Generation Interconnection Feasibility Study Report

For

PJM Generation Interconnection Request Queue Position AC1-050

"Mardela 12kV"

March 2017

Preface

The intent of the Feasibility Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by the Interconnection Customer. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system. All facilities required for interconnection of a generation interconnection project must be designed to meet the technical specifications (on PJM web site) for the appropriate transmission owner.

In some instances an Interconnection Customer may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection or merchant transmission upgrade, may also contribute to the need for the same network reinforcement. The possibility of sharing the reinforcement costs with other projects may be identified in the Feasibility Study, but the actual allocation will be deferred until the System Impact Study is performed.

Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The Interconnection Customer may be responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs may be included in the study.

PJM utilizes manufacturer models to ensure the performance of turbines is properly captured during the simulations performed for stability verification. Turbine manufacturers provide such models to their customers. The list of manufacturer models PJM has already validated is contained in Attachment G-2 of Manual 14A. Manufacturer models may be updated from time to time, for various reasons such as to reflect changes to the control systems or to more accurately represent the capabilities turbines and controls which are currently available in the field. Additionally, as new turbine models are developed, turbine manufacturers provide such new models which must be used in the conduct of these studies. PJM needs adequate time to evaluate the new models in order to reduce delays to the System Impact Study process timeline for the Interconnection Customer as well as other Interconnection Customers in the study group. Therefore, PJM will require that any Interconnection Customer with a new manufacturer model must supply that model to PJM, along with a $10,000 fully refundable deposit, no later than three (3) months prior to the starting date of the System Impact Study (See Section 2.2.2. of Manual 14A for starting dates) for the Interconnection Request which shall specify the use of the new model. The Interconnection Customer will be required to submit a completed dynamic model study request form (Attachment G-1 of Manual 14A) in order to document the request for the study.

General

The Interconnection Customer (IC), has proposed a 5 MW (1.9 MWC) solar generating facility to be located in Wicomico County, Maryland. PJM studied AC1-050 as a 5 MW (Capacity 1.9 MW) injection into the Delmarva Power and Light Company (DPL) system at the Mardela 69kV Substation and evaluated it for compliance with reliability criteria for summer peak conditions in 2020. The planned in-service date, as requested by the IC during the project kick-off call, is May 1, 2018.

Point of Interconnection

The Interconnection Customer requested a distribution level interconnection. Distribution facilities in the area of the AC1-050 project are owned by the Choptank Electric Cooperative (CEC). As a result, AC1-050 will interconnect with the CEC system at the Mardela Substation. The DPL system feeds the Mardela Substation (see Attachment 1).

Transmission Owner Scope of Attachment Facility Work

There is no DPL Attachment Facility work required for the AC1-050 project. The IC must contact CEC for the work scope and schedule.

Interconnection Customer Scope of Work

The Interconnection Customer assumes full responsibility for design and construction of all facilities associated with the AC1-50 generating station and the direct connection line on the IC side of the Point of Interconnection.

Revenue metering specifications will be established by CEC. The IC will be required to install metering and telemetry equipment to provide revenue metering and real-time telemetry data to PJM. The requirements for this equipment are listed in Appendix 2, Section 8 of Attachment O to the PJM Tariff, as well as PJM Manuals 01 and 14D.

It is the IC's responsibility to send the data that PJM and DPL requires directly to PJM. The IC will grant permission for PJM to send DPL the following telemetry that the IC sends to PJM: real time MW, MVAR, volts, amperes, generator status, and interval MWH and MVARH.

Transmission Network Impacts

Potential transmission network impacts are as follows:

Contingency Descriptions:

The following contingencies resulted in overloads:

Contingency Name	Description
DP6	CONTINGENCY 'DP6' /*MILFORD BUS BREAKER TO STEELE DISCONNECT BRANCH FROM BUS 232000 TO BUS 232004 CKT 1 /*MILFORD STEELE 230 230 DISCONNECT BRANCH FROM BUS 232009 TO BUS 232004 CKT 1 /*MAGNOLIA MILFORD 230 230 END
DP11	CONTINGENCY 'DP11' /*STEELE BUS BREAKER TO MILFORD DISCONNECT BRANCH FROM BUS 232004 TO BUS 232000 CKT 1 /*MILFORD STEELE 230 230 DISCONNECT BRANCH FROM BUS 232000 TO BUS 232005 CKT 1 /*STEELE VIENNA 230 230 END
DP34	CONTINGENCY 'DP34' /*COOL SPRINGS BUS BREAKER TO MILFORD DISCONNECT BRANCH FROM BUS 232001 TO BUS 232004 CKT 1 /*COOL SPRINGS INDRIV 4 230 230 DISCONNECT BRANCH FROM BUS 232001 TO BUS 232269 CKT 1 /*COOL SPRINGS 230 138 END
DP35	CONTINGENCY 'DP35' /*COOL SPRINGS BUS BREAKER TO IR DISCONNECT BRANCH FROM BUS 232001 TO BUS 232006 CKT 1 /*COOL SPRINGS INDRIV 4 230 230 DISCONNECT BRANCH FROM BUS 232001 TO BUS 232269 CKT 1 /*COOL SPRINGS 230 138 END
DP36	CONTINGENCY 'DP36' /*COOL SPRINGS BUS BREAKER TO IR 2 DISCONNECT BRANCH FROM BUS 232001 TO BUS 232006 CKT 1 /*COOL SPRINGS INDRIV 4 230 230 DISCONNECT BRANCH FROM BUS 232001 TO BUS 232004 CKT 1 /*COOL SPRINGS MILFORD 230 230 END

COOLSPG AT20	CONTINGENCY 'COOLSPG AT20' OPEN LINE FROM BUS 232001 TO BUS 232269 CIRCUIT 1 /COOL SPRINGS AT20 230/69 END
LORETO AT1&2	CONTINGENCY 'LORETO AT1&2' OPEN LINE FROM BUS 232127 TO BUS 232275 CIRCUIT 1 /LORETTO AT1 138/69 OPEN LINE FROM BUS 232127 TO BUS 232275 CIRCUIT 2 /LORETTO AT2 138/69 END

Summer Peak Analysis - 2020

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

Multiple Facility Contingency

(Double Circuit Tower Line contingencies were studied for the full energy output. The contingencies of Line with Failed Breaker and Bus Fault will be performed for the Impact Study.)

None

Short Circuit

(Summary of impacted circuit breakers)

No issues identified.

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

#	Contingency				Bus				Loading %		Rating		MW	
	Type	Name	Affected Area	Facility Description	From	To	Circuit	Power Flow	Initial	Final	Type	MVA	Contribution	Ref
1	LFFB	DP11	DP&L - DP&L	PRESTON-TANYARD 69 kV line	232233	232821	1	DC	126.05	127.06	ER	93	0.93	1
2	LFFB	DP11	DP&L - DP&L	TODD-PRESTON 69 kV line	232234	232233	1	DC	132.07	133.08	ER	93	0.93	2
3	LFFB	DP6	DP&L - DP&L	SHARPTWN-W1-070TAP1 69 kV line	232239	901490	1	DC	114.22	114.73	ER	43	0.49	3
4	LFFB	DP34	DP&L - DP&L	SHARPTWN-W1-070TAP1 69 kV line	232239	901490	1	DC	109.78	110.98	ER	43	0.51	
5	LFFB	DP36	DP&L - DP&L	SHARPTWN-W1-070TAP1 69 kV line	232239	901490	1	DC	109.78	110.98	ER	43	0.51	
6	LFFB	DP35	DP&L - DP&L	SHARPTWN-W1-070TAP1 69 kV line	232239	901490	1	DC	109.78	110.98	ER	43	0.51	
7	LFFB	DP6	DP&L - DP&L	W1-070TAP1-LAUREL 69 kV line	901490	232249	1	DC	113.99	114.50	ER	43	0.49	4
8	LFFB	DP34	DP&L - DP&L	W1-070TAP1-LAUREL 69 kV line	901490	232249	1	DC	109.32	110.51	ER	43	0.51	
9	LFFB	DP35	DP&L - DP&L	W1-070TAP1-LAUREL 69 kV line	901490	232249	1	DC	109.32	110.51	ER	43	0.51	
10	LFFB	DP36	DP&L - DP&L	W1-070TAP1-LAUREL 69 kV line	901490	232249	1	DC	109.32	110.51	ER	43	0.51	

Steady-State Voltage Requirements

(Summary of the VAR requirements based upon the results of the steady-state voltage studies)

To be determined during the Impact Study.

Stability and Reactive Power Requirement for Low Voltage Ride Through

(Summary of the VAR requirements based upon the results of the dynamic studies)

To be determined during Impact Study.

Summer Peak Load Flow Analysis Reinforcements

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)

None

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

Violation #	Overloaded Facility	Upgrade Description	Network Upgrade Number	Upgrade Cost
1	PRESTON-TANYARD 69 kV line	In order to mitigate the overloads of facilities above, the following reinforcements are required: Replacement of a disconnect switch at Preston Substation. The estimated schedule duration is **1 year a**nd the estimated cost is **$36,000**	TBD	**$ 36,000**
2	TODD-PRESTON 69 kV line	In order to mitigate the overloads of facilities above, the following reinforcements are required: Substation reinforcements at Preston Substation and Todd Substation. The estimated schedule duration is **1 year a**nd the estimated cost is **$67,000.**	TBD	**$ 67,000**
3 - 6	SHARPTWN-W1-070TAP1 69 kV line	In order to mitigate the overloads of facilities above, the following reinforcements are required: Rebuild of the Laurel to Sharptown 69 kV transmission line. The estimated schedule duration is **3 years a**nd the estimated cost is **$11,679,000.**	TBD	**$ 11,679,000**
7 - 10	W1-070TAP1-LAUREL 69 kV line	In order to mitigate the overloads of facilities above, the following reinforcements are required: Rebuild of the Laurel to Sharptown 69 kV transmission line. The estimated schedule duration is **3 years a**nd the estimated cost is **$11,679,000.**	TBD	**$ 11,679,000**

Light Load Analysis -2020

Light Load Studies to be conducted during later study phases (as required by PJM Manual 14B).

Facilities Study Estimate

(If a Facilities Study is required, provide the estimated duration and cost estimate to perform Facilities Study)

7 months; $50,000

Delivery of Energy Portion of Interconnection Request

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Only the most severely overloaded conditions are listed. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed, which will study all overload conditions associated with the overloaded element(s) identified.

#	Contingency				Bus				Loading %		Rating		MW
	Type	Name	Affected Area	Facility Description	From	To	Circuit	Power Flow	Initial	Final	Type	MVA	Contribution
11	LFFB	COOLSPG AT20	DP&L - DP&L	SHARPTWN-W1-070TAP1 69 kV line	232239	901490	1	DC	107.62	108.83	ER	43	0.52
12	LFFB	'LORETO AT1&2'	DP&L - DP&L	ROCKAWLKN-NSALSBRY 69 kV	232291	232271	1	DC	128.02	131.42	ER	58	1.97
13	LFFB	COOLSPG AT20	DP&L - DP&L	W1-070TAP1-LAUREL 69 kV line	901490	232249	1	DC	107.39	108.6	ER	43	0.52

Appendices

The following appendices contain additional information about each flowgate presented in the body of the report. For each appendix, a description of the flowgate and its contingency was included for convenience. However, the intent of the appendix section is to provide more information on which projects/generators have contributions to the flowgate in question. Although this information is not used "as is" for cost allocation purposes, it can be used to gage other generators impact.
It should be noted the generator contributions presented in the appendices sections are full contributions, whereas in the body of the report, those contributions take into consideration the commercial probability of each project.

Appendix 1

(DP&L - DP&L) The PRESTON-TANYARD 69 kV line (from bus 232233 to bus 232821 ckt 1) loads from 126.05% to 127.06% (**DC power flow**) of its emergency rating (93 MVA) for the line fault with failed breaker contingency outage of 'DP11'. This project contributes approximately 0.93 MW to the thermal violation.

CONTINGENCY 'DP11' /*STEELE BUS BREAKER TO MILFORD
DISCONNECT BRANCH FROM BUS 232004 TO BUS 232000 CKT 1 /*MILFORD STEELE 230 230
DISCONNECT BRANCH FROM BUS 232000 TO BUS 232005 CKT 1 /*STEELE VIENNA 230 230
END

Bus Number	Bus Name	Full Contribution
232926	*CRISFLD1*	*0.23*
293670	*O-025 C*	*0.15*
297076	*V2-028 C*	*0.1*
297077	*V2-028 E*	*0.81*
904212	*V4-022E*	*0.36*
232919	*VN10*	*0.6*
232907	*VN8*	*4.35*
901003	*W1-003 C*	*0.07*
901004	*W1-003 E*	*0.52*
901013	*W1-004 C*	*0.07*
901014	*W1-004 E*	*0.52*
901023	*W1-005 C*	*0.07*
901024	*W1-005 E*	*0.52*
901033	*W1-006 C*	*< 0.01*
901034	*W1-006 E*	*0.52*
907052	*X1-032 E*	*0.47*
907323	*X1-096 C*	*0.45*
907324	*X1-096 E*	*11.19*
910571	*X3-008 C*	*0.56*
910572	*X3-008 E*	*4.78*
910591	*X3-015 C*	*0.4*
910592	*X3-015 E*	*3.43*
913411	*Y1-080 C*	*0.07*
913412	*Y1-080 E*	*0.56*
915541	*Y3-058 C*	*0.17*
915542	*Y3-058 E*	*1.43*
920582	*Z1-076 C*	*0.61*
920583	*Z1-076 E*	*1.*
920592	*Z1-077 C*	*0.44*
920593	*Z1-077 E*	*0.71*
916441	*Z1-100*	*0.09*
916451	*Z1-101*	*0.09*

916461	*Z1-102*	*0.09*
920602	*Z1-103*	*0.09*
917082	*Z2-012 E*	*1.42*
920763	*Z2-076 E*	*0.18*
920773	*Z2-077 E*	*0.18*
920952	*AA1-025*	*0.08*
920962	*AA1-026*	*0.08*
920972	*AA1-027*	*0.08*
920982	*AA1-028*	*0.08*
921122	*AA1-059 C*	*0.52*
921123	*AA1-059 E*	*0.2*
921142	*AA1-061 C*	*4.87*
921143	*AA1-061 E*	*2.4*
918831	*AA1-102*	*0.87*
921592	*AA1-140 C*	*0.67*
921593	*AA1-140 E*	*1.1*
921602	*AA1-141 C*	*0.65*
921603	*AA1-141 E*	*1.07*
922213	*AA2-129 E*	*2.29*
922222	*AA2-130*	*0.24*
922752	*AB1-056 C OP*	*4.91*
922753	*AB1-056 E OP*	*13.99*
922762	*AB1-057 C*	*4.99*
922763	*AB1-057 E*	*14.22*
923282	*AB1-137 C*	*1.14*
923283	*AB1-137 E*	*0.49*
923902	*AB2-030 E*	*0.46*
923931	*AB2-033 C*	*0.82*
923932	*AB2-033 E*	*0.33*
924361	*AB2-084 C*	*0.45*
924362	*AB2-084 E*	*0.73*
924681	*AB2-120 C OP*	*4.32*
924682	*AB2-120 E OP*	*7.05*
924781	*AB2-130 C OP*	*4.57*
924782	*AB2-130 E OP*	*7.45*
924831	*AB2-136 C OP*	*7.47*
924832	*AB2-136 E OP*	*10.6*
925091	*AB2-166 C*	*0.26*
925092	*AB2-166 E*	*0.45*
925101	*AB2-167 C*	*0.61*
925102	*AB2-167 E*	*1.*
925151	*AB2-172 C OP*	*7.33*
925152	*AB2-172 E OP*	*11.95*
925231	*AB2-177 C*	*0.29*
925232	*AB2-177 E*	*0.47*
925261	*AB2-180 C*	*2.15*
925262	*AB2-180 E*	*0.92*
925381	*AC1-009 C*	*0.87*

925382	*AC1-009 E*	*1.42*
925531	*AC1-028*	*0.51*
925651	*AC1-041 C*	*0.22*
925652	*AC1-041 E*	*0.36*
925731	*AC1-049 C*	*0.13*
925732	*AC1-049 E*	*0.22*
925741	*AC1-050 C*	*0.35*
925742	*AC1-050 E*	*0.58*
925761	*AC1-052 C*	*1.15*
925762	*AC1-052 E*	*0.46*

Appendix 2

(DP&L - DP&L) The TODD-PRESTON 69 kV line (from bus 232234 to bus 232233 ckt 1) loads from 132.07% to 133.08% (**DC power flow**) of its emergency rating (93 MVA) for the line fault with failed breaker contingency outage of 'DP11'. This project contributes approximately 0.93 MW to the thermal violation.

CONTINGENCY 'DP11' /*STEELE BUS BREAKER TO MILFORD
DISCONNECT BRANCH FROM BUS 232004 TO BUS 232000 CKT 1 /*MILFORD STEELE 230 230
DISCONNECT BRANCH FROM BUS 232000 TO BUS 232005 CKT 1 /*STEELE VIENNA 230 230
END

Bus Number	*Bus Name*	*Full Contribution*
232926	*CRISFLD1*	*0.23*
293670	*O-025 C*	*0.15*
297076	*V2-028 C*	*0.1*
297077	*V2-028 E*	*0.81*
904212	*V4-022E*	*0.36*
232919	*VN10*	*0.6*
232907	*VN8*	*4.35*
901003	*W1-003 C*	*0.07*
901004	*W1-003 E*	*0.52*
901013	*W1-004 C*	*0.07*
901014	*W1-004 E*	*0.52*
901023	*W1-005 C*	*0.07*
901024	*W1-005 E*	*0.52*
901033	*W1-006 C*	*< 0.01*
901034	*W1-006 E*	*0.52*
907052	*X1-032 E*	*0.47*
907323	*X1-096 C*	*0.45*
907324	*X1-096 E*	*11.19*
910571	*X3-008 C*	*0.56*
910572	*X3-008 E*	*4.78*
910591	*X3-015 C*	*0.4*
910592	*X3-015 E*	*3.43*
913411	*Y1-080 C*	*0.07*
913412	*Y1-080 E*	*0.56*
915541	*Y3-058 C*	*0.17*
915542	*Y3-058 E*	*1.43*
920582	*Z1-076 C*	*0.61*
920583	*Z1-076 E*	*1.*
920592	*Z1-077 C*	*0.44*
920593	*Z1-077 E*	*0.71*
916441	*Z1-100*	*0.09*
916451	*Z1-101*	*0.09*
916461	*Z1-102*	*0.09*
920602	*Z1-103*	*0.09*
917082	*Z2-012 E*	*1.42*
920763	*Z2-076 E*	*0.18*
920773	*Z2-077 E*	*0.18*

920952	*AA1-025*	*0.08*
920962	*AA1-026*	*0.08*
920972	*AA1-027*	*0.08*
920982	*AA1-028*	*0.08*
921122	*AA1-059 C*	*0.52*
921123	*AA1-059 E*	*0.2*
921142	*AA1-061 C*	*4.87*
921143	*AA1-061 E*	*2.4*
918831	*AA1-102*	*0.87*
921592	*AA1-140 C*	*0.67*
921593	*AA1-140 E*	*1.1*
921602	*AA1-141 C*	*0.65*
921603	*AA1-141 E*	*1.07*
922213	*AA2-129 E*	*2.29*
922222	*AA2-130*	*0.24*
922752	*AB1-056 C OP*	*4.91*
922753	*AB1-056 E OP*	*13.99*
922762	*AB1-057 C*	*4.99*
922763	*AB1-057 E*	*14.22*
923282	*AB1-137 C*	*1.14*
923283	*AB1-137 E*	*0.49*
923902	*AB2-030 E*	*0.46*
923931	*AB2-033 C*	*0.82*
923932	*AB2-033 E*	*0.33*
924361	*AB2-084 C*	*0.45*
924362	*AB2-084 E*	*0.73*
924681	*AB2-120 C OP*	*4.32*
924682	*AB2-120 E OP*	*7.05*
924781	*AB2-130 C OP*	*4.57*
924782	*AB2-130 E OP*	*7.45*
924831	*AB2-136 C OP*	*7.47*
924832	*AB2-136 E OP*	*10.6*
925091	*AB2-166 C*	*0.26*
925092	*AB2-166 E*	*0.45*
925101	*AB2-167 C*	*0.61*
925102	*AB2-167 E*	*1.*
925151	*AB2-172 C OP*	*7.33*
925152	*AB2-172 E OP*	*11.95*
925231	*AB2-177 C*	*0.29*
925232	*AB2-177 E*	*0.47*
925261	*AB2-180 C*	*2.15*
925262	*AB2-180 E*	*0.92*
925381	*AC1-009 C*	*0.87*
925382	*AC1-009 E*	*1.42*
925531	*AC1-028*	*0.51*
925651	*AC1-041 C*	*0.22*
925652	*AC1-041 E*	*0.36*
925731	*AC1-049 C*	*0.13*

925732	*AC1-049 E*	*0.22*
925741	*AC1-050 C*	*0.35*
925742	*AC1-050 E*	*0.58*
925761	*AC1-052 C*	*1.15*
925762	*AC1-052 E*	*0.46*

Appendix 3

(DP&L - DP&L) The SHARPTWN-W1-070TAP1 69 kV line (from bus 232239 to bus 901490 ckt 1) loads from 114.22% to 114.73% (**DC power flow**) of its emergency rating (43 MVA) for the line fault with failed breaker contingency outage of 'DP6'. This project contributes approximately 0.49 MW to the thermal violation.

CONTINGENCY 'DP6' /*MILFORD BUS BREAKER TO STEELE
DISCONNECT BRANCH FROM BUS 232000 TO BUS 232004 CKT 1 /*MILFORD STEELE 230 230
DISCONNECT BRANCH FROM BUS 232009 TO BUS 232004 CKT 1 /*MAGNOLIA MILFORD 230 230
END

Bus Number	*Bus Name*	*Full Contribution*
297076	*V2-028 C*	*0.07*
297077	*V2-028 E*	*0.58*
232919	*VN10*	*0.43*
910571	*X3-008 C*	*0.18*
910572	*X3-008 E*	*1.54*
910591	*X3-015 C*	*0.2*
910592	*X3-015 E*	*1.74*
913411	*Y1-080 C*	*0.04*
913412	*Y1-080 E*	*0.31*
921142	*AA1-061 C*	*1.72*
921143	*AA1-061 E*	*0.85*
923961	*AB2-037 C*	*1.04*
923962	*AB2-037 E*	*1.69*
924831	*AB2-136 C OP*	*3.48*
924832	*AB2-136 E OP*	*4.94*
925151	*AB2-172 C OP*	*2.36*
925152	*AB2-172 E OP*	*3.85*
925741	*AC1-050 C*	*0.19*
925742	*AC1-050 E*	*0.3*

Appendix 4

(DP&L - DP&L) The W1-070TAP1-LAUREL 69 kV line (from bus 901490 to bus 232249 ckt 1) loads from 113.99% to 114.5% (**DC power flow**) of its emergency rating (43 MVA) for the line fault with failed breaker contingency outage of 'DP6'. This project contributes approximately 0.49 MW to the thermal violation.

CONTINGENCY 'DP6' /*MILFORD BUS BREAKER TO STEELE
DISCONNECT BRANCH FROM BUS 232000 TO BUS 232004 CKT 1 /*MILFORD STEELE 230 230
DISCONNECT BRANCH FROM BUS 232009 TO BUS 232004 CKT 1 /*MAGNOLIA MILFORD 230 230
END

Bus Number	*Bus Name*	*Full Contribution*
297076	*V2-028 C*	*0.07*
297077	*V2-028 E*	*0.58*
232919	*VN10*	*0.43*
910571	*X3-008 C*	*0.18*
910572	*X3-008 E*	*1.54*
910591	*X3-015 C*	*0.2*
910592	*X3-015 E*	*1.74*
913411	*Y1-080 C*	*0.04*
913412	*Y1-080 E*	*0.31*
921142	*AA1-061 C*	*1.72*
921143	*AA1-061 E*	*0.85*
923961	*AB2-037 C*	*1.04*
923962	*AB2-037 E*	*1.69*
924831	*AB2-136 C OP*	*3.48*
924832	*AB2-136 E OP*	*4.94*
925151	*AB2-172 C OP*	*2.36*
925152	*AB2-172 E OP*	*3.85*
925741	*AC1-050 C*	*0.19*
925742	*AC1-050 E*	*0.3*