. Locating and accessing underground vaults and manholes during winter is difficult with the ground covered with ice and snow. Underground manholes and vaults typically require water to be pumped out before troubleshooting and repairs begin. Additionally, preventative maintenance and inspection programs are more difficult to administer on underground systems since most of the facilities are buried and are not visible. Corrosion and water infiltration also become a much larger issue with the equipment. These operating problems add significant maintenance costs to operating an underground system. Increased environmental concerns in pumping water, etc. can exist.

d. Underground distribution systems are much more expensive to install than overhead systems. Typically underground systems cost 10 to 12 times as much to installed as overhead systems. This expense as well as the higher costs to repair this equipment would be passed on to the public either through higher electric rates or increased taxes.

e. Underground systems result in the placement of high voltage equipment (over 600V) at ground level within easy reach of the public (assuming padmounted equipment). There is a concern for vandalism, motor vehicle accidents and dig-ins.

f. The public will ultimately be required to fund an undergrounding program through higher taxes, higher rates, etc. Also, a sometimes overlooked expense associated with converting overhead facilities to underground is the cost existing overhead customers would incur to change their service entrance from overhead service to underground service.

g. Undergrounding existing facilities will subject customers and the general public to personal inconvenience during the construction and conversion process.

h. True benefits of reduced outage frequency only exist after entire circuits are placed underground since partial overhead circuits will still experience outages to customers for same reasons that they currently do. This significantly increase cost versus benefit especially in rural areas.

i. Underground lines have reduced current carrying capabilities for comparable size conductors due to reduced heat dissipation in the underground.

j. Replacement and repair of damaged conductors of underground are more difficult and more costly than repair and replacement of overhead lines.

k. In urban areas, where facilities are installed in the street areas because of lack of available space for such installations, the construction causes longer term disturbance to traffic flow, pedestrian traffic and general public access to these areas.

l. Underground systems are less flexible, so when things change (when new land is developed, for instance) it is more difficult and expensive to change circuit configurations or perform system upgrades when the circuits are underground.

m. Increased costs associated with other utility facilities that typically would occupy joint pole lines in the area. Either the other utilities (e.g. telephone, CATV, etc.) would also have to go underground at the same time, which adds additional costs, or, remain overhead and desired aesthetic benefits would not be realized.

n. Long-term durability of underground lines is generally less than that of counterpart overhead lines.

o. Other electrical devices such as capacitors, regulators, and reclosers would be cumbersome, expensive and aesthetically displeasing to install on underground systems.

4. Please describe in detail the potential obstacles associated with the implementation of a program to relocate overhead distribution lines to underground (for example, statutory, regulatory, technological, economic, safety, and physical obstacles).

Response:

a. Availability of manpower and equipment – A project of this scope would require a massive quantity of skilled personnel and equipment. This quantity of labor and equipment would likely not be available to complete the project in a timeframe that would result in realizing the desired benefits of the project. Also, such a demand on available construction labor and equipment would have the effect of driving up costs of this and other work. This includes engineering personnel required to design and coordinate the project, labor and equipment for trenching, and skilled personnel to locate other existing underground facilities to avoid dig-ins during conversions.

b. Cost of the project – The cost of the project (billions of dollars) would ultimately be born by taxpayers and/or utility customers. This could be a burden for many people.

c. Additional costs for changes to customer equipment – In addition to relocation of utility owned facilities, work will have to be performed on the service equipment of all utility customers who currently receive overhead service to accept underground service.

d. Difficult terrain – Installation of underground facilities is extremely difficult in mountainous terrain and other locations where rock is present in the ground. There will also be river and stream crossings to contend with. Physical barriers in high density areas would require facilities to be located in streets, sidewalks, and roadways, potential conflicting with other utilities

e. Litigation – Legal action may be required to secure the new rights-of-way for the installation of the new underground facilities.

f. Disruption of traffic flow – Traffic flows, particularly in urban areas, will be disrupted during the construction of this project.

g. Customer outages during construction – All customers will experience interruptions to service as the changeover to underground facilities is made. Some interruptions could be lengthy.

5. Please describe the process for identifying and securing right-of-way easements for the relocation of existing overhead distribution lines to underground. What property rights issues would be raised as a result?

Response:

a. The utility would need to acquire and record a new Right-of-Way Agreement from every property owner that we would need to convert from overhead to underground facilities. Estimated at approximately 55-60,000 customers. It will be extremely costly to perform this work.

b. Every new agreement would need to be specifically prepared for each property owner. All new Agreements would then need to be recorded in their respective counties at a cost between $22 and $32 per document.

c. If a customer did not want to sign a new agreement allowing us to place our facilities underground, the Company could not enter their property. This may require condemnation and court proceedings that would greatly inflate the price to underground facilities.

d. If a customer objects to the route or compensation, it could increase the cost, delay, or even prevent the completion of the project. The exercise of the right of eminent domain requires justification that the easement in question would be in the public interest.

e. Permits will also be required for railroad and highway crossings, environmental impact, and local municipalities in those specific areas where overhead facilities would be relocated underground.

6. In order or importance, list the criteria that should be considered to determine whether the implementation of a program to relocate overhead distribution lines to underground is desirable.

Response:

a. The scope of the project must be determined. What facilities will be subject to the program? What criteria is used to determine which facilities to include – voltage level; purpose; distribution only or distribution and subtransmission; urban vs rural? What provisions will be available for companies to exclude certain facilities where cost is prohibitive? Determining the scope will help to determine the overall cost and resource requirements for the program.

b. Once the scope is determined, and an estimated cost calculated, the benefit must be determined, in order to determine whether the benefit is worth the cost. Between catastrophic weather events, many customers (particularly those in areas that already have very high reliability) may not have a perceptible change in service quality, or the change will not be in line with the cost. This is critical in determining whether the proposed expenditures will produce increased or decreased customer satisfaction.

c. If the benefits are sufficient to justify the costs, then the method of funding the projects must be established, as well as a timeline for completion. How will funds be raised to pay for each project? Will the timeline be long enough to permit each company to complete the projects with reasonable use of its resources, while still completing all the normal work associated with new customers and system improvement? How will customers' service entrance conversions be funded? Will customers have the ability to opt out under certain circumstances?

d. How will projects be prioritized? What criteria will be used to determine which projects in which companies will be funded, on what schedule?

7. In order of preference, describe the potential options for funding the relocation of overhead distribution lines to underground and explain the basis of your recommendation.

Response:

a. Each locality should decide if they would like to move overhead lines underground. If a locality chooses to move overhead wires underground, then funding should come from imposing a special tax or surcharge on the areas that benefits from the undergrounding of existing overhead lines, either through the locality's tax structure (property tax, usage fees, etc.) or directing the regulatory authority to add such a surcharge on the locality's customers bills. The surcharge should provide to the locality both a return of and a return on the investment required by AP to remove overhead lines and install underground lines. Also, customer costs for changing out service entrances should be included as part of the costs of any conversion project. This is the preferred method of funding since the high costs of undergrounding lines would be borne solely by the people who benefit from the investment. However, if each locality is permitted to create its own rules and regulations, the State Assembly should reserve the right to assist/provide relief to the utilities should those rules and regulations be overly burdensome.

b. Another option, although not preferred, is for cost recovery through a surcharge levied on all customers of the utility. As part of the Virginia Electric Utility Restructuring Act retail rates in Virginia were unbundled in January 2002. The unbundled retail rates, with limited potential for increases, will likely remain capped through December 2010. One exclusion to capped rates that was enacted by the 2004 General Assembly allows the Commission to adjust capped rates for the recovery of the incremental costs incurred for T&D system reliability improvements. This would increase rates for all Virginia customers and would be less desirable than the first option mentioned above, since customers not

benefiting from the investment would be paying for it. Historically, this option was tried by AP and for the reasons stated, the public was much more upset for paying for something through the surcharge for which they received no direct benefit.

8. **Should one or more pilot programs be conducted to determine more precisely the benefits, costs and obstacles associated with the implementation of a program to relocate overhead distribution lines to underground? If pilot programs should be conducted, how could and should the pilot programs be funded?**

Response:

If the Commonwealth decides to proceed with this initiative, then a pilot program should be conducted and the results rigorously studied before a state-wide program is implemented. Programs should be conducted in different types of areas (coastline, urban, suburban, rural) in order to evaluate the different obstacles, barriers, costs, reliability improvement, and customer feedback. Pilot programs should be funded by appropriating funds via a grant to participating utilities or conducted in areas where local residents agree to pay for the cost of undergrounding.

9. **Considering the costs, benefits and obstacles associated with the implementation of an undergrounding program, should the General Assembly require utilities to place all or a portion of existing and/or new overhead distribution lines underground? Alternatively, should such decisions be left to local government? Please explain your answer.**

Response:

See AP's response to #7 and #11. Leaving this up to local government would allow the public of each locality to influence the decision process. Electric reliability may have different value in different localities. The voting public should be able to make this decision, although they must be made fully aware of the cost implications.

10. **What obstacles, if any, currently prevent a local government from enacting an ordinance establishing all or part of the locality as an area in which: (a) existing overhead utility distribution lines must be relocated underground over some period of time, and/or (b) all new utility distribution lines must be located underground?**

Response:

a. Allegheny Power is aware that in other states, the legislature has acted to empower local municipalities to require the underground placement of existing overhead utility lines in designated areas such as historic districts upon payment to the utility of the costs of underground relocation. Any such legislation must include adequate provisions to compensate the utility for the cost of placing facilities underground. Failure to include such a feature would appear to violate

the utility's due process rights. Additionally, provision needs to be made to fund the cost to customers of converting existing overhead service entrances to accommodate underground service.

b. Requiring new installation of lines would be a more feasible alternative, provided the utility companies would be fully reimbursed. The city of Winchester currently requires all new services, and primary extensions to go underground. Infrastructure improvements can go overhead since these cost cannot be recovered from a specific customer.

11. For the specific purpose of funding the undergrounding of existing overhead utility distribution lines, what obstacles, if any, currently prevent a local government from levying a special tax on the residents and businesses of an area within the locality in which the local government has enacted an ordinance requiring the undergrounding of utility distribution lines? Would such a special tax assessment require specific new authorization from the General Assembly?

Response:

To avoid possible questions concerning whether such action by a municipality is *ultra varies,* the better approach would be for the legislature to specifically empower municipalities to require under grounding of new and/or existing facilities and to enact special tax assessments to fund it.

12. Interested parties are invited also to address all other legal and policy issues they believe relevant to this investigation.

Response:

Allegheny Power has no additional comments.

13. Please indicate below your desired level of participation in the feasibility study.

☐ Placed on the distribution list for all correspondence.

☐ Considered as an active participant in the feasibility study. If you wish to be considered as an active participant, please complete the following:

Field of Expertise: Electric Utility
Organization: Allegheny Power

14. If you are interested in participating as an active participant, would you be willing to serve also as a member of a subgroup to identify, research, and analyze specific issues and provide written summaries of specific topics of study?

☐ Yes ☐ No

15. Please provide the following contact information:

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16. Do you plan on attending the kickoff meeting in Richmond (specific location to be announced later) scheduled for 9:30 a.m., Monday, August 16, 2004?

☐ Yes. Number of attendees representing your organization: 2
☐ No