

STATE OF VERMONT  
PUBLIC SERVICE BOARD

Docket No. 6044

Petition of Citizens Utilities Company for a )  
certificate of public good for the construction )  
of a three-phase 34.5 kV line between Island )  
Pond and Bloomfield, Vermont )

Hearing at  
Montpelier, Vermont  
February 19, 1999

Order entered: 7/27/99

PRESENT: Wayne L. Foster, Hearing Officer

APPEARANCES: Victoria J. Brown, Esq.  
Martin K. Miller, Esq.<sup>1</sup>  
Miller, Eggleston & Cramer, Ltd.  
for Citizens Utilities Company

Aaron Adler, Esq.  
Geoffrey Commons, Esq.<sup>2</sup>  
for Vermont Department of Public Service

N. Jonathan Peress, Esq.<sup>3</sup>  
for Vermont Agency of Natural Resources

**I. INTRODUCTION**

This case concerns a petition filed by Citizens Utilities Company ("Citizens") on December 12, 1997, requesting a certificate of public good ("CPG") pursuant to 30 V.S.A. § 248 for construction of a three-phase 34.5 kV line between Island Pond and Bloomfield, Vermont. The petition was filed pursuant to the Public Service Board ("Board") Order issued on June 16, 1997, in Docket Nos. 5841/5859 ("June 16 Order").

On May 12, 1998, a public hearing was held in Brighton, Vermont. Notice of the public hearing was sent to all parties and interested persons on April 22, 1998. In addition,

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1. Did not appear at the hearing.
  2. See Footnote 1.
  3. No Notice of Appearance filed and did not attend hearing.

notice of the public hearing was published in The Chronicle on April 22, 1998 and April 29, 1998. The public hearing was held as scheduled at the Brighton Municipal Hall, on Main Street in Brighton, Vermont.

On January 21, 1999, Citizens, the Vermont Department of Public Service ("DPS") and the Vermont Agency of Natural Resources ("ANR") submitted a Stipulation ("January 21 Stipulation" or "Exhibit Joint-1") in which the parties agreed that the Board should issue a CPG with conditions requiring Citizens to undertake certain actions and perform certain studies and analyses as described in the January 21 Stipulation. The January 21 Stipulation is conditioned on Board approval.

Notice of the technical hearing was sent on February 4, 1999, to all parties specified in 30 V.S.A. § 248 and all other interested parties. A technical hearing was held as scheduled on February 19, 1999, at 10:30 a.m. at the Public Service Board Hearing Room, Third Floor, Chittenden Bank Building, 112 State Street, Montpelier, Vermont. No one appeared in opposition to the petition and substantial evidence was presented in support of the petition.

## **II. FINDINGS**

Based on the substantial evidence of record and the testimony presented at the hearing, I hereby report the following findings to the Board in accordance with 30 V.S.A. § 8.

1. Citizens is a company as defined in 30 V.S.A. Section 201. Pet. at 1.
2. In its June 16 Order in Docket Nos. 5841/5859, the Board found that a CPG is required for the reconstruction of the three-phase line between Island Pond and Bloomfield, and ordered Citizens to apply for a CPG within 180 days of the June 16 Order. Board Order dated June 16, 1997, in Docket Nos. 5841/5859.
3. Citizens submitted a petition for a CPG on December 12, 1997, supported by prefiled testimony.
4. On January 21, 1999, Citizens, the Department and the ANR submitted a Stipulation which resolves all issues between the parties and sets forth the parties' agreement that the Board should issue a CPG with conditions requiring Citizens to undertake all actions and perform all studies, evaluations, and analyses required in the Stipulation. Exhibit Joint-1 at 5.
5. The subject project consists of the following:

- (1) The construction, already completed, of approximately 8.1 miles of 34.5 kV transmission line from the existing Island Pond Substation to a point east of the Wenlock Gap;
- (2) The construction, to be completed, of approximately 5.2 miles of 34.5 kV transmission line from the point at which the construction described in (1) above stopped to the intersection of Routes 105 and 102 in Bloomfield. The proposed construction will involve installing two conductors and a few necessary crossarms on the existing single phase 5.2 miles of line.
- (3) Modifications, to be completed, to the equipment at the Island Pond Substation to enable operation of the subject Island Pond to Bloomfield line at 34.5 kV. These proposed modifications consist of: (a) replacing the existing 1500 kVa single phase 46/19.9 kV transformer with a three phase 46/34.5 kV transformer, rated at 5/7.5 mva, or such rating as analysis subsequently shows is societally least-cost, (b) installing a three-phase 34.5 kV recloser, and (c) installing an additional 19.9 kV single phase regulator, resulting in three energized regulators.
- (4) Installation, to be completed, of an additional single phase 19.9/7.2 kV pole-mounted transformer.

Exh. Joint-1 at 1-2.

### **Orderly Development of the Region**

[30 V.S.A. § 248(b)(1)]

6. The subject project has not and will not unduly interfere with the orderly development of the region, with due consideration having been given to the recommendations of the municipal and regional planning commissions, the recommendations of municipal legislative bodies, and the land conservation measures contained in the plan of any affected municipality. This finding is supported by findings 7 through 9 below.

7. The subject project consists of typical 34.5 kV roadside distribution line construction found throughout Vermont and is located in a very rural area. The presence of the subject line

should not in any way affect development activities in the region. In fact, Citizens' proposal to enter into an interconnection agreement with Public Service Company of New Hampshire ("PSNH") to provide mutual back-up service should provide better and more reliable service to customers served in the region. Moreover, the subject 34.5 kV transmission line will provide greater reliability benefits to customers in the Bloomfield area even without an interconnection agreement with PSNH. Shlatz pf. at 11-12.

8. Citizens' consultant sent a letter on October 31, 1997, summarizing the subject project, to the following planning commissions: Northeastern Vermont Regional Planning Commission; Supervisor of Unorganized Towns and Gores (on behalf of the Town of Ferdinand); Town of Bloomfield Planning Board and Zoning Commission; Brighton Town Planning Board and Zoning Commission. On December 15, 1997, an identical letter was also sent to the Planning Board of Brunswick. Shlatz pf. at 12.

9. Citizens' consultant subsequently called the Towns of Brighton, Bloomfield, and the Supervisor of Unincorporated Towns and Gores (representing Ferdinand) and the Northeastern Vermont Regional Planning Commission. No objections to or concerns about the subject project were received by Citizens. Shlatz pf. at 12.

### **Need for Present and Future Demand for Service**

[30 V.S.A. § 248(b)(2)]

10. The subject project meets the need for present and future demand for service which could not otherwise be provided in a more cost-effective manner through energy conservation programs and measures and energy efficiency and load management measures. This finding is supported by findings 11 through 18 below.

11. Since 1988, when Citizens completed the existing Island Pond Substation and closed the gap in its system thereby connecting Island Pond with its eastern territory (which had been served from the east by PSNH), Citizens has investigated various ways to serve its customers in that territory. Shlatz pf. at 14-15.

12. Citizens' consultant considered the following six options in evaluating how best to serve this eastern portion of its territory: (1) resume service to its eastern territory from PSNH, with Citizens own single phase 7.2 kV line from the existing Island Pond Substation

extending only to Wenlock Gap (assumes the Wenlock Gap section of line is not built); (2) construct a single-phase 7.2 kV line from Island Pond to Bloomfield; (3) construct a single-phase 19.9 kV line from Island Pond to Bloomfield; (4) construct a three-phase 12.47 kV line from Island Pond to Bloomfield; (5) construct three lines operating at 19.9 kV from Island Pond to Bloomfield; and (6) construct a three-phase 34.5 kV line from Island Pond to Bloomfield with a new 46/34.5 kV power transformer at Island Pond. Shlatz pf. at 16.

13. Citizens' consultant identified Option 6 above as the best choice -- construct a 34.5 kV transmission line from Island Pond to Bloomfield. Construction of the subject three-phase 34.5 kV transmission line to Bloomfield would permit Citizens to pick up customers in Maidstone, Guildhall and Lemington (currently served by PSNH) from its existing North Stratford and Northumberland substations. Citizens has proposed to dedicate one phase of the subject 34.5 kV line to serve customers along Route 105, between the existing Island Pond Substation and the existing 19.9/7.2 kV stepdown transformer and regulator in Bloomfield. Beyond Bloomfield, the other two phases of the subject line would separately serve customers in Bloomfield and Lemington to the east and north, plus Guildhall and Maidstone to the south, respectively, at 7.2 kV. To do this, one new 19.9/7.2 kV transformer would need to be installed at Bloomfield. Shlatz pf. at 16-17.

14. Citizens has also proposed to create a three-phase tie (connection) to PSNH at North Stratford that would back up the entire subject 34.5 kV transmission line and other area load. The proposed tie would provide additional economic and reliability benefits to the area. (That proposed tie would be normally open, as the Citizens and PSNH systems operate asynchronously (not connected) when Citizens is fed from Hydro-Quebec.) Citizens is currently pursuing an interconnection agreement for this proposal with PSNH. Shlatz pf. at 17.

15. As the findings above indicate, one benefit of the subject project would be the ability to interconnect the Citizens system to the system of PSNH. However, to accomplish this proposed interconnection, it would be necessary for PSNH to convert approximately one-half mile of 12.47 kV distribution line in North Stratford, New Hampshire, to operate at 34.5 kV. This conversion has not yet occurred. Citizens proposes to make all good faith efforts to

achieve completion of this proposed interconnection and will report to the Board, every July 1 subsequent to a final Board order in this docket, on the status of such efforts. Exh. Joint-1 at 2.

16. Completing the subject line to operate at 34.5 kV will provide some additional benefits to Citizens' customers. Currently, the 46 kV transmission line that Citizens constructed in the late 1980's between West Charleston and Island Pond operates strictly as a radial facility, i.e., at the Island Pond end of the 46 kV line, there is no direct interconnection to other Citizens transmission lines or adjacent utility transmission systems to provide a backup to that line. The proposed 34.5 kV transmission facility between Island Pond and Bloomfield will provide the needed backup to that portion of Citizens' transmission system. Shlatz pf. at 17-18.

17. Further, Citizens in the next several years anticipates the need to replace deteriorated steel tower structures on the existing 46 kV transmission line between Derby and West Charleston. The steel towers were installed in the early 1920's. Replacement of these towers will be more costly and require a series of customer outages if backup service is unavailable. The subject 34.5 kV transmission line would be able to provide that backup service. Shlatz pf. at 18.

18. The subject 34.5 kV transmission line is a logical reinforcement of the transmission system Citizens built to Island Pond in 1984 and one that is necessary and consistent with prudent utility planning and design practices. Shlatz pf. at 18-19.

### **System Stability and Reliability**

[30 V.S.A. § 248(b)(3)]

19. The subject project will not adversely affect system stability and reliability. In fact, the project is designed to enhance stability and reliability. This finding is supported by findings 20-22 below.

20. The subject project will allow Citizens to carry existing and new load without violating voltage or line loading criteria. Also, if Citizens is successful in entering into an interconnection agreement with PSNH, the resulting creation of a permanent (but normally open) tie to PSNH at Bloomfield will provide important backup capability to the Island Pond,

West Charleston and Bloomfield areas in the event of planned or unscheduled outages. Such a tie will also allow Citizens to back up PSNH, if necessary. Schlutz pf. at 22.

21. As stated in finding #17, Citizens will need to replace obsolete and deteriorated 46 kV steel tower structures between Derby and West Charleston within the next five years or shortly thereafter. The cost and reliability impact (i.e., rolling outages to customers) of replacing these towers without a backup would likely be substantial. Schlutz pf. at 22-23.

22. System voltage performance and voltage stability are substantially improved as a result of the subject project. System stability with respect to generator performance will be unchanged. The types of changes made to the system by the subject project are so insignificant with regard to factors that influence generator performance, that no specific engineering analysis is required. Schlutz pf. at 23.

#### **Economic Benefit to the State**

[30 V.S.A. § 248(b)(4)]

23. The least-cost planning studies conducted by Citizens' consultant indicate the subject project is justified on the basis of least-cost integrated planning. Schlutz pf. at 23-28.

24. Construction of a three-phase 34.5 kV line between Island Pond and Bloomfield is integral to Citizens' long-term plan. Schlutz pf. at 23-28. See findings 10-18 above.

#### **Aesthetics, Historic Sites, Air and Water Purity, the Natural Environment and Public**

##### **Health and Safety**

[30 V.S.A. § 248(b)(5)]

25. The subject project will not have an undue adverse effect on aesthetics, historic sites, air and water purity, the natural environment and the public health and safety. This finding is supported by findings 26 through 52 below, which are based on the criteria specified in 10 V.S.A. § § 1424(d) and 6086(a)(1) through (8), (8)(A) and (9)(K).

#### **Outstanding Resource Waters**

[10 V.S.A. § 1424a(d)]

26. The subject project as built and proposed does not involve a facility affecting or located on any segment of water designated an outstanding resource water resource. Shlatz pf. at 31-32.

**Water and Air Pollution**

[10 V.S.A. § 6086(a)(1)]

27. The subject project has not and will not result in undue air pollution. There are no incremental impacts to air quality from the subject transmission line, and there are no areas of dust from exposure of soils. Any impacts associated with this criterion would be minor, temporary in nature, and associated with construction. The completion of the final segment of the subject line is not anticipated to create any air pollution concerns. Countryman pf. at 3.

28. As to water pollution and water quality, the subject project does not add any source of water pollution or create any potential water pollution hazard for any part of the route, and there should be no impacts from the completion of the proposed line construction. Countryman pf. at 3.

**Headwaters**

[10 V.S.A. § 6086(a)(1)(A)]

29. The subject project does not encounter any head water streams between Island Pond and Bloomfield, therefore, there are no impacts to this resource resulting from construction of the subject project. Countryman pf. at 3.

**Waste Disposal**

[10 V.S.A. § 6086(a)(1)(B)]

30. The subject facility does not produce waste requiring disposal. Countryman pf. at 4.

31. Should it occur, Citizens will promptly remediate any contamination from oil or other hazardous substances at the site of the subject project. Exhibit Joint-1 at 4.

**Water Conservation**

[10 V.S.A. § 6086(a)(1)(C)]

32. There is no requirement for water use at the subject project site. Countryman pf. at 4.

**Floodways**

[10 V.S.A. § 6086(a)(1)(D)]

33. The subject transmission line follows closely the route of state highway 105, occasionally in close proximity to the Nulhegan River and its associated wetlands. Since no fill material is or will be used, any structures located in areas that store flood waters or serve to attenuate high flows will not impede this function, nor will they serve to increase water levels in any way. Hence, there are no impacts to this resource. Countryman pf. at 4.

**Streams**

[10 V.S.A. § 6086(a)(1)(E)]

34. Numerous streams are associated with the subject project, principally the Nulhegan River and its tributaries. The subject transmission line spans these features, however, and has no impact on them. Near the Boylan Airport, the subject line formerly crossed a large wetland south of the highway and rejoined Route 105 along the right-of-way next to a local roadway; relocation of the subject line along Route 105 has removed potentially damaging structures and line from the wetland and associated stream. Countryman pf. at 4.

**Shorelines**

[10 V.S.A. § 6086(a)(1)(F)]

35. The shores of Island Pond and Spectacle Pond lie to the west/southwest of the subject powerline corridor just south of Island Pond village; however, the section of the subject line under consideration begins at the existing Island Pond Substation which is several hundred feet from Spectacle Pond, separated by a highway, an industrial facility, a railroad corridor and forest. The subject line has no impact on shorelines of this or any other water body. Countryman pf. at 5.

**Wetlands**

[10 V.S.A. § 6086(a)(1)(G)]

36. No adverse impacts have been identified concerning any wetlands associated with the subject project. Countryman pf. at 4.

**Sufficiency of Water and Burden  
on Existing Water Supply**

[10 V.S.A. §§ 6086(a)(2) and (3)]

37. There is no requirement at the subject site for a water supply. Countryman pf. at 5.

**Soil Erosion**

[10 V.S.A. § 6086(a)(4)]

38. Because the subject project utilizes existing rights-of-way, there will not be any undue adverse impacts to the capacity of the land to hold water. Countryman pf. at 5.

**Traffic**

[10 V.S.A. § 6086(a)(5)]

39. There are no current impacts associated with traffic. Citizens' work in completing the subject line should not have any significant impact on traffic or highway congestion. Ongoing operation and maintenance of the subject line does not contribute to traffic congestion on Vermont Route 105 or any of the other rural roadways which it passes. Countryman pf. at 5-6.

By permit condition, Citizens' will be required to obtain necessary permits from the Agency of Transportation for the line relocation in the vicinity of the Wenlock crossing on Route 105.

**Educational Services**

[10 V.S.A. § 6086(a)(6)]

40. The subject facility exerts no demands on educational services. Countryman pf. at 6.

**Municipal Services**

[10 V.S.A. § 6086(a)(7)]

41. The subject facility exerts no demands on municipal services. Countryman pf. at 6.

**Aesthetics, Historic Sites or Rare  
And Irreplaceable Natural Areas**

[10 V.S.A. § 6086(a)(8)]

42. The subject project has not had and will not have an undue adverse effect on the scenic and natural beauty of the areas, aesthetics, historic sites, or rare and irreparable natural areas. This finding is supported by findings 43 to 50 below.

43. The proposed construction of a 34.5 kV transmission line between Island Pond and Bloomfield along the Route 105 corridor is not adverse because the difference in insulator size, spacing, line diameter and cross arm construction is negligible when compared with the single-phase line which existed previously (and in one section still exists) along the highway. In the setting of a roadside line, the addition of cross arms and two conductors to a preexisting single-phase line is not a significant change. Boyle pf. at 5.

44. No written community standard for aesthetics exists. The subject line as built or proposed is within the visual vocabulary of the average person and is not shocking or offensive. The subject line is like most roadside lines throughout the state. The visual impacts have been mitigated and reduced to a reasonable extent by the efficient selection and arrangement of the materials used to do the job. Boyle pf. at 6.

45. The subject project contains a section, running along Route 105 near the so-called Wenlock Wildlife Management Area, in which the subject line criss-crosses over Route 105 for a significant distance. Citizens constructed this section of the subject project in this manner at the behest of the ANR in order to minimize impact on wildlife habitat. However, the DPS and the ANR have concluded that this section of the subject project does have an undue adverse effect on the aesthetics and scenic beauty of the area in which it is located, and Citizens has agreed to undertake appropriate measures with respect to aesthetic mitigation in the Wenlock area. Exh. Joint-1 at 2-3.

46. The parties in this docket have agreed that the appropriate aesthetic mitigation measures in the Wenlock area consist of moving five poles near Wenlock Crossing on Route 105 in Ferdinand, thereby eliminating ten separate wire crossings in order to improve the visual impact of the subject project. Exh. Joint-1 at Exh. A.

47. The proposed relocations can be accomplished without cutting mature trees and with minimal trimming, except that one large pine tree between poles 38 and 39 may require removal to effect the proposed relocation. Citizens may remove this particular tree if the proposed relocation proves impossible with trimming only. Should further cutting be required due to unanticipated conditions in the field, Citizens will obtain the concurrence of the DPS and the ANR prior to undertaking such cutting. Any dispute concerning such cutting will be resolved by the Board. Exh. Joint-1 at 3.

48. Citizens will complete the proposed pole relocations by September 1, 1999. The rest of the subject project will be completed by December 31, 2000. Exh. Joint-1 at 3.

49. Because the subject line is located on the highway shoulders, no additional clearing is required, and because it is not located near any rare and irreplaceable natural areas, it does not represent a threat or impact on such areas. Countryman pf. at 6-9.

50. Citizens is not aware of any known historic sites which are impacted by the subject facility. Boyle pf. at 6.

**Necessary Wildlife Habitat and  
Endangered Species**

[10 V.S.A. § 6086(a)(8)(A)]

51. The subject project does not pose a threat to any endangered species or necessary wildlife habitat. Countryman pf. at 6-8.

**Public Health and Safety**

[30 V.S.A. § 248(b)(5)]

52. The subject facility was constructed in accordance with the requirements of the National Electrical Safety Code. Public Service Board Rule No. 3.500.

**Development Affecting Public Investments**

[10 V.S.A. § 6086(a)(9)(K)]

53. Since the subject facility will supply more reliable power for homes and farms in the area, the subject project will have a positive impact upon this criteria. Boyle pf. at 7.

**Consistency with Resource Selection****Integrated Resource Plan**

[30 V.S.A. § 248(b)(6)]

54. The subject project is consistent with Citizens' least-cost integrated resource plan ("IRP"). In evaluating the subject project, Citizens' consultant used the same data, assumptions, cost projections and methodology utilized in Citizen's 1997 IRP. The IRP supports the subject project. Schlatz pf. at 23-29; Exh. CUC-ELS-5.

**Compliance With Electric Energy Plan**

[30 V.S.A. § 248(b)(7)]

55. The subject facility is consistent with the Vermont Twenty-Year Electric Plan. Schlatz pf. at 29-30. The DPS has determined, in a letter dated February 18, 1999, that the subject facility is consistent with the Vermont Twenty-Year Electric Plan in accordance with 30 V.S.A. § 202(f), provided that Citizens complies with the terms contained in the stipulation between the DPS, ANR and Citizens that was filed with the Board on January 21, 1999, in this docket.

**Outstanding Water Resources**

[30 V.S.A. § 248(b)(8)]

56. The subject project does not involve a facility affecting or located on any segment of water designated an outstanding water resource. Schlatz pf. at 30.

**Existing or Planned Transmission Facilities**

[30 V.S.A. § 248(b)(10)]

57. The existing facilities were unable to serve the load in a manner that would provide acceptable voltage to the customer. Of the options considered, the subject project was prudent and the most cost-effective choice. Schlatz pf. at 31.

**III. CONCLUSIONS**

Based upon all the above evidence, the 34.5 kV transmission line between Island Pond and Bloomfield, Vermont:

- (a) will not unduly interfere with the orderly development of the region with due consideration having been given to the recommendations of the municipal and

regional planning commissions, and the recommendations of the municipal legislative bodies;

- (b) is required to meet the need for present and future demand for service which could not otherwise be provided in a more cost-effective manner through energy conservation programs and measures and energy-efficiency and land management measures;
- (c) will not adversely affect system stability and reliability;
- (d) will result in an economic benefit to the state and its residents;
- (e) will not have an undue adverse effect on aesthetics, historic sites, air and water purity, the natural environment and the public health and safety, with due consideration having been given to the criteria specified in 10 V.S.A. § 1424a(d) and §§ 6086(a)(1) through (8) and (9)(K);
- (f) is consistent with the principles for resource selection expressed by Citizens' least-cost integrated resource plan;
- (g) is in compliance with the electric energy plan approved by the DPS under § 202 of Title 30 V.S.A.;
- (h) does not involve a facility affecting or located on any segment of the waters of the State that has been designated as outstanding resource waters by the Water Resources Board; and
- (i) can be served economically by existing or planned transmission facilities without undue adverse effect on Vermont utilities or customers.

To the extent these findings are inconsistent with any proposed findings, such proposed findings are denied.

The parties have waived the opportunity to comment on this Proposal for Decision in accordance with 3 V.S.A. § 811.

DATED at Montpelier, Vermont, this 16<sup>th</sup> day of July, 1999.

s/ Wayne L. Foster  
Wayne L. Foster

Hearing Officer

**ORDER**

IT IS HEREBY ORDERED, ADJUDGED AND DECREED by the Public Service Board of the State of Vermont that:

1. The construction of a 34.5 kV line between Island Pond and Bloomfield, Vermont, by Citizens Utilities Company, in accordance with the evidence and plans submitted in this proceeding, will promote the general good of the State of Vermont, in accordance with 30 V.S.A. § 248, and a certificate of public good to that effect shall be issued in this matter.

2. The Stipulation, filed by Citizens Utilities Company, the Vermont Department of Public Service and the Agency of Natural Resources on January 21, 1999, concerning the 34.5 kV transmission facility is accepted and approved.

DATED at Montpelier, Vermont, this 27<sup>th</sup> day of July, 1999.

s/ Michael H. Dworkin	)	
	)	
	)	PUBLIC SERVICE
	)	
s/ Suzanne D. Rude	)	
	)	BOARD
	)	
	)	OF VERMONT
s/ David C. Coen	)	

OFFICE OF THE CLERK

Filed: July 27, 1999

Attest: s/ Susan M. Hudson  
Clerk of the Board

*NOTICE TO READERS: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Board of any technical errors, in order that any necessary corrections may be made.*

*Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Board within thirty days. Appeal will not stay the effect of this Order, absent further Order by this Board or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Board within ten days of the date of this decision and order.*