

# LARGE FILING SEPERATOR SHEET

CASE NUMBER: 07-829- GA-AIR  
07-830- GA-ALT  
07-831- GA-AAM  
08-169- GA-ALT  
06-1453- GA-UNC

FILE DATE: 7/29/08

SECTION: 2 of 2

NUMBER OF PAGES: 84

DESCRIPTION OF DOCUMENT:

Deposition of William Armstrong

1 document to what we've been talking  
2 about only it has a page 19 to it.

3 MR. KUTIK: Okay. Let's go off  
4 the record.

5 (Discussion had off the record.)

6

7 (Thereupon, Deposition  
8 Exhibit-4 was marked for  
9 purposes of identification.)

10

11 MR. KUTIK: Let's go back on the  
12 record.

13 Off the record we marked as  
14 Deposition Exhibit 4, ORC interrogatory  
15 14th Set, question number 517, the  
16 response to that which is a little over  
17 one page, along with an attachment which  
18 starts with a page that begins Dominion,  
19 It All Starts Here and ending at a page  
20 that has the number 19 which is entitled  
21 the 19th page, financial summary with  
22 levered info.

23 Q. And, Mr. Armstrong, if you  
24 could turn to that page 19, which is  
25 labeled financial summary with levered



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1 information, info, do you see that?

2 A. Yes.

3 Q. And is this document --  
4 essentially is it the same document we  
5 were looking at previously except for  
6 the one change being the page 19?

7 A. No.

8 Q. There are other differences,  
9 sir?

10 MR. KUTIK: Well, I think the  
11 problem when you said this document,  
12 what we're referring to, so maybe you  
13 need to rephrase your question.

14 Q. Okay. What I'm referring to  
15 is the attachment to the document that  
16 was marked Deposition Exhibit Number 4  
17 and it starts with Dominion, It All  
18 Starts Here, and it has the picture of  
19 the gas meter dials on it, do you see  
20 that?

21 A. Yes.

22 Q. And as you go through, the  
23 pages are -- the first page is the  
24 business case team, your team and the  
25 adhoc members, page 2 through 19. And



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1 what I'm asking is is if you know are  
2 pages 1 through 18 the same as the  
3 document we had been looking at before?

4 A. Yes, they are.

5 Q. Okay. And page 19 is this  
6 -- was this document, as you have it  
7 now, Deposition Exhibit Number 4, the  
8 attachment, is this the document that  
9 was presented to the steering committee?

10 A. No.

11 Q. Okay. Was it what had been  
12 marked Deposition Exhibit 2, is that the  
13 document that the steering committee  
14 received?

15 A. Yes.

16 Q. So the steering committee  
17 never saw the levered financial summary  
18 information?

19 A. The document that's listed as  
20 Exhibit 2 was the document that was  
21 presented to the steering committee back  
22 in March of 2006.

23 Q. Okay. And what is what has  
24 been marked to the attachment to  
25 Deposition Exhibit Number 4, what is



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1 this document?

2 A. It's the same scenarios but  
3 instead of unlevered analysis for  
4 internal rate of return and net present  
5 value, it is the levered analysis.

6 Q. If I look at page 9, those  
7 analyses are all still done on the  
8 unlevered IRR, unlevered NPV, correct?

9 MR. KUTIK: We're looking again  
10 at Exhibit 4.

11 MR. SAUER: Yes. Attachment to  
12 Deposition Exhibit Number 4.

13 Q. Page 9 of that document  
14 still has the unlevered?

15 A. Correct.

16 Q. And if you go to page 19,  
17 it's the financial summary with levered  
18 information?

19 A. Correct.

20 Q. And when was that page 19,  
21 when was that prepared?

22 A. I'm not sure.

23 Q. Did your team prepare that,  
24 that page?

25 A. No. Well, let me correct



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1 that, an individual on my team prepared  
2 that.

3 Q. Okay. And who would have  
4 that individual been?

5 A. Abby Corbin.

6 Q. And do you know why that  
7 document was prepared?

8 A. The document was prepared to  
9 take a look at the scenarios from a  
10 different perspective, that being the  
11 levered internal rate of return and  
12 levered net present value.

13 Q. How was this document used  
14 by your team?

15 MR. KUTIK: Objection. Assumes  
16 it was used by the team.

17 A. Could you rephrase the  
18 question please?

19 Q. Did your team use the  
20 results of the financial summary with  
21 levered information?

22 A. We were made aware of it.

23 Q. What do you mean you were  
24 made aware of it?

25 A. Whenever in this case the



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1 team member ran these numbers, it was  
2 communicated to the team.

3 Q. And then this information was  
4 not shared with the steering committee,  
5 is that what you said?

6 A. This information for the  
7 levered IRR and the levered NPV was  
8 used, again, by our team for, again,  
9 this specific scenario and the specific  
10 financial analysis to compare the  
11 alternatives.

12 Q. Was this document provided to  
13 the steering committee?

14 MR. KUTIK: Objection. Asked and  
15 answered.

16 A. Yes. This document was  
17 presented or was communicated to the  
18 steering committee.

19 Q. Did the steering committee  
20 ask for this information?

21 A. I am not sure how the  
22 request for this information originated.

23 Q. And can you explain what  
24 levered means --

25 A. Yes.



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1 Q. -- in terms of the levered  
2 IRR analysis?

3 A. Yes.

4 Q. What does that mean, sir?

5 A. The various Dominion business  
6 units have different capital structures.  
7 Those capital structures have an effect  
8 on the internal rate of return  
9 calculation and the net present value  
10 calculation. The levered scenarios take  
11 into account the specific business  
12 unit's financial structure in the  
13 calculation.

14 Q. So is the only difference  
15 between the levered and the unlevered  
16 calculation is the capital structure of  
17 the Dominion entity involved in the  
18 analysis?

19 A. Yes.

20 Q. And if I just focus on the  
21 levered NPV for the full deployment  
22 three-year installation, it went from in  
23 the previous analysis from a negative  
24 levered NPV to a fairly significant  
25 positive NPV, is that all attributable



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1 to the fact that the study was done  
2 using Dominion East Ohio capital  
3 structure?

4 MR. KUTIK: Objection. I think  
5 you misspoke. You talked about the  
6 previous analysis having a levered NPV.

7 MR. SAUER: No. The previous  
8 analysis on page 9 is what I was  
9 referring to was the net present value  
10 9.4, 15 years had a negative NPV of  
11 868,000.

12 MR. KUTIK: I know what it says,  
13 but what you said in your question was  
14 that you said that the --

15 MR. SAUER: Oh, I'm sorry.

16 MR. KUTIK: -- prior analysis had  
17 a levered NPV, so why don't you clean  
18 up your question?

19 Q. Yes. What I was trying to  
20 compare the results on page 9, the  
21 unlevered NPV had a negative NPV value  
22 in the full deployment three- year  
23 installation and it becomes a positive 9  
24 million in the full deployment  
25 three-year installation under the



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1 levered NPV, do you see that?

2 A. Yes.

3 Q. And that change in the  
4 outcome of that NPV analysis for that  
5 scenario is fully attributable to using  
6 Dominion East Ohio capital structure?

7 A. Yes.

8 Q. And what was used on the  
9 unlevered NPV is, what, the Dominion  
10 parent capital structure?

11 A. What was used on the  
12 unlevered, I believe based -- and  
13 there's discounts, capital structure, so  
14 that the business unit investment  
15 opportunities can be compared excluding  
16 any particular business unit's capital  
17 structure.

18 Q. And if we look at the  
19 levered IRR column, again, that is as  
20 it's stated in percentages and can you  
21 explain how the team interpreted the  
22 levered IRR values that appear in that  
23 sixth column?

24 A. Again, the team would look  
25 at that specific financial measure,



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1 levered IRR, and use those percentages  
2 to compare the deployment scenarios that  
3 are on in this case page 19 of Exhibit  
4 4.

5 Q. And the best scenario or the  
6 most desirable scenario under the  
7 levered IRR would have been the inside  
8 meter A - 3 year installation, is that  
9 correct?

10 A. For the levered internal rate  
11 of return calculation, the inside meter  
12 aggressive three-year installation had  
13 the highest internal rate of return  
14 percentage.

15 Q. And the higher the rate of  
16 return percentage, the more desirable  
17 the project?

18 A. The higher rate of return  
19 for a levered -- or internal rate of  
20 return analysis would indicate the best  
21 financial scenario.

22 Q. And which one under the  
23 levered IRR column shows the worst  
24 internal rate of return?

25 A. The lowest levered internal



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1 rate of return on page 19, Exhibit 4 is  
2 the full year deployment three-year  
3 installation.

4 Q. And if we look at the  
5 levered net present value column, again,  
6 how did the team evaluate the values  
7 that appear in that seventh column?

8 A. The team, again, for the  
9 levered NPV financial metric, compared  
10 the resultant NPV to compare the  
11 financial results of the five scenarios.

12 Q. And if you were to rank the  
13 scenarios based on the levered NPV  
14 outcomes on this page 19, which one had  
15 the worst net present value calculation?

16 A. Full deployment three-year  
17 installation had the lowest levered NPV.

18 Q. And for purposes of DEO's  
19 internal decision making when it  
20 conducts a business case, does DEO rely  
21 more heavily on the levered or unlevered  
22 analysis?

23 MR. KUTIK: Objection. It  
24 assumes it relies on one over the other.

25 A. Senior management relies --



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1 takes both into consideration.

2 Q. If we look at pages 16 and  
3 17 in the attachment to what was marked  
4 Deposition Exhibit Number 4, there are  
5 on page 16 it says, cost assumptions  
6 range, inside meter scenario, three year  
7 installation, do you see that?

8 A. Yes.

9 Q. And do these results reflect  
10 levered or unlevered analysis?

11 A. I'm looking back to be  
12 absolutely sure. Unlevered.

13 Q. Unlevered. Does that go --  
14 is that the same for Page 17, cost  
15 assumptions range scenario three-year  
16 installation?

17 A. Yes.

18 Q. So these are both unlevered.  
19 When the financial summary reflected on  
20 page 19 was developed, were there  
21 similar charts that were prepared on a  
22 levered basis as you see on 16 and 17?

23 A. No.

24 Q. And of the five scenarios  
25 that we've been talking about here, on



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1 either page 9 or page 19, they are the  
2 same scenarios, are they not?

3 A. Same scenarios. Yes.

4 Q. Of those five that are  
5 listed there, which one is most closely  
6 aligned with the company's current  
7 deployment proposal?

8 MR. KUTIK: Objection.

9 A. Can you rephrase the  
10 question?

11 Q. Yes. What is the current --  
12 the company's current deployment  
13 proposal?

14 A. The company's current  
15 deployment proposal is a full deployment  
16 five-year installation.

17 Q. And is it most closely  
18 aligned with the full deployment  
19 three-year installation that's shown on  
20 page 9 or 19?

21 MR. KUTIK: Objection.

22 A. Can you be more specific?

23 Q. Are the assumptions in the  
24 full deployment five-year installation  
25 more consistent with a full deployment



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1 three year or a partial three-year  
2 deployment?

3 A. Well, as previously  
4 mentioned, we did not do a business case  
5 on the five-year deployment.

6 Q. I'm not asking if you did a  
7 business case. I'm just asking you of  
8 the five scenarios that you did a  
9 business case on, which of those five  
10 scenarios is more consistent or -- the  
11 assumptions of those five scenarios,  
12 which of those is most consistent with  
13 the assumptions in your -- in the  
14 company's proposed five-year deployment?

15 MR. KUTIK: Objection.

16 A. Could you rephrase the  
17 question please?

18 Q. The company is currently  
19 proposing a deployment -- an AMR  
20 deployment, a full deployment over five  
21 years, correct?

22 A. Correct.

23 Q. And are the assumptions in  
24 that proposal more consistent with the  
25 assumptions that you would find on the



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1 scenarios on page 19 looking at either a  
2 full deployment or a partial deployment?

3 A. Can you be more specific on  
4 assumptions?

5 Q. All right. The company is  
6 currently proposing a five-year  
7 deployment, between the full deployment  
8 three year and the full deployment five  
9 year, is the only difference between  
10 those two scenarios, the fact that in  
11 the five-year deployment you're using  
12 company labor?

13 MR. KUTIK: And I assume you're  
14 also going to allow him to also conclude  
15 that or include that one of the other  
16 differences is there's a three-year  
17 deployment versus a five-year  
18 deployment, is that part of your  
19 question too?

20 MR. SAUER: That's been in my  
21 question from the beginning I think.

22 MR. KUTIK: Well, that's the  
23 problem, we don't understand your  
24 question, at least I haven't and I'm  
25 sure that's the witness's problem.



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1 Q. The company has chosen a  
2 deployment scenario that is five years  
3 in length, correct?

4 A. Correct.

5 Q. Your business case scenarios  
6 are all three years in length, correct?

7 A. Correct.

8 Q. Of the three-year scenarios,  
9 which one of those most closely aligns  
10 with the assumptions that are in your  
11 company's five-year proposal?

12 MR. KUTIK: Objection.

13 A. Could you please rephrase so  
14 I can get at what you're asking?

15 Q. How do the assumptions differ  
16 between the company's current five-year  
17 proposal and the inside meters network  
18 three-year installation at the bottom of  
19 page 19?

20 A. The company's five-year  
21 proposal assumes Itron technology. The  
22 inside meters network three-year  
23 installation that you just referred to  
24 assumes Hexagram technology. The  
25 company's five-year deployment proposal



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1 assumes full deployment of AMR  
2 technology across the entire Dominion  
3 East Ohio customer base. The inside  
4 meter network three-year installation  
5 scenario that you referenced is a  
6 partial deployment comprised of the  
7 inside meters plus 111,000 outside  
8 meters, those being on routes where  
9 there's 50 percent or more inside  
10 meters.

11 The company's five-year proposal,  
12 deployment proposal involves using  
13 company labor to execute the deployment.  
14 The inside meters network three-year  
15 installation that you referred to  
16 assumes contractor labor to do the  
17 deployment.

18 Q. So there's fairly substantial  
19 differences in the assumptions between  
20 the current five-year proposal and the  
21 inside meters network three-year  
22 installation proposal, correct?

23 MR. KUTIK: Objection.

24 A. Be more specific, excuse me,  
25 specific?



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1 Q. I think you were pretty  
2 specific when you listed all the  
3 differences in assumptions, correct?

4 A. Yes.

5 Q. Okay. Now, if I move up to  
6 the full deployment three-year  
7 installation and compared that scenario  
8 with the company's current five-year  
9 installation proposal, what are the  
10 differences in assumptions there?

11 A. The company's five-year  
12 deployment scenario assumes a deployment  
13 over five years, assuming Itron  
14 technology with the installation done by  
15 company resources, company labor. The  
16 full deployment three-year installation  
17 scenario on in this case Exhibit 4, page  
18 9, assumes a three-year deployment, full  
19 deployment, same as the company's  
20 proposal in terms of full deployment and  
21 assuming Itron technology also, and  
22 assuming contractor labor for the  
23 deployment.

24 Q. So really the only  
25 differences between the three-year



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1 installation scenario on page 19 and the  
2 company's current five-year proposal is  
3 the use in the five-year proposal of  
4 company labor and in the full deployment  
5 three-year scenario the use of  
6 contractor labor, is that really the  
7 only difference?

8 MR. KUTIK: Objection. And the  
9 difference in terms. Mischaracterizes.

10 MR. SAUER: That's right. That's  
11 right.

12 Q. And they are the plans that  
13 the company has outlined here, a  
14 three-year installation and a five-year  
15 installation.

16 MR. KUTIK: So what's your  
17 question?

18 Q. The only difference between  
19 those two scenarios is the use of  
20 company labor versus contract labor, is  
21 that correct?

22 MR. KUTIK:: No. As this  
23 witness has testified the other  
24 difference is the three to five-year  
25 difference. And he has testified about



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1 that.

2 Q. All of the scenarios on page  
3 19 are three-year terms, correct?

4 A. If you're referring to page  
5 19 of Exhibit 4, they are all three-year  
6 scenarios.

7 Q. Yes. Do any of those more  
8 closely align themselves with the  
9 company's current five-year proposal  
10 than the full deployment three-year  
11 installation?

12 A. Could you be -- please be  
13 more specific?

14 Q. The assumptions that are  
15 included in the full deployment  
16 three-year installation, are those  
17 assumptions most closely aligned to the  
18 company's current five-year proposal  
19 than any of the other three-year  
20 scenarios on page 19?

21 A. Well, on page 19 the full  
22 deployment three-year installation by  
23 the implicit nature of the wording, is a  
24 full deployment. The company's proposal  
25 is for a full deployment. On page 19



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1 it references a three-year installation.  
2 I previously stated that the company's  
3 proposal is for a five-year  
4 installation. The page 19 full  
5 deployment three-year installation, I  
6 have testified assumes contractor labor.  
7 The company's five-year deployment  
8 proposal assumes company labor.

9 Q. Okay. I think we understand  
10 the two scenarios you're referring to.  
11 Can you come up with any of the other  
12 scenarios on page 19 that are any more  
13 closely aligned with the company's  
14 current five-year deployment proposal?

15 MR. KUTIK: Objection.

16 A. The full -- on page 19,  
17 Exhibit 4, full deployment aggressive  
18 three-year installation again is full  
19 deployment. Company proposal is a full  
20 deployment. The aggressive three-year  
21 installation assumes aggressive pricing.  
22 The company's proposal, five-year  
23 deployment does not assume aggressive  
24 pricing. And of course on page 19,  
25 it's a three-year deployment and the



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1 company's proposal is a five-year  
2 deployment.

3 Q. And again, I think you  
4 stated earlier that the aggressive  
5 assumptions -- let me ask, did you state  
6 earlier that the aggressive assumptions  
7 were dismissed by the steering  
8 committee?

9 MR. KUTIK: Objection.  
10 Mischaracterizes his testimony. Also,  
11 this has been covered. This deposition  
12 is going to end sometime fairly quickly,  
13 so I would urge you to move on,  
14 counsel, and not ask repetitive  
15 questions.

16 Q. Let's turn to page 6 of  
17 Deposition Exhibit Number 4. DOT  
18 inspection program, do you see that?

19 A. Yes.

20 Q. Can you briefly explain what  
21 this page is discussing?

22 A. Yes.

23 Q. Please do.

24 A. The DOT inspection program,  
25 first of all, DOT stands for Department



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1 of Transportation. It is a requirement  
2 that gas meters in premises that are  
3 inside premises need to be inspected on  
4 a periodic frequency. And in this case  
5 we are referencing the 560,000 inside  
6 meter locations that exist on the  
7 Dominion East Ohio distribution system.  
8 And we are trying to articulate the cost  
9 to comply with this compliance program  
10 as a result of AMR technology being  
11 installed.

12 Q. Would DEO need to complete  
13 the Department of Transportation  
14 inspections even if the MGSS were not an  
15 issue?

16 A. Yes.

17 Q. Are the annual costs of the  
18 DOT inspection different if the AMR  
19 program were not pursued?

20 A. Yes.

21 Q. And how are they different?

22 A. The DOT inspections in a gas  
23 distribution system without AMR at  
24 Dominion East Ohio are executed by meter  
25 readers who while gaining access to read



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1 inside meters, have a device that  
2 detects for gas leakage and by the fact  
3 that they have gained access to the  
4 meter on an inside property with this  
5 device, fulfills the inspection program  
6 requirements.

7 Q. For that year?

8 A. For the period in question.

9 Q. Three years later they'll  
10 have to come back and do it all over  
11 again, correct?

12 A. Correct.

13 Q. So can you explain why this  
14 program was included in the AMR business  
15 case?

16 A. Fast forward if you will to  
17 full deployment where the subset of  
18 meters on inside premises now have AMR  
19 devices and these AMR devices are read  
20 by a mobile unit driving down the  
21 street. There is no meter reader to go  
22 in and access that meter, therefore,  
23 that meter reader can no longer fulfill  
24 the DOT inspection program. So what  
25 this page is articulating is that a 26



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1 employee inspection group would have to  
2 be formed to stay in compliance with  
3 this DOT requirement once AMR was  
4 deployed.

5 (Discussion had off the record.)

6 Q. One follow-up question I had,  
7 Mr. Armstrong, do you recall when we  
8 were discussing the five-year  
9 deployment, I think you stated you did  
10 not do a business case surrounding that  
11 proposal, is that correct?

12 A. That's correct.

13 Q. Did you make a statement  
14 that there was a work paper or some  
15 analysis surrounding that proposal that  
16 was done by your team or someone on  
17 your team?

18 A. No, I did not.

19 Q. So did the team never make a  
20 recommendation to the steering committee  
21 for a five-year deployment?

22 MR. KUTIK: Objection. Assumes  
23 that the committee made any  
24 recommendation with respect to any  
25 deployment. Go ahead and answer the



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1 question.

2 A. Can you repeat that question  
3 back to me please? Make sure I got it.

4 Q. Did the team make any  
5 presentation to the steering committee  
6 in regards to a five-year deployment?

7 A. No.

8 Q. Mr. Armstrong, I thank you  
9 for your participation in the deposition  
10 today and I don't know if anyone else  
11 on the phone has any questions for you,  
12 but I'll let them ask them if they do.

13 MR. SAUER: Thank you for the  
14 opportunity. We have no questions.  
15 Thank you.

16 MR. KUTIK: And I assume there's  
17 no one else on the line so at this  
18 point we will indicate that Mr.  
19 Armstrong will exercise his right to  
20 review and correct the transcript.

21 (Off the record at 4:37 p.m.)

22

23

24

25



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1 CEFARATTI GROUP FILE NO. 13642

2 CASE CAPTION: MATTER OF THE APPLICATION  
3 OF EAST OHIO GAS COMPANY

4 DEPONENT: WILLIAM ARMSTRONG

5 DEPOSITION DATE: JUNE 17, 2008

6 \_\_\_\_\_  
7 (SIGN HERE)

8 The State of Ohio, )

9 County of Cuyahoga, ) SS:

10 Before me, a Notary Public in and  
11 for said County and State, personally  
12 appeared WILLIAM ARMSTRONG, who  
13 acknowledged that he/she did read  
14 his/her transcript in the above-  
15 captioned matter, listed any necessary  
16 corrections on the accompanying errata  
17 sheet, and did sign the foregoing sworn  
18 statement and that the same is his/her  
19 free act and deed.

20 IN TESTIMONY WHEREOF, I have  
21 hereunto affixed my name and official  
22 seal at \_\_\_\_\_, this \_\_\_\_\_  
23 day of \_\_\_\_\_, A.D. 2008.

24 \_\_\_\_\_  
25 Notary Public

Commission Expires



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## ERRATA SHEET

PAGE	LINE	CORRECTION AND REASON
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## CERTIFICATE

State of Ohio ) SS.:

County of Cuyahoga )

I, Nancy Geiger, a Notary Public within and for the State of Ohio, duly commissioned and qualified, do hereby certify that the within named witness, was duly sworn to testify the truth, the whole truth and nothing but the truth in the cause aforesaid; that the testimony then given by the witness was by me reduced to stenotypy in the presence of said witness; afterwards transcribed, and that the foregoing is a true and correct transcription of the testimony so given by the witness.

I do further certify that this deposition was taken at the time and place in the foregoing caption specified.

I do further certify that I am not a relative, counsel or attorney for either party, or otherwise interested in the event of this action.



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1 I am not, nor is the court  
2 reporting firm with which I am  
3 affiliated, under a contract as defined  
4 in Civil Rule 28 (D).

5 IN WITNESS WHEREOF, I have  
6 hereunto set my hand this 17th day of  
7 June, 2008.

8  
9  
10  
11 Nancy Geiger

12 Nancy Geiger, Notary Public  
13 within and for the State of Ohio  
14

15  
16  
17  
18 My commission expires November 4, 2008.  
19  
20  
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FILE 9

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BEFORE  
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of The  
East Ohio Gas Company d/b/a Dominion  
East Ohio for Approval of Tariffs to  
Recover Certain Costs Associated with  
Automated Meter Reading Deployment  
Through an Automatic Adjustment Clause,  
And for Certain Accounting Treatment

Case No. 06-1453-GA-UNC

APPLICATION

The East Ohio Gas Company d/b/a Dominion East Ohio ("DEO" or "Company") respectfully requests: (1) pursuant to Section 4929.11, Ohio Revised Code, approval of tariffs to recover, through an automatic adjustment mechanism, costs associated with the deployment of automated meter reading ("AMR") equipment throughout DEO's system; and (2) pursuant to Section 4905.13, such accounting authority as may be required to permit the deferral of those costs for subsequent recovery through the automatic adjustment mechanism. In support of its Application, DEO states:

1. DEO is an Ohio corporation engaged in the business of providing natural gas service to approximately 1.2 million customers in northeast, western and southeast Ohio and, as such, is a natural gas company as defined by R.C. 4905.03(A)(6), and a public utility as defined by R.C. 4905.02.
2. In Case No. 05-602-GA-ORD, the Commission enacted certain minimum gas service standards ("MGSS"), which take effect January 1, 2007. One of these rules, Rule 4901:1-13-04(G)(1), Ohio Administrative Code ("O.A.C."), will require natural gas companies to obtain an actual reading of each customer's

DEPOSITION  
EXHIBIT

1

6-17-08

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document delivered in the regular course of business,  
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meter at least once every twelve months, and also make reasonable attempts to obtain actual meter readings every other month. Under the Commission's rule, a meter reading obtained through remote index equipment does not qualify as an "actual" meter read.

3. Presently, 43% of the nearly 1.3 million meters in DEO's system, or approximately 556,000, are located inside customers' premises. In order to read these inside meters, the Company equipped 373,000 of them with remote meter index equipment. As discussed above, however, meter readings obtained through remote index equipment do not qualify as an actual meter read. Consequently, DEO is uniquely challenged to comply with Rule 4901:1-13-04(G)(1).
4. Although meter readings obtained through remote index equipment do not qualify as an actual meter reading, readings obtained through electronic means, such as automated meter reading equipment, "shall be considered actual readings." Rule 4901:1-13-04(G), O.A.C. DEO therefore proposes to replace all of its remote meter index devices with automated meter reading ("AMR") devices and to install AMR equipment on all of its other meters over a five-year period. Such a program would provide the following benefits to DEO's customers:
  - a. AMR provides the most cost-effective way for DEO to comply with the MGSS on a long-term basis. Because the Company's cost of reading meters is ultimately recovered in base rates, a more cost-effective meter reading solution will result in lower rates over time.
  - b. All of DEO's approximately 400,000 Standard Service Offer customers and approximately one-third of its 800,000 Energy Choice customers pay

monthly variable commodity rates that can change substantially from one month to the next. Under the MGSS, the Company is only required to attempt to obtain actual meter readings every other month, meaning that customers will receive at least six estimated bills each year. The monthly meter reading made possible by AMR would enable DEO to apply each month's commodity rate to actual consumption for that month, resulting in a better match between billing and consumption.<sup>1</sup>

- c. Monthly actual meter readings would provide more accurate information for use in transferring service at a premise from one customer to another, eliminate call volume associated with estimated meter reads, improve call center average speed of answering customer calls, and avoid the need for large numbers of customers to schedule appointments to have a meter reader obtain the annual read required under the MGSS.
- d. Because AMR reads are obtained by employees who drive along a route recording reads through mobile data collectors installed in their vehicles, customers would no longer have to cope with unwanted or inconvenient intrusions onto their property or into their home or business.

In summary, the installation of AMR equipment system-wide will enable DEO to meet the MGSS meter reading requirements in a very cost-effective manner while also providing the additional customer benefits described above.

---

<sup>1</sup> AMR will also eliminate the problem of multiple consecutive estimates that must be used when repeated efforts to obtain an actual meter read fail. Even if an actual read is obtained once every twelve months, the Company does not have the data points needed to develop an accurate estimate for the eleven months between actual reads. As a result, the actual usage for those intervening months may occur in a much different pattern than that reflected on the bills. Given the access issues caused by the large number of inside meters on DEO's system, consecutive estimates pose a considerable problem for the Company and its customers.

5. DEO estimates the cost of system-wide AMR deployment using Itron encoder-receive-transmitter ("ERT") devices to be between \$100 million and \$110 million. Absent timely recovery of the associated depreciation, property taxes and return on rate base investment, DEO would fund the program through its normal capital budgeting process, which would accommodate a fifteen- to twenty-year systemwide deployment.
6. As an alternative to a fifteen- to twenty-year deployment, the instant Application, if approved, would enable DEO to increase its capital spending considerably to accommodate a five-year deployment schedule. Under a five-year schedule, the Company would install 250,000 ERT units per year beginning in January 2008. The pace of deployment for ERT devices in 2007 is discussed below.
7. The Company's existing remote index equipment consists of Hexagram, Badger and American devices. The Company has performed a statistical evaluation of its existing remote meter index equipment and found that, while the Hexagram remote devices installed on nearly 319,000 of its meters perform very well, with a defect rate of only 1.8%, the American and Badger devices installed on approximately 54,000 meters from 1977 to 1984 have much higher defect rates of 9.5% and 21.4%, respectively. As a result, DEO will replace the American and Badger units through its normal capital budgeting process and seek recovery of the associated cost in the context of its next base rate case.<sup>2</sup> The Company will commence replacement of the American and Badger devices in the first quarter of

---

<sup>2</sup> DEO will not include the cost associated with any defective meters or remotes that would have been replaced in the normal course of meter exchange activity in amounts to be recovered via the AMR Cost Recovery Charge. As in the case of the American and Badger replacements, the Company will seek recovery of such costs in future rate cases.

2007 with the intent of substantially completing those replacements within two years.

8. In its application seeking Commission approval of tariff changes needed to comply with the MGSS, filed concurrently with this Application, DEO requests approval of a provision requiring customers that have had service terminated for non-access, and those that have engaged in fraudulent practice, tampering or theft of service, to pay for the installation of an AMR device on the meter(s) serving their premise. DEO will treat such payments as a contribution in aid of construction ("CIAC") and will not seek recovery of such dollars either through the charge requested herein or through subsequent rate cases.
9. DEO's objective in its AMR program is to provide more accurate usage data and monthly meter reading at the earliest possible date consistent with an economic deployment of AMR devices. In so doing, the Company will have to evaluate the efficiency of a "shop-by-shop" conversion (that is, a series of conversions moving from one service area to the next as service areas are converted) versus a systemwide conversion with an initial focus on inside meters. DEO will consult with Commission Staff to determine the most appropriate way to deploy AMR across its system. The Company plans to move to monthly meter reading systemwide as soon as enough meters are AMR-equipped to make this possible. Once a sufficient number of meters are so equipped, DEO will manually read the remaining meters until all of its meters are equipped with ERT devices. As an alternative, and pending consultation with Commission Staff, DEO could

transition to monthly meter reading on a shop-by-shop basis as service areas are converted.

10. In order to recover the costs of the AMR program, DEO proposes the following:

- a. The Company will initially record as a regulatory asset the depreciation, incremental property taxes, and post in-service carrying charges associated with its AMR program costs, excluding those costs associated with replacement of American and Badger remote index devices and any CIAC recovered from customers that have had service terminated for non-access or those that have engaged in fraudulent practice, tampering or theft of service.
- b. DEO will compare its annual meter reading operating and maintenance ("O&M") expense to a 2006 base year. Any savings relative to that base year will be used to reduce the year-end regulatory asset in order to provide customers the benefit of any meter reading cost reductions achieved as a result of the AMR deployment.
- c. The regulatory asset amount net of the preceding meter reading O&M savings will be recoverable via an AMR Cost Recovery Charge applicable to all customer class rate schedules on which ERT devices are installed. (DEO's largest transportation accounts already have AMR installed at the customers' expense.) Because the cost of an ERT device installed on a meter is the same regardless of usage, the AMR Cost Recovery Charge is properly applied as a fixed charge per month rather than a volumetric charge. There will be no difference in the charge across customer classes

because the cost of the unit is identical for over 99% of the units to be installed.

- d. In February of each year, DEO will file an application in this docket with schedules supporting the proposed AMR Cost Recovery Charge based on the costs accumulated through December of the prior year, as adjusted for the associated excise tax obligation, and bills rendered over the prior year.<sup>3</sup> DEO will provide Commission Staff with sufficient accounting and billing record details to enable it to analyze and audit the schedules. In order to facilitate a timely review of the application, the Company will file a pre-filing notice containing estimated schedules ninety days prior to the application. The estimated schedules will contain a combination of actual and projected data for the calendar year to be reflected in the February application.
- e. When DEO files its next base rate case, the revenue requirement will reflect updated test year operating expenses and date certain net plant. Once rates approved in the case go into effect, AMR-related capital investments made prior to date certain will be reflected in base rates along with updated test year expenses for meter reading O&M and property taxes. Post rate case, the AMR Cost Recovery Charge will use test year O&M and date certain gross plant as the basis upon which to calculate

---

<sup>3</sup> The schedules will include the original costs, accumulated reserve for depreciation and deferred taxes associated with the plant additions, the corresponding annual depreciation and incremental property tax expenses as well as the meter reading O&M savings and any CIAC used to reduce the amount to be recovered by the AMR Cost Recovery Charge. Until such time as DEO files a base rate case, the post in service carrying charges will be accrued at the embedded cost of long-term debt held by DEO's parent company, Consolidated Natural Gas Company, which is in turn a wholly-owned subsidiary of Dominion Resources, Inc.

future AMR Cost Recovery Charges. In its next rate case, DEO will seek approval of an AMR Cost Recovery Charge that will provide more timely recovery of the depreciation, incremental property taxes and associated rate of return of subsequent program expenses along with any amounts unrecovered at the point an updated AMR Cost Recovery Charge goes into effect. The rate of return assigned to the recovery of subsequent net capital expenditures will be set at the rate of return authorized in the proceeding by the Commission.

11. While the initial year's AMR Cost Recovery Charge can only be determined after actual costs and billing determinants are known, it appears that the initial charge will amount to less than \$0.25 per month per customer. Increases to the rate thereafter are not expected to be linear (*i.e.*, the rate increases another \$0.25 each year until the maximum level is reached in year 5) because the number of units installed and the amount of meter reading O&M costs savings and CIAC used to reduce the amount to be recovered will not occur evenly over the five-year deployment.

WHEREFORE, the Company respectfully requests that the Commission, pursuant to R.C. 4905.13 and 4929.11, approve the Company's Application for approval of tariffs to institute an automatic adjustment clause to recover costs associated with AMR deployment; for approval of the accounting treatment discussed herein; and for all other necessary and proper relief.

Respectfully submitted,



Mark A. Whitt

JONES DAY

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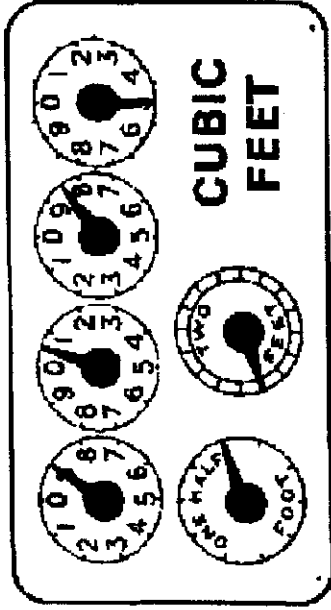
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ATTORNEYS FOR THE EAST OHIO  
GAS COMPANY D/B/A DOMINION  
EAST OHIO



# Dominion

It all starts here.™



DEPOSITION  
EXHIBIT

2  
6-17-08

MSCAD-Deposits, N.Y.

# **AMR Business Case Team**

---

**Bill Armstrong**

**Joe Patten**

**Patty Gilinsky**

**Bob Metzinger**

**David Batson**

**Rod Holmes**

**Abby Corbin**

**Ken Opiery**

**Ad Hoc: Brett Crable**

**Gwen Beadles**

**Ella Hochstetler**

**Armstrong Deposition**

**Exhibit 2**

**Page 2**

**REDACTED**

# Ohio Gas Meter Statistics

---

- 1.3M total Gas meters
- 560K inside meters (43.1%)
- 370K inside meters with existing Hexagram, Badger or Read-O-Matic devices
- 190K inside meters with no remote reading devices

**Looking ahead, the Ohio Minimum Service Standards will impose a significant cost increase to Metering and Customer Service**

Ohio Standard	Current Practice & Concerns	Estimated Costs	Impact of Gas AMR
<ul style="list-style-type: none"> <li>Obtain <i>actual</i> reading at least once every 12 months and make <i>reasonable attempts</i> to obtain reads every <i>other month</i>. Electronic (AMR)= actual; remote meter index reads are not considered actual.</li> </ul>	<ul style="list-style-type: none"> <li>DEO attempts to read meters every other month. The company gets in approximately 20% of inside accounts with remote devices annually.</li> <li>DEO has 370,000 inside remote units</li> </ul>	<ul style="list-style-type: none"> <li>\$9-10M based on 270 – 378k additional service orders</li> </ul>	<ul style="list-style-type: none"> <li>AMR would be fully compliant with new rule and avoid associated costs of \$9-10M annually</li> </ul>

Three scenarios were analyzed to determine if a full or partial deployment would decrease high read costs, and mitigate the impact of the Ohio Minimum Gas Service Standards.

---

- **Full Deployment Scenario**
  - Full deployment, 1.3M meters retrofitted with Itron ERT index; read monthly with mobile collection; deployed over three years
- **Inside Meters Scenario**
  - Partial deployment, All 560K inside meter locations retrofitted with Itron ERT indexes; plus 111K outside meters in close proximity to areas of high inside concentration; ERTed meters read monthly; mobile collection. Manual meters read bi-monthly; deployed over three years
- **Inside Meters Fixed Network Scenario**
  - Partial deployment, All 560K inside meter locations retrofitted with Hexagram Star Network MTU devices; plus 111K outside meters in close proximity to areas of high inside concentration. Meters read monthly or on demand; Fixed network area coverage; Manual meters read bi-monthly; deployed over three years

# DOT Inspection Program

---

- All scenarios include creation of 26 employee DOT inspection group
  - Approximately 560K inside meter locations require inspection every 3 years
  - Initial installations would provide 100% compliance
  - Call Center net cost \$400K
  - Move existing Inspector and Dispatcher classification to DOT roles to mitigate RIF

**Annual Costs after Full AMR Deployment**

**\$3.2M**

**Armstrong Deposition**

**Exhibit 2**

**Page 7**

**REDACTED**

**Armstrong Deposition**

**Exhibit 2**

**Page 8**

**REDACTED**

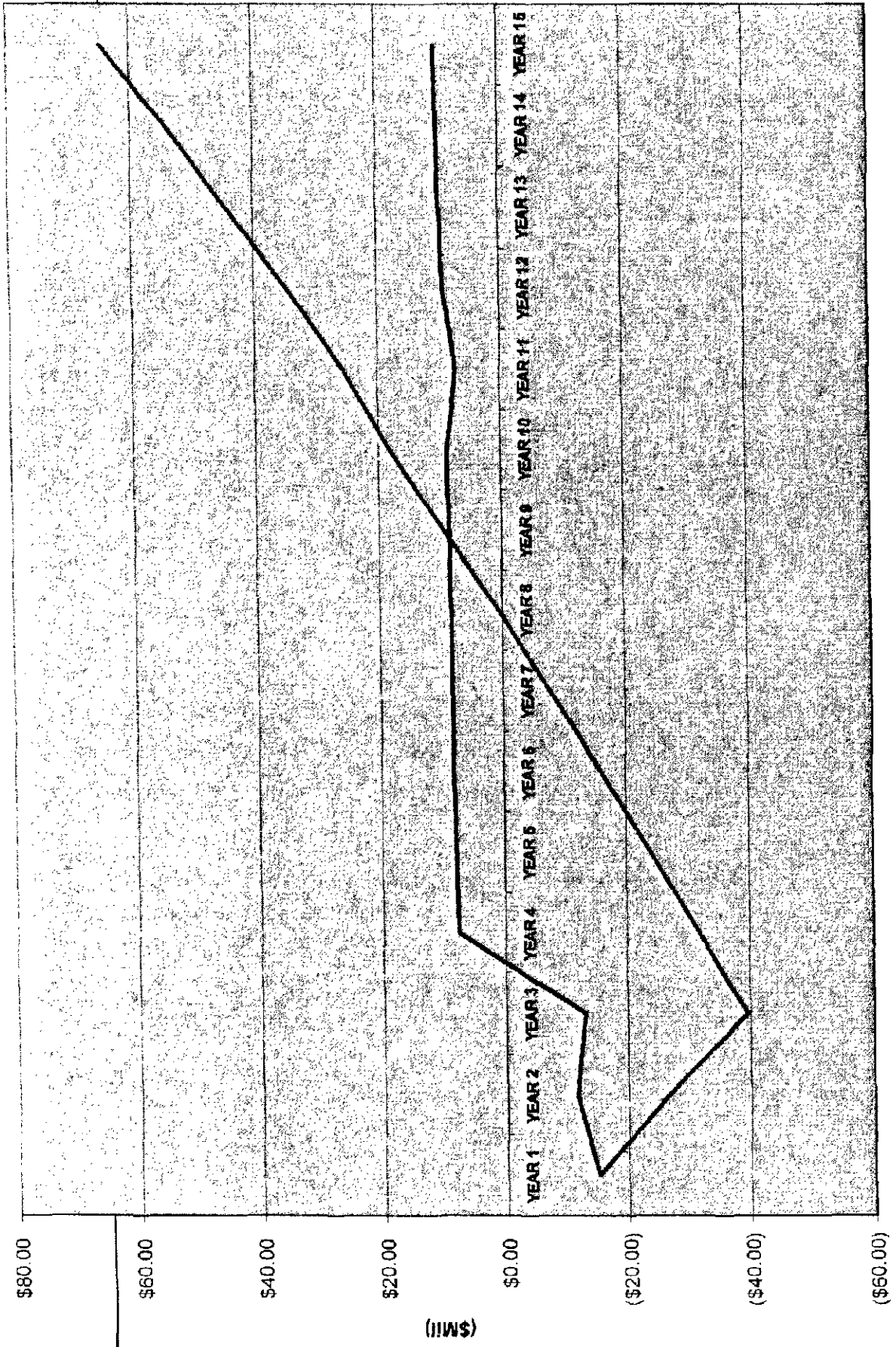
# Financial Summary

	Description	Deployment Cost	1st Year Net Income	Steady State Net Income (Yrs 4-6)	Unlevered IRR	Unlevered NPV (9.4%; 15yrs)	Payback (Yrs)
Full Deployment A-3 Year Installation	Full deployment; 1.3M meters	\$94.8 M	\$3.8M	\$3.5M	12.32%	10,980,926	7
Full Deployment 3 Year Installation	Full deployment; 1.3M meters	\$102.8 M	\$3.6M	\$2.3M	9.18%	(868,013)	7.6
Inside Meters A-3 Year Installation	Partial deployment, All 560K inside meter locations, plus 111K outside meters	\$59.5 M	\$4.5M	\$4.1M	22.27%	22,690,245	2.4
Inside Meters 3 Year Installation	Partial deployment, All 560K inside meter locations, plus 111K outside meters	\$65.4 M	\$4.4M	\$3.2M	17.40%	18,436,996	4.7
Inside Meters Network 3 Year Installation	Partial deployment, All 560K inside meter locations, plus 111K outside meters	\$85.1 M	\$3.8M	\$2.2M	11.08%	5,524,764	5.9

1. NPV and IRR rates unlevered

2. Steady-State EBIT approximates year 4-6 benefits

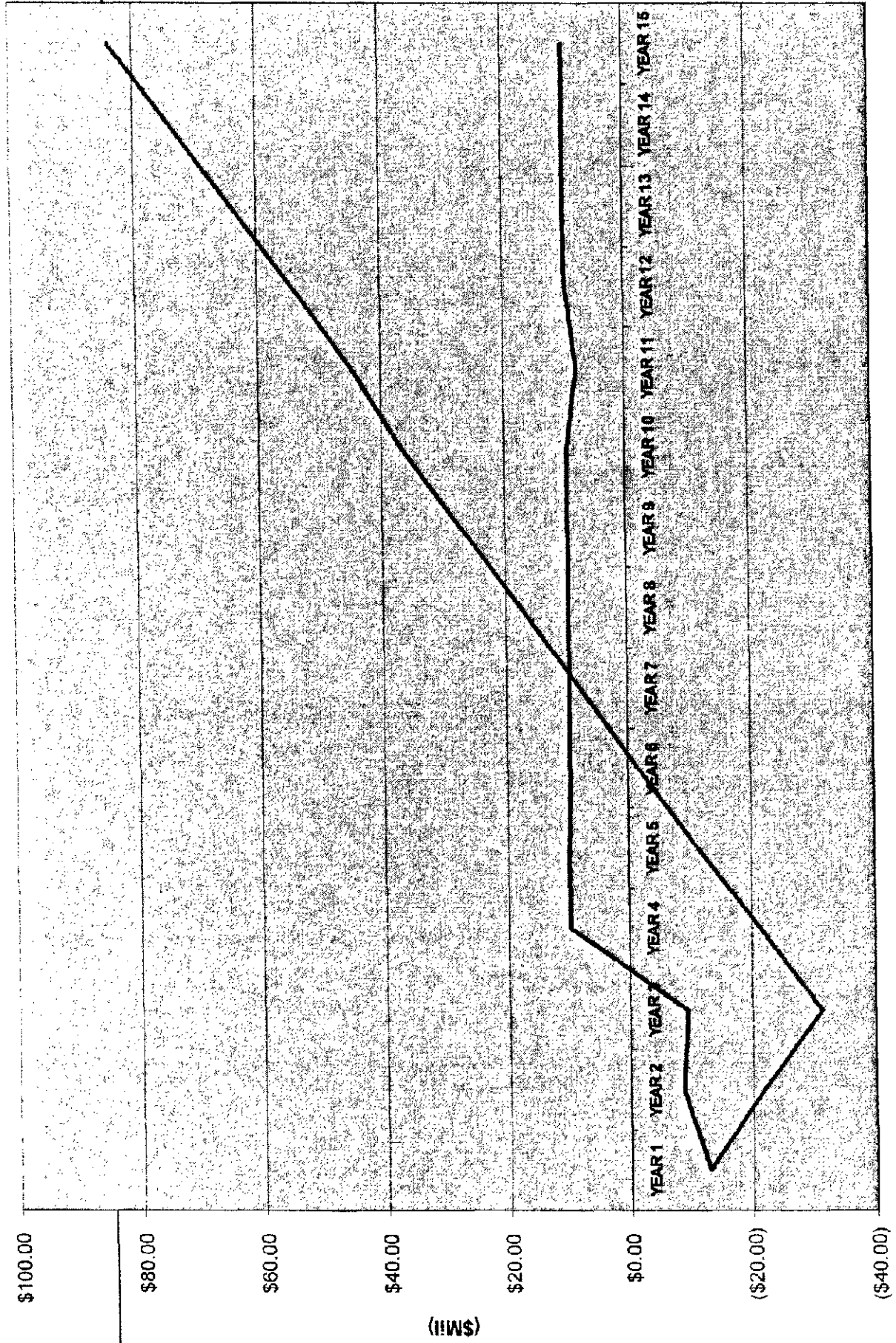
Partial Deployment Mobile



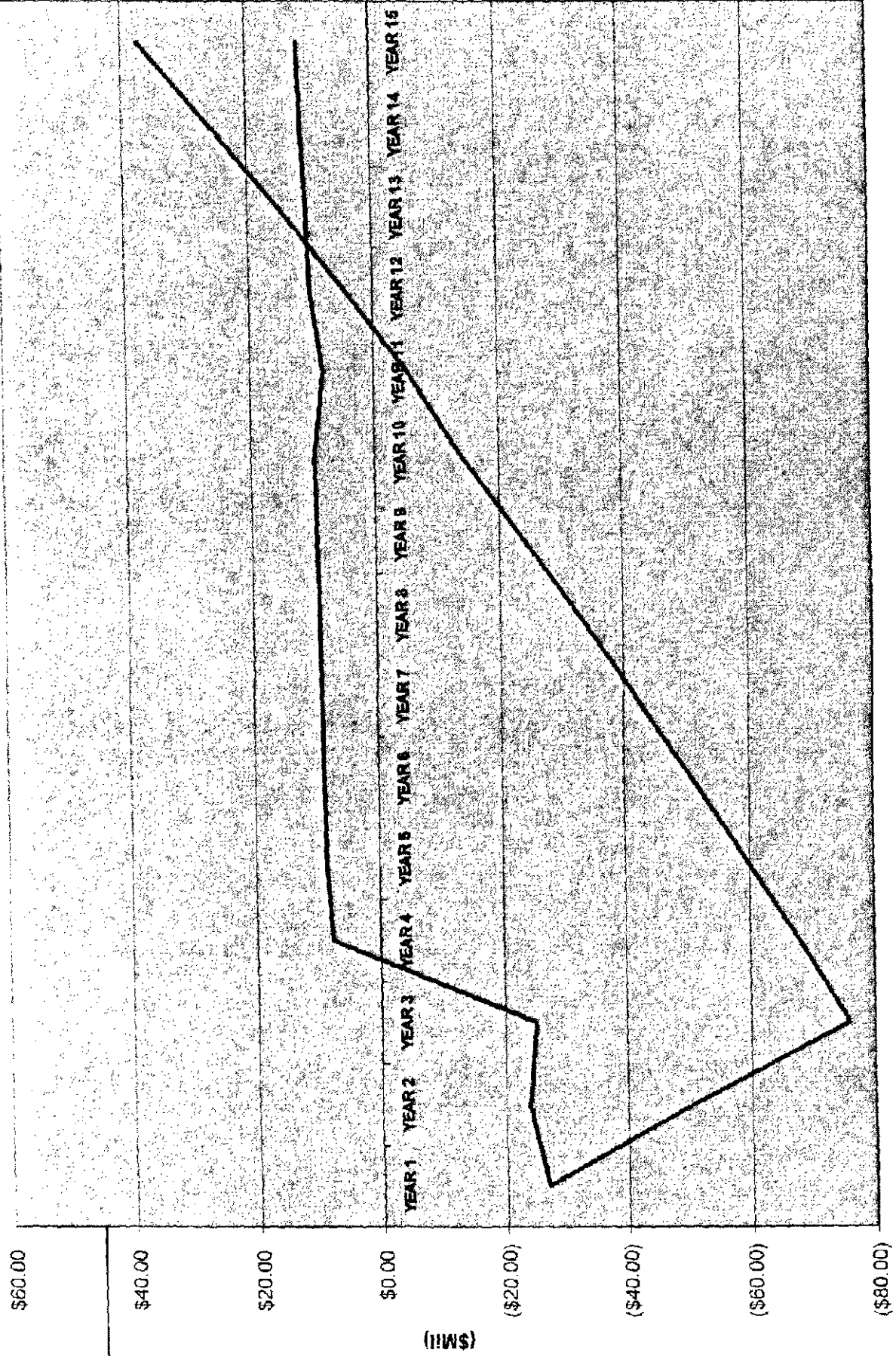
— Annual Net Cash Flow

— Cumulative Net Cash Flow

# Partial Deployment Mobile Aggressive

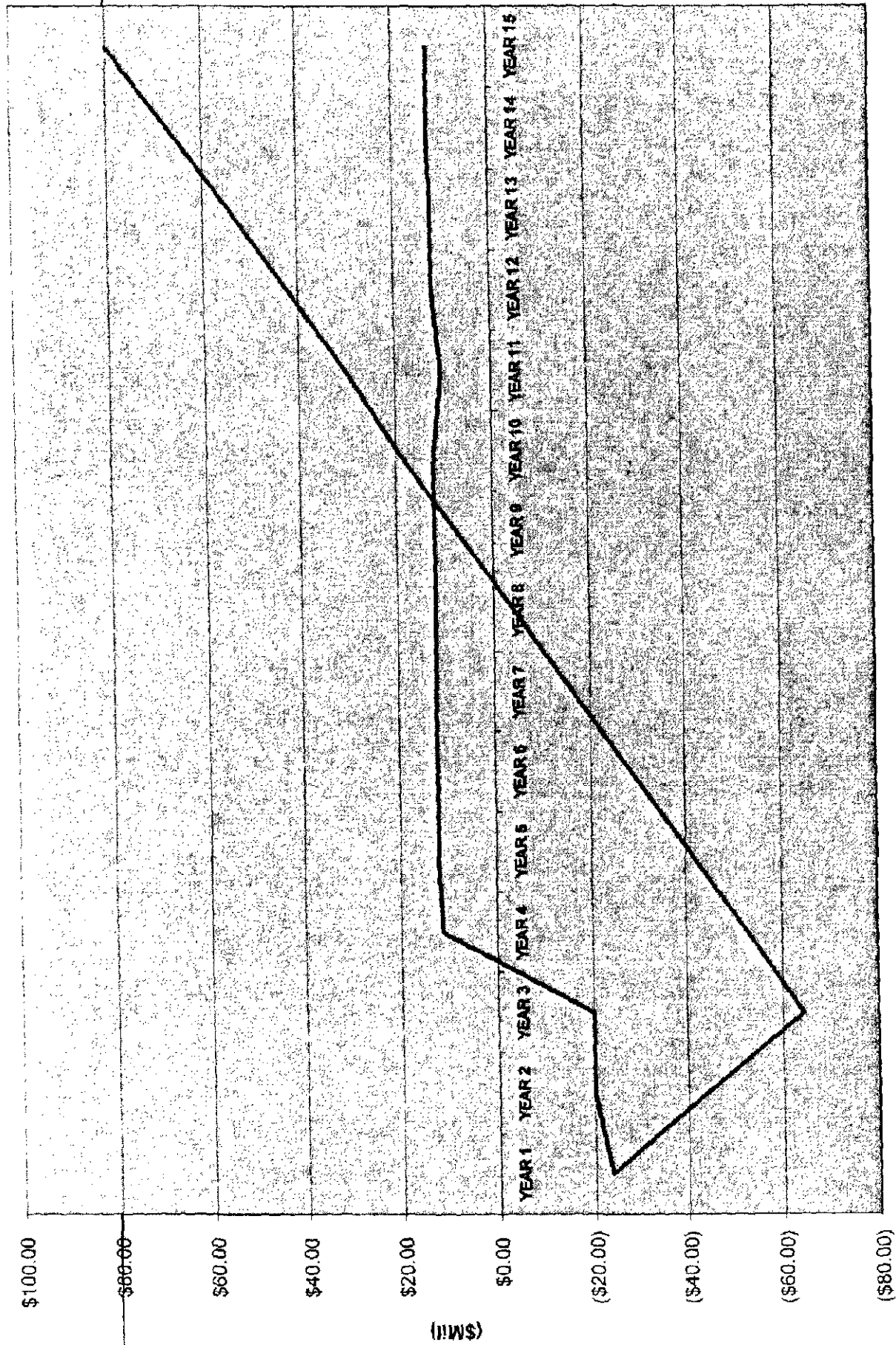


# Full Deployment Mobile



— Annual Net Cash Flow      - - - Cumulative Net Cash Flow

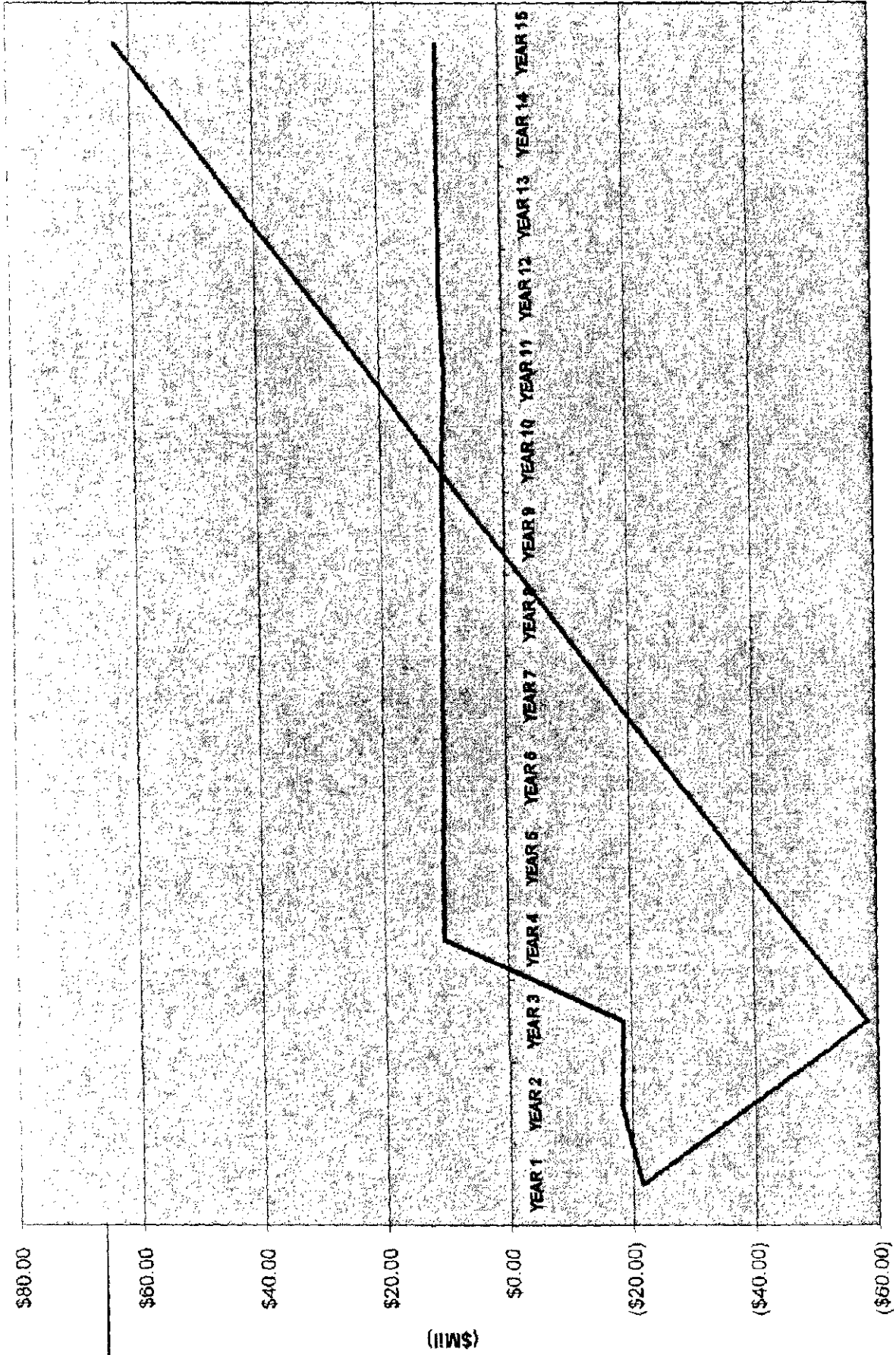
# Full Deployment Aggressive



— Annual Net Cash Flow

— Cumulative Net Cash Flow

# Partial Deployment Fixed Network



— Annual Net Cash Flow  
 — Cumulative Net Cash Flow

**Armstrong Deposition**

**Exhibit 2**

**Page 15**

**REDACTED**

# Cost Assumptions Range Inside Meters Scenario 3 Year Installation

	Conservative	Aggressive
NPV	\$18.4M	\$22.6M
IRR	17.4%	22.27%
Deployment Costs	\$65.4M	\$59.5M

# Cost Assumptions Range

## Full Deployment Scenario

### 3 Year Installation

	Conservative	Aggressive
NPV	\$-0.9 M	\$10.9M
IRR	9.18%	12.32%
Deployment Costs	\$102.8M	\$94.8M

# Call Center Impact

<u>Costs:</u>		Year 1	Year 2	Year 3	Year 4	Year 5	Steady State
1. DOT Inspection Program (94k calls per year)- assumes 50% success rate	\$	-	\$	\$ (542,850)	\$ (542,850)	\$ (542,850)	\$ (542,850)
2. Reroute Letters Bank Draft Customers and customers moving 3+ cycles	\$	(107,930)	\$ (107,930)	\$ (107,930)			
3. Implementation- Missed Appointments or other miscellaneous questions	\$	(71,954)	\$ (71,954)	\$ (71,954)			
4. Targeting customers less willing to comply- 1% of inside meters			\$ (14,373)	\$ (14,373)	\$ (14,373)		
5. Credit Payment and Reconnect - assumed credit # on info to customer							
<b>Total Costs</b>	\$	(179,884)	\$ (194,257)	\$ (737,107)	\$ (557,223)	\$ (542,850)	\$ (542,850)
<u>Benefits:</u>							
1. Reads called in (VR, By Phone)			\$ 6,512	\$ 13,024	\$ 19,536	\$ 19,536	\$ 19,536
2. SO Check Reads - Six Sigma project this year already take this reduction	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -
3. Reduced number of estimated reads, calls from high bills created from X months of estimates	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -
4. Reduction in AHT in High Billing Complaints-(assume X% reduction)	\$	-	\$ 36,886	\$ 73,772	\$ 110,659	\$ 110,659	\$ 110,659
<b>Total Benefits</b>	\$	-	\$ 43,398	\$ 86,796	\$ 130,195	\$ 130,195	\$ 130,195
<b>Annual Total</b>	\$	(179,884)	\$ (150,859)	\$ (650,311)	\$ (427,029)	\$ (412,655)	\$ (412,655)
<b>Total Cost of Project to Call Center</b>	\$	(5,947,292)					
<b>NPV Impact to call center</b>	\$	(3,291,361)					

**The East Ohio Gas Company d/b/a Dominion East Ohio**  
**Case No. 07-0829-GA-AIR**  
**Response to Data Requests**

---

**Requesting Party:**

OCC

---

**Data Request Set:**

Interrogatories - 14th Set

---

**Question Number:**

524

---

**Subpart:**

---

**Request Date:**

05/16/2008

---

**Due Date:**

06/05/2008

---

**Topic:**

AMR

---

**Question:**

Referring to the Company's Response to OCC Request for Production of Document No. 160, the Company provided the Excel workbook "CONFIDENTIAL DOCUMENT - OCC-RFP 160 - AMR BUSINESS CASE 2\_20\_06.xls." Each scenario contained in this document is based on a 3-year deployment schedule.

- a. Please explain whether the Company has conducted any business case analysis that assumed a 5-year deployment schedule; and
- b. If the Company has not conducted any business case analysis that assumed a 5-year deployment schedule, please explain why this analysis has not been conducted.

---

**Answer:**

DEO objects to this request because it improperly seeks a detailed, narrative response. Under the applicable Commission rules and Ohio Civil Rules, "[a]n interrogatory seeks an admission or it seeks information of major significance in the trial or in the preparation for trial. It does not contemplate an array of details or outlines of evidence, a function reserved by the rules for deposition." Penn Central Transp. Co. v. Armco Steel Corp., 27 Ohio Misc. 76, 77 (Montgomery Cty. 1971). Subject to and without waiving this objection, DEO responds as follows:

- (a) The Company did not.
- (b) The Company's decision to propose a 5-year deployment was based on additional criteria, including the time needed by Company employees to complete the program, and additional studies were not necessary.

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**Preparer Of Response:**

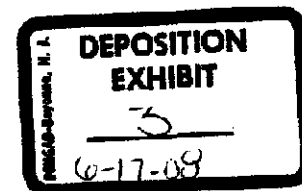
Abby Corbin

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**Date Prepared:**

05/16/2008 02:59:46 PM EDT

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**Attachments:**

No

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**The East Ohio Gas Company d/b/a Dominion East Ohio**

**Case No. 07-0829-GA-AIR**

**Response to Data Requests**

---

**Requesting Party:**

OCC

---

**Data Request Set:**

Interrogatories - 14th Set

---

**Question Number:**

517

---

**Subpart:**

---

**Request Date:**

05/16/2008

---

**Due Date:**

06/05/2008

---

**Topic:**

AMR

---

**Question:**

Referring to the Company's Response to OCC Request for Production of Document No. 160, the Company provided the PowerPoint file "CONFIDENTIAL DOCUMENT - Gas AMR Business Case Presentation March 21.ppt". On page 9 of that document, a table titled "Financial Summary" appears, and shows results of "Unlevered IRR; Unlevered NPV (9.4%%; 15yrs); and Payback (Yrs)" analyses.

- a. Please explain why the Company pursued an unlevered approach to these calculations;
- b. Has the Company calculated for the AMR project Levered IRR and Levered NPV? If yes, please report the values produced by these studies in a format similar to that shown on page 9 of this document;
- c. Please identify the values of each discount factor used in the Unlevered IRR analysis (and any Levered IRR study), and the Unlevered NPV analysis (and any Levered NPV study), and identify which discount factor was used in each study.

---

**Answer:**

- a. The Company calculates both levered and unlevered results; however, since there are different business units within Dominion, each with different capital structures and risk profiles, the unlevered information is used to compare capital investments across Dominion's business units.
- b. Please see the attached file, which has been updated to include the requested levered results on Slide 19.
- c. The financial results reflected in the attached file used a discount rate of 9.4%.

---

**Preparer Of Response:**

Abby Corbin

---

**Date Prepared:**

05/16/2008 02:52:24 PM EDT

---

**Attachments:**

Yes

DEPOSITION  
EXHIBIT

4

6-17-08

**Attachment Names:**

CONFIDENTIAL DOCUMENT - Gas AMR Business Case Presentation March 21-REVISED.ppt

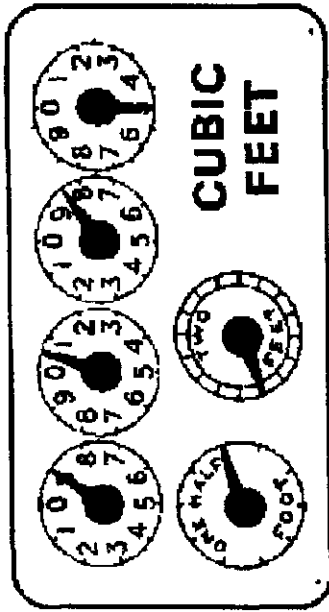
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# Dominion

It all starts here.™



# **AMR Business Case Team**

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**Bill Armstrong**

**Joe Patten**

**Patty Gilinsky**

**Bob Metzinger**

**David Batson**

**Rod Holmes**

**Abby Corbin**

**Ken Pipery**

**Ad Hoc: Brett Crable**

**Gwen Beadles**

**Ella Hochstetler**

**Armstrong Deposition**

**Exhibit 4**

**Page 2**

**REDACTED**

# Ohio Gas Meter Statistics

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- 1.3M total Gas meters
- 560K inside meters (43.1%)
- 370K inside meters with existing Hexagram, Badger or Read-O-Matic devices
- 190K inside meters with no remote reading devices

**Looking ahead, the Ohio Minimum Service Standards will impose a significant cost increase to Metering and Customer Service**

Ohio Standard	Current Practice & Concerns	Estimated Costs	Impact of Gas AMR
<ul style="list-style-type: none"> <li>Obtain actual reading at least once every 12 months and make reasonable attempts to obtain reads every other month. Electronic (AMR)= actual; remote meter index reads are not considered actual.</li> </ul>	<ul style="list-style-type: none"> <li>DEO attempts to read meters every other month. The company gets in approximately 20% of inside accounts with remote devices annually.</li> <li>DEO has 370,000 inside remote units</li> </ul>	<ul style="list-style-type: none"> <li>\$9-10M based on 270 – 378k additional service orders</li> </ul>	<ul style="list-style-type: none"> <li>AMR would be fully compliant with new rule and avoid associated costs of \$9-10M annually</li> </ul>

Three scenarios were analyzed to determine if a full or partial deployment would decrease high read costs, and mitigate the impact of the Ohio Minimum Gas Service Standards.

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- Full Deployment Scenario
  - Full deployment, 1.3M meters retrofitted with Itron ERT index; read monthly with mobile collection; deployed over three years
- Inside Meters Scenario
  - Partial deployment, All 560K inside meter locations retrofitted with Itron ERT indexes; plus 111K outside meters in close proximity to areas of high inside concentration; ERTed meters read monthly; mobile collection. Manual meters read bi-monthly; deployed over three years
- Inside Meters Fixed Network Scenario
  - Partial deployment, All 560K inside meter locations retrofitted with Hexagram Star Network MTU devices; plus 111K outside meters in close proximity to areas of high inside concentration. Meters read monthly or on demand; Fixed network area coverage; Manual meters read bi-monthly; deployed over three years

# DOT Inspection Program

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- All scenarios include creation of 26 employee DOT inspection group
  - Approximately 560K inside meter locations require inspection every 3 years
  - Initial installations would provide 100% compliance
  - Call Center net cost \$400K
  - Move existing Inspector and Dispatcher classification to DOT roles to mitigate RIF

**Annual Costs after Full AMR Deployment**  
**\$3.2M**

**Armstrong Deposition**

**Exhibit 4**

**Page 7**

**REDACTED**

**Armstrong Deposition**

**Exhibit 4**

**Page 8**

**REDACTED**

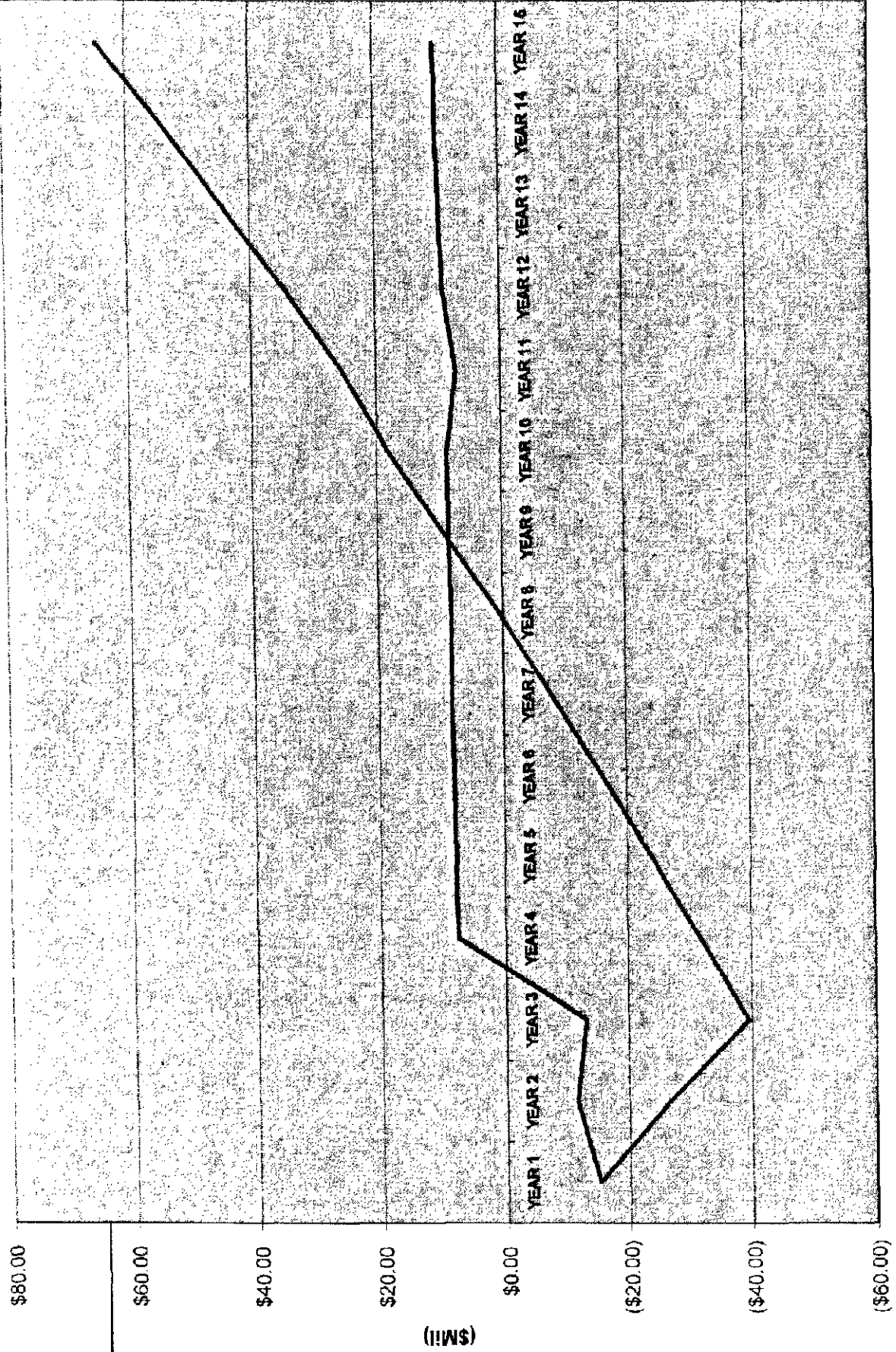
# Financial Summary

	Description	Deployment Cost	1st Year Net Income	Steady State Net Income (Yrs 4-6)	Unlevered IRR	Unlevered NPV (9.4%; 15yrs)	Payback (Yrs)
<b>Full Deployment A-3 Year Installation</b>	Full deployment; 1.3M meters	\$94.8 M	\$3.8M	\$3.5M	12.32%	10,980,926	7
<b>Full Deployment 3 Year Installation</b>	Full deployment; 1.3M meters	\$102.8 M	\$3.6M	\$2.3M	9.18%	(868,013)	7.6
<b>Inside Meters A-3 Year Installation</b>	Partial deployment, All 560K inside meter locations, plus 111K outside meters	\$59.5 M	\$4.5M	\$4.1M	22.27%	22,690,245	2.4
<b>Inside Meters 3 Year Installation</b>	Partial deployment, All 560K inside meter locations, plus 111K outside meters	\$65.4 M	\$4.4M	\$3.2M	17.40%	18,436,996	4.7
<b>Inside Meters Network 3 Year Installation</b>	Partial deployment, All 560K inside meter locations, plus 111K outside meters	\$85.1 M	\$3.8M	\$2.2M	11.08%	5,524,764	5.9

1. NPV and IRR rates unlevered

2. Steady-State EBIT approximates year 4-6 benefits

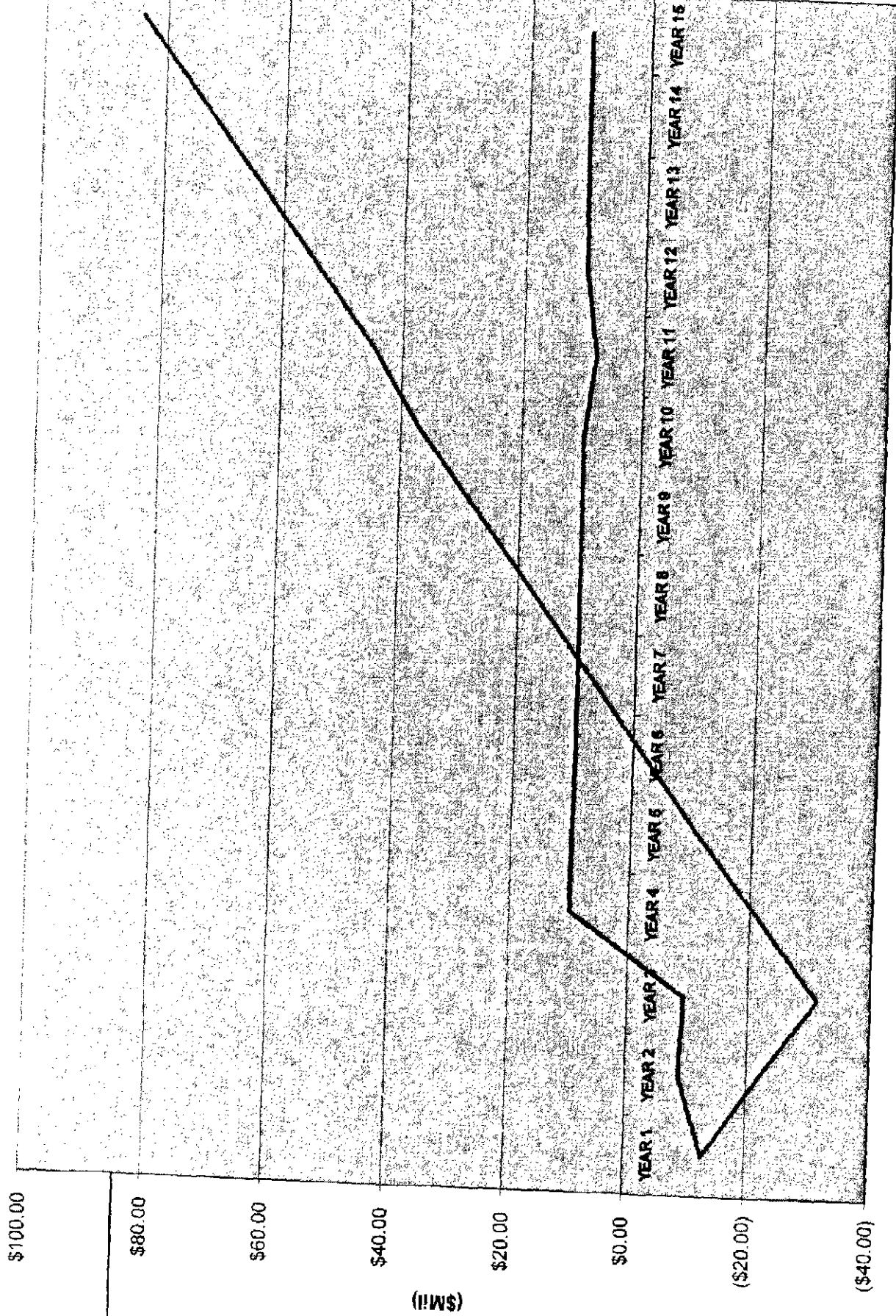
# Partial Deployment Mobile



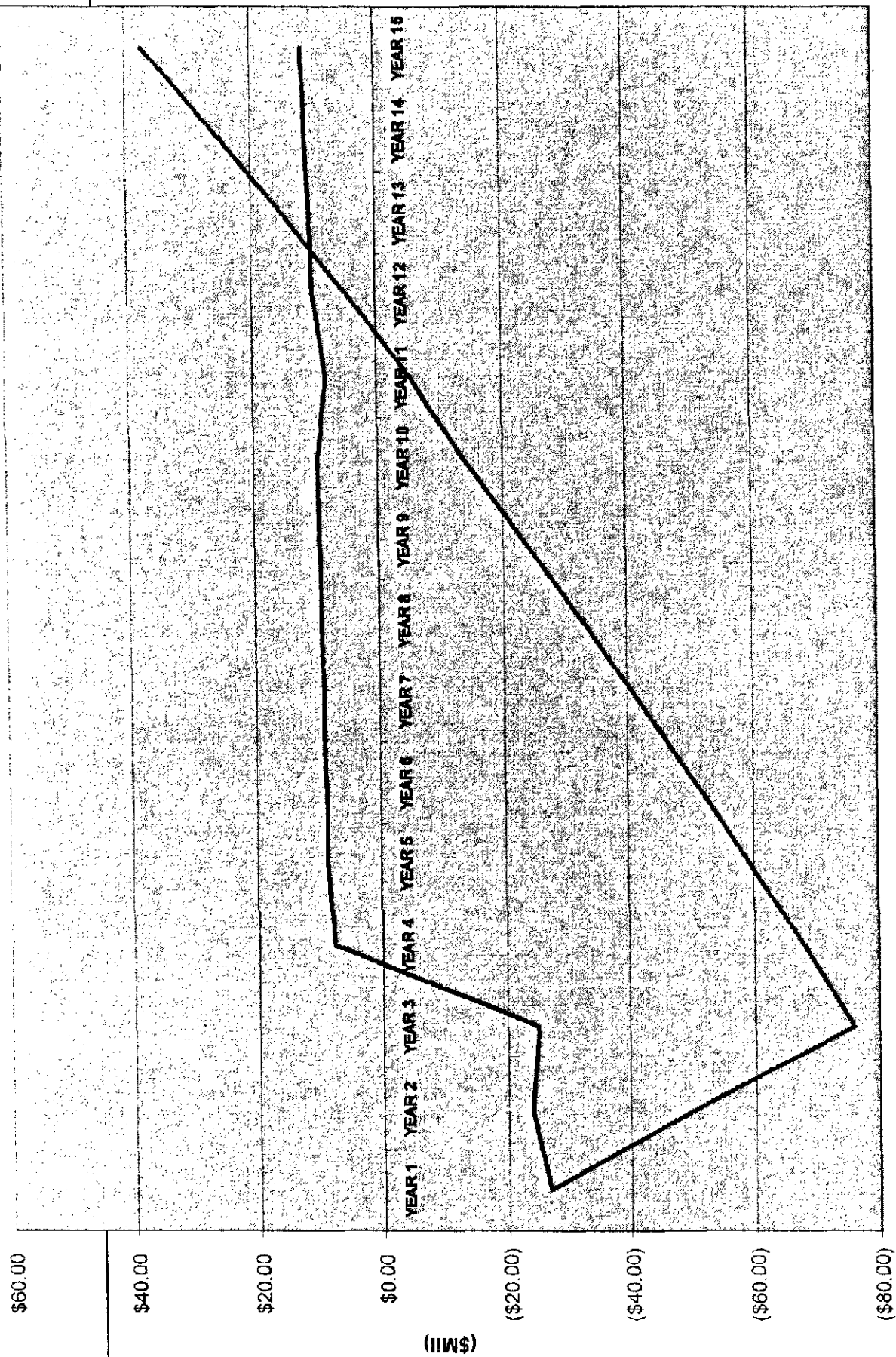
— Annual Net Cash Flow

--- Cumulative Net Cash Flow

# Partial Deployment Mobile Aggressive

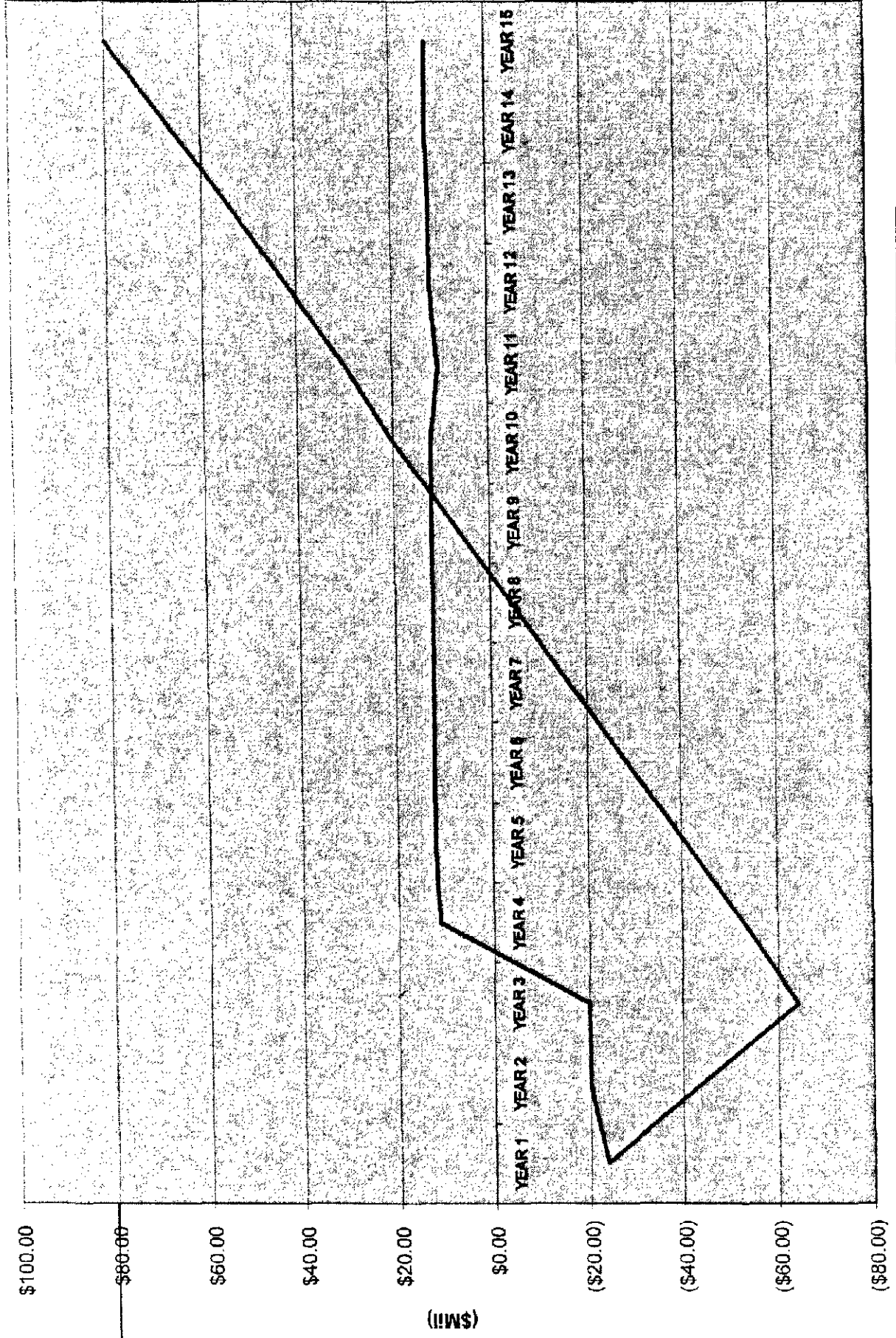


# Full Deployment Mobile

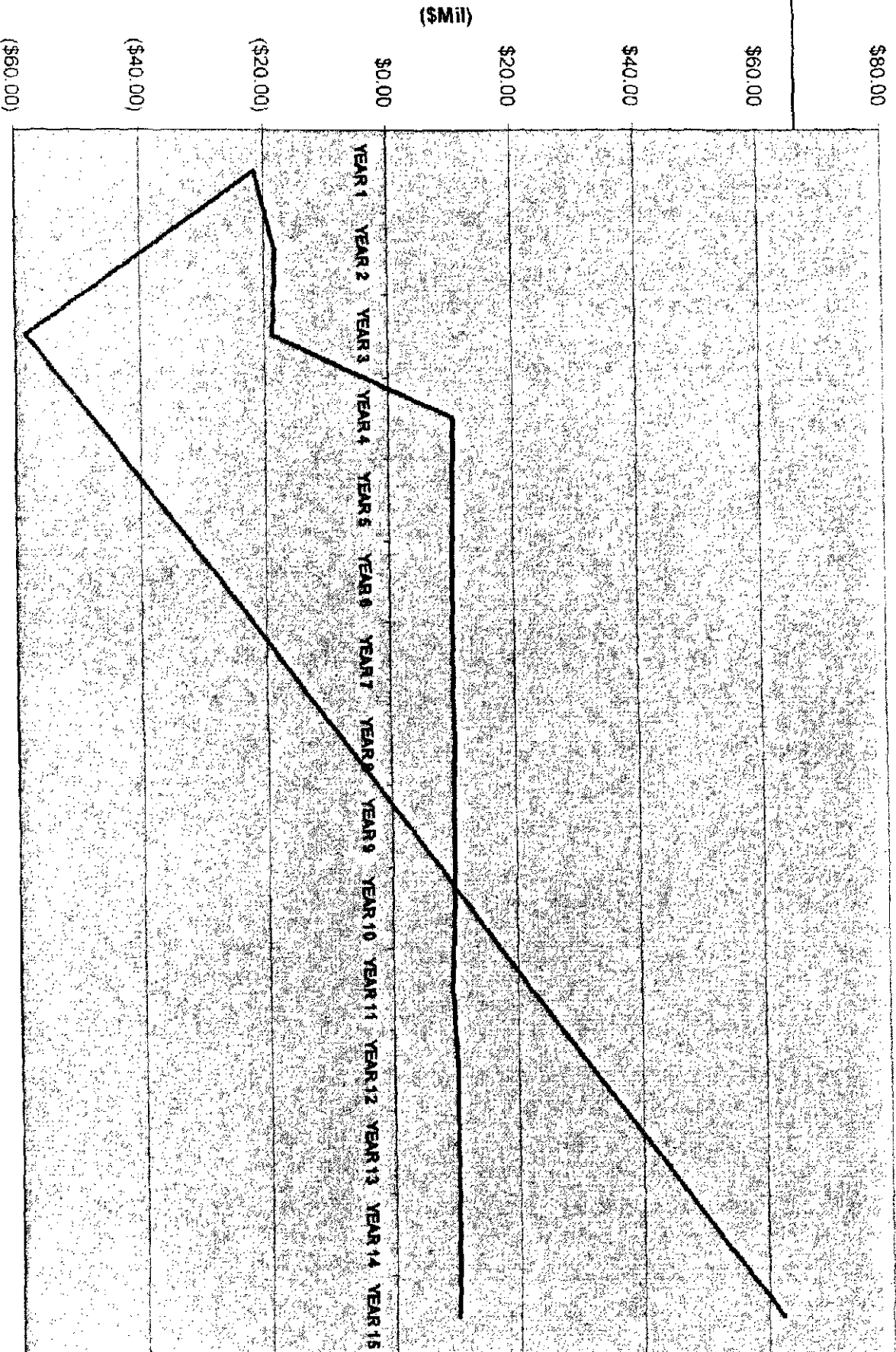


— Annual Net Cash Flow      — Cumulative Net Cash Flow

# Full Deployment Aggressive



# Partial Deployment Fixed Network



**Armstrong Deposition**

**Exhibit 4**

**Page 15**

**REDACTED**

# Cost Assumptions Range

## Inside Meters Scenario

### 3 Year Installation

	Conservative	Aggressive
NPV	\$18.4M	\$22.6M
IRR	17.4%	22.27%
Deployment Costs	\$65.4M	\$59.5M

# Cost Assumptions Range

## Full Deployment Scenario

### 3 Year Installation

	Conservative	Aggressive
NPV	\$-0.9 M	\$10.9M
IRR	9.18%	12.32%
Deployment Costs	\$102.8M	\$94.8M

# Call Center Impact

Costs:		Year 1	Year 2	Year 3	Year 4	Year 5	Steady State
1. DOT Inspection Program (94k calls per year)- assumes 50% success rate		\$ -	\$ -	\$ (542,850)	\$ (542,850)	\$ (542,850)	\$ (542,850)
2. Reroute Letters Bank Draft Customers and customers moving 3+ cycles		\$ (107,930)	\$ (107,930)	\$ (107,930)			
3. Implementation- Missed Appointments or other miscellaneous questions		\$ (71,954)	\$ (71,954)	\$ (71,954)			
4. Targeting customers less willing to comply- 1% of inside meters			\$ (14,373)	\$ (14,373)	\$ (14,373)		
5. Credit Payment and Reconnect - assumed credit # on info to customer							
<b>Total Costs</b>		\$ (179,884)	\$ (194,257)	\$ (737,107)	\$ (557,223)	\$ (542,850)	\$ (542,850)
Benefits:							
1. Reads called in (IVR, By Phone)			\$ 6,512	\$ 13,024	\$ 19,536	\$ 19,536	\$ 19,536
2. SO Check Reads - Six Sigma project this year already take this reduction		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3. Reduced number of estimated reads, calls from high bills created from X months of estimates		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
4. Reduction in AHT in High Billing Complaints-(assume X% reduction)		\$ -	\$ 36,886	\$ 73,772	\$ 110,659	\$ 110,659	\$ 110,659
<b>Total Benefits</b>		\$ -	\$ 43,398	\$ 86,796	\$ 130,195	\$ 130,195	\$ 130,195
<b>Annual Total</b>		\$ (179,884)	\$ (150,859)	\$ (650,311)	\$ (427,029)	\$ (412,655)	\$ (412,655)
<b>Total Cost of Project to Call Center</b>		\$ (5,947,292)					
<b>NPV Impact to call center</b>		\$ (3,291,361)					

**Armstrong Deposition**

**Exhibit 4**

**Page 19**

**REDACTED**