OCA Statement No. 1

BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

JOINT PETITION OF METROPOLITAN	:	DOCKET NO. M-2013-2341990
EDISON COMPANY, PENNSYLVANIA	:	DOCKET NO. M-2013-2341991
ELECTRIC COMPANY, PENNSYLVANIA:		DOCKET NO. M-2013-2341993
POWER COMPANY AND WEST PENN	:	DOCKET NO. M-2013-2341994
POWER COMPANY FOR APPROVAL OF	:	
THEIR SMART METER DEPLOYMENT	:	

DIRECT TESTIMONY

of

J. RICHARD HORNBY

On behalf of:

PENNSYLVANIA OFFICE OF CONSUMER ADVOCATE

April 1, 2013

DIRECT TESTIMONY OF J. RICHARD HORNBY

TABLE OF CONTENTS

LIST OF EXHIBITS

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, EMPLOYER, AND PRESENT POSITION.

A. My name is James Richard Hornby. I am a Senior Consultant at Synapse Energy Economics, Inc., 22 Pearl Street, Cambridge, MA 02139.

Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS CASE?

A. I am testifying on behalf of the Pennsylvania Office of Consumer Advocate ("OCA").

Q. PLEASE DESCRIBE SYNAPSE ENERGY ECONOMICS.

A. Synapse Energy Economics ("Synapse") is a research and consulting firm specializing in energy and environmental issues, including: electric generation, transmission and distribution system reliability, market power, electricity market prices, stranded costs, efficiency, renewable energy, environmental quality, and nuclear power.

Q. PLEASE SUMMARIZE YOUR WORK EXPERIENCE AND EDUCATIONAL BACKGROUND.

A. I am a consultant specializing in planning, market structure, ratemaking, and gas supply/fuel procurement in the electric and gas industries. Over the past twenty years, I have presented expert testimony and provided litigation support on these issues in approximately 100 proceedings in over thirty jurisdictions in the United States and Canada. Over this period, my clients have included staff of public utility commissions, state energy offices, consumer advocate offices and marketers.

Prior to joining Synapse in 2006, I was a Principal with CRA International and prior to that, Tabors Caramanis & Associates. From 1986 to 1998, I worked with the Tellus Institute (formerly Energy Systems Research Group), initially as Manager of the Natural Gas Program and subsequently, as Director of their Energy Group. Prior to 1986, I was Assistant Deputy Minister of Energy for the Province of Nova Scotia.

I have a Master of Science in Energy Technology and Policy from the Massachusetts Institute of Technology (MIT) and a Bachelor of Industrial Engineering from the Technical University of Nova Scotia, now merged with Dalhousie University. I have attached my resume to this testimony as Exhibit___(JRH-1).

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. Metropolitan Edison Company ("Met-Ed"), Pennsylvania Electric Company ("Penelec"), Pennsylvania Power Company ("Penn Power") and West Penn Power Company ("West Penn") (each individually a "Company" and collectively, the "Companies") filed a petition dated December 31, 2012, requesting approval of a single Smart Meter Deployment Plan ("Deployment Plan"), which would apply to all four Companies. The Companies filed Direct Testimonies of five witnesses in support of their petition.

The OCA retained Synapse Energy Economics to help them review the reasonableness of the Companies' petition. My testimony addresses the Companies' projection of Deployment Plan costs and savings, their proposals regarding measurement and reporting of those savings, and West Penn's request to recover $5.1 million of Customer Information System (CIS) costs West Penn incurred in 2009 and 2010 during the development of its smart meter plan. The fact that I do not address other aspects of the Companies' filing, however, should not be interpreted to mean I agree with those aspects. My testimony will use the term advanced metering infrastructure ('AMI') in reference to the Companies' proposed smart meter technology at certain points.

Q. **WHAT DATA SOURCES DID YOU RELY UPON TO PREPARE YOUR TESTIMONY AND EXHIBITS?**

A: I relied primarily on the Deployment Plan, the Direct Testimonies and exhibits of Company witnesses Fitzpatrick and Valdes, and the Companies' responses to various

data requests. I also reviewed Pennsylvania Public Utility Commission ("PUC" or "Commission") Orders from the Companies' prior proceedings regarding smart meter planning and deployment and the Joint Petition for Settlement at Docket No. M-2009-2123951.

II. CONCLUSIONS AND RECOMMENDATIONS

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS AND RECOMMENDATIONS.

A. My conclusions and recommendations regarding the four major issues I address in my testimony are summarized below.

First, a portion of the costs the Companies will incur under the Deployment Plan has the potential to benefit their sister utilities in other states when those utilities begin deploying AMI in their respective service territories. However, neither the magnitude of that amount, nor the method through which the Companies would receive credit for it, is clear at this point. I recommend that the Commission require the Companies to prepare a report that identifies expenditures on all components of the Deployment Plan that have the potential to benefit their sister utilities when they begin deploying AMI and that describes the method through which they will receive credit from FirstEnergy Service Company for those expenditures once their sister utilities begin to deploy AMI. I further recommend that the Commission require the Companies to allow the parties to this proceeding to review that report as part of their review of the Companies' 2014 Smart Meter Technologies Charge ("SMT-C") Rider filings.

Second, the Companies are projecting that the Deployment Plan will enable them to achieve savings, which will help offset the cost of the Deployment Plan they seek to

collect from ratepayers. The Companies are proposing to credit those savings against their actual costs when calculating the rates under their respective SMT-C Riders each year. However, the savings the Companies are projecting represent less than one-third of the projected cost of the Deployment Plan. Moreover, the Companies have only identified savings in four areas of their operations, specifically, meter reading, meter services, back-office and contact center costs. They have not identified savings in other areas such as reduction in theft, improved cash flow or avoided capital costs. I recommend that the Commission require the Companies to retain an independent consultant with experience in identifying savings from deployment of AMI to prepare a written, fully documented report assessing the potential for the Companies to achieve additional savings from the Deployment Plan in other areas of their operations. I further recommend that the Commission require the Companies to allow the parties to this proceeding to review the report of that consultant as part of their review of the Companies' 2014 SMT-C filings and require the Companies to credit any savings identified in other areas to ratepayers through their SMT-C rates.

Third, the Companies are proposing to measure the actual savings they achieve through reductions in meter reading, meter services, back-office and contact center costs by measuring those reduced costs against baseline amounts for each of these four areas. The Companies are proposing to establish the baseline amounts using values for their operations as of December 2013. I recommend that the Commission require the Companies to file their proposed baseline levels, along with the data supporting the baseline levels, as part of their 2014 SMT-C filings. The Companies should also be required to include in their filings the test year revenue requirements underlying the current rates, including the composition of those revenue requirements by account. I

further recommend that the Commission provide intervenors the opportunity to review and challenge the Companies' proposed baselines. I further recommend that the Commission require each Company to allocate its portion of the annual Deployment Plan costs among its rate classes using its annual average number of meters for the year ending June 30.

Fourth, West Penn is proposing to recover $5.1 million that it spent on modernizing its CIS in 2009 and 2010 as part of the development of its smart meter plan. West Penn has not provided any new evidence to refute the position I presented in Docket M-2009-2123951 that its investment to modernize its CIS was an investment it would make in its normal course of business. I recommend that the Commission not approve West Penn's request.

III. REVIEW OF COMPANIES' DEPLOYMENT PLAN

Q. WHAT OBLIGATION DOES ACT 129 IMPOSE ON THE COMPANIES WITH RESPECT TO DEPLOYING SMART METER TECHNOLOGY?

A. From a policy perspective, my understanding is that Act 129 requires electric distribution companies ("EDCs") serving more than 100,000 customers, such as the Companies, to deploy smart meter technology and establishes the broad policy goals the EDCs are expected to achieve. However, my understanding is also that Act 129 leaves the details of the strategies for achieving those goals to the discretion of each individual Pennsylvania electric utility under the regulatory oversight of the Commission.

This approach is consistent with sound public and ratemaking policy. First, there are many different possible approaches to deploying a Smart Meter Plan. Second, Pennsylvania utilities provide electricity to service territories that differ widely in terms

of key attributes such as the composition of their customer base, the costs of distribution service, the costs of generation service and the opportunities for reducing those costs through efficiency and demand response. Therefore, it is not surprising that Act 129 has placed the onus on each EDC to develop a Smart Meter Plan in a manner that is most cost-effective for its specific service territory.

Under this framework the onus is on the Companies to demonstrate to the Commission that their proposed Deployment Plan is the most cost-effective approach for meeting the policy objectives of Act 129 out of the range of possible alternative approaches available to them. From a policy perspective there is nothing in Act 129 which exempts the Companies from bearing the burden of demonstrating to the Commission that their Deployment Plan will satisfy the statutory obligation to provide service at reasonable rates.

Q. PLEASE SUMMARIZE THE PROPOSED DEPLOYMENT PLAN.

A. The Companies are proposing a single Deployment Plan for all four utilities under which they would replace all 2 million existing meters with smart meters by 2022. In addition the Companies would implement a Meter Data Management System (MDMS), a Head End /collection system and a "Backhaul" communications network.

The Companies are proposing to deploy this smart meter technology system, or AMI, throughout their service territories in three stages over a ten-year period, 2013 through 2022. During the first stage, which the Companies refer to as the "Post-Grace Period," the Companies will be installing smart meters in new construction and at the premises of existing customers who request a smart meter. The second stage, which the Companies refer to as the "Solution Validation Stage," would run from the last quarter of 2013 through the first quarter of 2017. During this stage, the Companies will test a

"mini" version of their proposed system by deploying and operating a full AMI in the Penn Power service territory. This will require that all Penn Power customers receive a smart meter, approximately 60,000 meters. The third stage, which the Companies refer to as the "Full-Deployment Stage," would run from the second quarter of 2017 through 2022. In this stage, the Companies are proposing to install 98.5 percent of the approximate 2 million total meters in their service territories by December 2019.

Q. PLEASE SUMMARIZE THE COMPANIES' PROJECTIONS OF COSTS AND POTENTIAL SAVINGS ASSOCIATED WITH THE DEPLOYMENT PLAN.

A. The Companies have projected the costs and potential savings associated with the Deployment Plan over a 20-year period, 2013 through 2032. The Companies project the total costs over that period to be $1.258 billion and the total potential savings to be $406 million. In other words, the Companies estimate that the potential savings will only offset about one-third of the costs of the Deployment Plan. As a result, over the period 2013 through 2032, the Companies are effectively proposing to collect a net amount of at least $852 million from their customers in order to recover the cost of installing smart meters and the associated smart meter support systems. That net cost to ratepayers equates to approximately $426 per meter when divided by the 2 million meters to be installed. On a net present value ("NPV") basis, the Companies estimate that net amount to be approximately $66 per meter.

It is important to note that 2018 is the first year in which the Companies project potential savings from the Deployment Plan. They are not projecting to achieve any savings during the Solution Validation Stage, which runs from 2013 through 2017.

Q. ARE THE COMPANIES' PROJECTIONS OF COSTS ASSOCIATED WITH THE DEPLOYMENT PLAN INDICATIVE OF THE TOTAL REVENUE REQUIREMENTS THE COMPANIES WILL ULTIMATELY SEEK TO COLLECT FROM RATEPAYERS?

A. No. My analysis indicates that the Companies' projection of $1.258 billion is not an estimate of the total revenue requirements associated with the Deployment Plan. As a result, the $1.258 billion under-estimates the amount the Companies will ultimately seek to collect from ratepayers for its smart meters and the associated smart meter support systems.

The Companies' revenue requirements for the Deployment Plan will consist of their projected Operation and Maintenance ("O&M") costs of $582 million plus their projection of $676 million in capital costs plus a return on that $676 million capital investment at their weighted average cost of capital. As a result the total revenue requirements the Companies will ultimately seek to collect from ratepayers will be greater than $1.258 billion.

Q. DID THE COMPANIES PROVIDE A PROJECTION OF THE TOTAL REVENUE REQUIREMENTS THEY WILL ULTIMATELY SEEK TO COLLECT FROM RATEPAYERS?

A. No.

Q. DID THE COMPANIES PROVIDE A PROJECTION OF BILL IMPACTS BY COMPANY BY RATE CLASS FOR EACH YEAR?

A. No. The Companies provide estimates of average bill impacts by Company by rate class, as well as the range of those bill impacts, in Figures 1.3 and 5.1 of their Deployment

Plan. The Companies' estimates of those bill impacts for its residential customers from those two Figures are summarized in Table 1 below.

Table 1. Residential Customer Monthly Bill Impacts (Nominal)

Company	Range	Average
Met-Ed	$1.04 - $4.58	$2.19
Penelec	$1.03 - $4.62	$2.25
Penn Power	$1.08 - $4.31	$2.27
West Penn Power[1]	$1.32 - $4.91*	$2.61*

However in responses to OCA-II-4 and OCA-II-19(b), the Companies did not provide the projection of bill impacts by Company by rate class for each year or the electronic copies of the workbooks the Companies used to create Figures 1.3 and 5.1.

Projected Cost of Deployment Plan

Q. PLEASE DESCRIBE THE PROJECTED COSTS OF THE PROPOSED DEPLOYMENT PLAN.

A. The Companies project the cost associated with implementing the Deployment Plan will be $1.258 billion over 20 years from 2013 through 2032. That projected total consists of projected capital and O&M costs in seven categories: Meter & Local Network, Information Technology, Systems Integration, Network & Network Management, Program Management, Business Staffing Requirements and Communications/Change Management. Exhibit___(JRH-2) presents the Companies' projections of capital and O&M costs in each of these seven categories.

[1] West Penn residential rates (indicated by an asterisk) are on a Kwh basis to be consistent with the West Penn June 30, 2011 Commission-approved Joint Petition for Settlement.

Two of the seven categories account for approximately 75 percent of the total cost associated with implementing the Deployment Plan. Those two categories are Information Technology ($543 million) and Meter & Local Area Network ($428 million).

As indicated in Exhibit___(JRH-2), by 2019 the Companies are projecting to incur approximately 60 percent of that total cost of the Deployment Plan by 2019. In particular, they are projecting to incur approximately 75 percent of the capital costs associated with implementing the Deployment Plan by that point in time.

Q. DID YOU HAVE THE OPPORTUNITY TO REVIEW THE CALCULATIONS UNDERLYING THE COMPANIES' PROJECTIONS?

A. No. The Companies developed their projections using a Financial Model, which they deemed confidential and proprietary. The Companies did not provide me an operational version of this model although I executed a Confidentiality Agreement. Instead they offered to re-run the model for alternative input assumptions if I provided those alternative input assumptions.

Because I did not have access to an operational version of the model, I was unable to audit the algorithms and calculations the model used to project annual capital and O&M costs by major category from the detailed input assumptions.

Q. DID THE COMPANIES PROVIDE A COMPARISON OF THE PROJECTED COST OF THE DEPLOYMENT PLAN TO THE PROJECTED COSTS OF OTHER UTILITY AMI PLANS?

A. Yes. Company witness Fitzpatrick compares the projected cost of the Deployment Plan to the projected costs of AMI of three other utilities on page 15 of his Direct Testimony. He makes these comparisons by dividing the projected cumulative "all-in cost" of the

AMI plans of each utility by the projected cumulative number of smart meter installations.

Mr. Fitzpatrick presents estimates based on this method for PEPCO in Maryland ($327/meter), Delmarva in Maryland ($344/meter) and Commonwealth Edison in Illinois ($357/meter). His corresponding estimate for the Companies Deployment Plan is $373/meter based on a cumulative cost through 2019 of $751 million divided by 2 million meters (OCA-II-20(d) Attachment A).

Q. PLEASE COMMENT ON THE COMPARISON OF AMI PLAN COSTS PREPARED BY MR. FITZPATRICK.

A. The comparison of AMI Plan costs that Companies' witness Fitzpatrick presents is too limited and too general. First, his comparison is limited to three utilities. In contrast, Exhibit___(JRH-4) presents an exhibit from my Direct Testimony in the West Penn proceeding at M-2009-2123951, in which I compared the projected capital costs of the West Penn smart meter plan to that of six other utilities. Since that time many more utilities have received approval to deploy AMI.

Second, and of greater importance, Mr. Fitzpatrick's comparison is limited to the total cost of each company's AMI plan despite the fact that the total cost of the FirstEnergy Companies' Deployment Plan is composed of seven categories of expenditures: Meter & Local Network, Information Technology, Systems Integration, Network & Network Management, Program Management, Business Staffing Requirements and Communications/Change Management. The comparison Mr. Fitzpatrick presents does not provide a comparison of costs for each of these categories, or even for the two largest categories of Meter & Local Network and Information Technology. Exhibit___(JRH-5) presents the FirstEnergy Companies' Deployment Plan

capital costs per installed meter through 2022 for each of those seven categories, as well as its O&M cost per installed meter through that period for the seven categories.

Because Mr. Fitzpatrick does not provide an analysis by major cost category one can draw little, if any, useful information from the comparison. For example, as I discuss next, certain expenditures the Companies will make to implement the Deployment Plan have the potential to benefit their sister utilities when the sister companies deploy AMI. Therefore, it may be useful to know how the Companies' cost of Information Technology per meter under their Deployment Plan compares to the cost of Information Technology per meter in the AMI plans of PEPCO (MD), Delmarva (MD) and Commonwealth Edison in Illinois. PEPCO (MD) and Delmarva (MD) are each subsidiaries of PHI Holdings, and they have sister utilities in New Jersey, the District of Columbia, Delaware and Virginia.

Q. PLEASE EXPLAIN WHY CERTAIN OF THE COMPANIES' DEPLOYMENT PLAN EXPENDITURES HAVE THE POTENTIAL TO BENEFIT THEIR SISTER UTILITIES WHEN THEY DEPLOY AMI.

A. The Companies themselves have indicated that certain of their expenditures for hardware, software and other services under the Deployment Plan have the potential to benefit their sister utilities in other states when those utilities begin deploying AMI in their respective service territories. Companies witness Dargie states at page 9 of his Direct Testimony that the Companies are part of ". . . an integrated network of ten utilities in five states." Later on that page he indicates that FirstEnergy developed the smart meter solution element of the Deployment Plan with the goal that it "... could be expanded and be compatible with the potential needs of the other FirstEnergy utilities in other states . . .."

The Companies indicate that implementation of the Deployment Plan will require upgrades to two of the major back-office systems they acquire from FirstEnergy Service

Company, i.e., SAP and Meter Reading /Meter Services applications (OCA-V-1). The Companies acknowledge that those upgrades would be of benefit to their sister utilities when they begin deploying AMI.

Finally, the costs the Companies will incur under the Deployment Plan can be grouped into two major categories, direct and indirect. Meter costs are an example of direct costs. Those costs are incurred in direct proportion to the number of meters installed and thus, can be allocated across all Companies and among rate classes within a specific Company according to the relevant number of meters. In contrast, "regulatory support" costs are an example of indirect costs. These costs are not incurred in direct proportion to, or "caused by," a specific driving factor. As a result, some portion of these indirect costs may also ultimately be of benefit to the Companies' sister utilities when they begin deploying AMI.

Q. WOULD THE TOTAL COST OF THE DEPLOYMENT PLAN BE LOWER IF THE COMPANIES COULD RECOVER A PORTION OF COSTS THAT ULTIMATELY PROVE TO BE OF BENEFIT TO THEIR SISTER UTILITIES IN OTHER STATES?

A. Yes. The total cost of the Deployment Plan would be lower if the Companies could recover a portion of costs that ultimately prove to be of benefit to their sister utilities in other states. However, neither the magnitude of that amount, nor the method through which the Companies would receive credit for it, is clear at this point.

The Companies acknowledge that the upgrades to the two FirstEnergy Service Company back-office systems would be of benefit to their sister utilities when they begin deploying AMI. However, the Companies estimate the capital and O&M cost of the two upgrades will only amount to $59.6 million (nominal) in total. In contrast, the cumulative total cost for Information Technology in the Deployment Plan through 2019

is $280 million. It is possible that a portion of that Information Technology amount would also be of benefit to the Companies' sister utilities when they begin deploying AMI.

The Companies state they will track the costs of upgrades to corporate back-office systems (OCA-V-1). However they have not indicated that they plan to ask FirstEnergy Service Company for a credit against those cumulative amounts once their sister utilities begin to deploy AMI.

Q. WHAT IS YOUR RECOMMENDATION REGARDING COSTS FOR COMPONENTS OF THE DEPLOYMENT PLAN THAT MAY ULTIMATELY BE OF BENEFIT TO SISTER UTILITIES OF THE COMPANIES WHO DEPLOY AMI.

A. I recommend that the Commission require the Companies to prepare a report that identifies expenditures on all components of the Deployment Plan that have the potential to benefit their sister utilities when they begin deploying AMI and that describes the method through which they will receive credit from FirstEnergy Service Company for those expenditures once their sister utilities begin to deploy AMI. The Commission should require the Companies to present this report with its 2014 SMT-C Rider filing and provide intervenors to review and challenge it.

Projection of Potential Savings Associated with Deployment Plan

Q. PLEASE SUMMARIZE THE POTENTIAL SAVINGS THE COMPANIES ARE PROJECTING TO ACHIEVE FROM THE DEPLOYMENT PLAN.

A. The Companies are projecting to achieve savings in four areas of their operations - meter reading, meter services, back-office systems and contact center. They project those savings will amount to $406 million over the 20-year period 2013 through 2032. However, the Companies are not projecting to start achieving any savings until 2018, as shown on pages 1 and 2 of Exhibit___(JRH-3). In contrast, as shown in that Exhibit, by 2018 the Companies are projecting to have incurred cumulative costs of $584 million.

Q. HOW DOES THE COMPANIES' PROJECTION OF POTENTIAL SAVINGS COMPARE TO THEIR PROJECTED TOTAL COST OF THE DEPLOYMENT PLAN?

A. The Companies' projected savings represent less than one-third of the projected cost of the Deployment Plan. In other words the Plan has a benefit to cost ratio of approximately 0.3, which is the ratio of $406 million to $1.258 billion. That benefit to cost ratio would be even lower when calculated using the revenue requirements of the Deployment Plan, since that amount will be greater than $1.258 billion. As a result, over the period 2013 through 2032, the Companies are effectively proposing to collect a net amount of at least $852 million from their customers to pay for the implementation of the smart meters and associated support systems.

Q. PLEASE EXPLAIN HOW THE LEVEL OF SAVINGS RELATIVE TO COSTS RELATES TO THE REASONABLENESS OF THE COMPANIES' PROPOSED DEPLOYMENT PLAN.

A. The level of savings relative to costs is one measure of the cost-effectiveness of the proposed Plan. As noted earlier, there are different possible approaches to developing a Deployment Plan. The Companies must demonstrate to the Commission that their proposed Deployment Plan is the most cost-effective approach for meeting the policy objectives of Act 129 out of the range of possible alternative approaches available to them. At a benefit cost ratio of approximately 0.3, the proposed Deployment Plan certainly is much less cost effective than the AMI plans of other utilities of which I am aware. Even when the calculation of benefits is limited to utility operational savings, the sponsors of many other AMI plans have estimated higher benefit to cost ratios, such as 0.5 and above.

Q. DID THE WEST PENN SETTLEMENT REQUIRE AN UPDATED ANALYSIS OF POTENTIAL SAVINGS SIMILAR TO THE ESTIMATE NEVADA POWER SUBMITTED IN NEVADA AT DOCKET NO. 09 - 07003?

A. Yes. Nevada Power projected potential savings in seven areas of its operations – meter reading, revenue protection, load research, distribution planning, credit & collections, billing, and meter operations. Under its settlement, West Penn was required to prepare a similar analysis to identify its potential savings from deployment of a smart meter system. In this proceeding, the Companies have projected potential savings in four areas corresponding to the Nevada Power estimates, specifically meter reading, meter services, back-office systems and contact center. However, the Companies have not projected potential savings in other areas examined by Nevada Power, particularly revenue protection.[2] In addition, the Companies have not included potential savings from improved cash flow within their estimate of back office savings. Nor have they estimated

[2] By "revenue protection," I am not referring to, and am specifically excluding, use of the functionality of AMI for remote disconnection of customers for late- or non-payment.

savings from avoided capital costs, such as future purchases of traditional meters. For example, the Companies current rates are recovering revenue requirements for routine capital investments in new traditional meters. Once the Companies start installing smart meters, they will be avoiding capacity investments in new traditional meters.

Q. HAVE OTHER UTILITIES AND INDUSTRY STUDIES INCLUDED ESTIMATES OF POTENTIAL SAVINGS IN THOSE AREAS ASSOCIATED WITH AMI PLANS.

A. Yes. A December 2012 Electric Power Research Institute ("EPRI") report discusses potential savings in theft reduction as well as in aspects of utility operations beyond those identified by the Companies. In addition, AMI plans of various utilities that I have reviewed include projections of potential savings in revenue enhancement, avoided capital costs and distribution operations. These plans include the SMIP filed by West Penn in 2009, as well as AMI plans filed by Commonwealth Edison, Baltimore Gas and Electric ("BGE"), Oklahoma Gas and Electric ("OG&E") and Nevada Power.

Q. DID THE COMPANIES ENGAGE AN INDEPENDENT CONSULTANT TO PREPARE A WRITTEN STUDY IDENTIFYING POTENTIAL SAVINGS ASSOCIATED WITH THEIR DEPLOYMENT PLAN?

A. No. Attachment A to response OCA-II-15(a) provides the estimate of operational cost savings included in the Companies' Financial Model. The Companies did not indicate who prepared that estimate nor did they provide any written study or report that documents the basis for their estimates. In contrast the Companies did hire various consultants with experience in AMI, such as IBM and Black & Veatch, to help them develop their Deployment Plan.

Q. DID THE COMPANIES PROVIDE A COMPARISON OF THE PROJECTED SAVINGS ASSOCIATED WITH THEIR DEPLOYMENT PLAN TO THE PROJECTED SAVINGS IN OTHER UTILITY AMI PLANS?

A. No. According to response OCA-II-21(a), the Companies did not prepare such a comparison because the West Penn settlement did not require them to do so.

Q. WHAT IS YOUR CONCLUSION REGARDING THE COMPANIES' PROJECTION OF POTENTIAL SAVINGS ASSOCIATED WITH THE DEPLOYMENT PLAN?

A. Based upon the foregoing, I conclude that the Companies have failed to develop a reasonable projection of potential savings associated with the Deployment Plan.

Q. WHAT IS YOUR RECOMMENDATION REGARDING THE COMPANIES' PROJECTION OF POTENTIAL SAVINGS ASSOCIATED WITH THE DEPLOYMENT PLAN?

A. I recommend that the Commission require the Companies to retain an independent consultant with experience in identifying savings from deployment of AMI to prepare a written, fully documented, report assessing the potential for the Companies to achieve additional savings from the Deployment Plan in other areas of its operations. I further recommend that the Commission require the Companies to allow the parties to this proceeding to review the report of that consultant as part of their review of the Companies' 2014 SMT-C filings and require the Companies to credit any savings identified in other areas to ratepayers through their SMT-C rates.

Cost Recovery

Q. PLEASE SUMMARIZE THE COMPANIES' PROPOSAL FOR ALLOCATING THE COSTS OF THE DEPLOYMENT PLAN ACROSS THE FOUR INDIVIDUAL UTILITIES AND FOR COLLECTING THOSE ALLOCATED COSTS FROM RATEPAYERS.

A. The Companies are proposing to allocate the costs of the Solution Verification Stage of the Deployment Plan across the four individual Companies. Each individual Company is proposing to collect the costs allocated to it through its specific SMT-C Rider.

The Companies are apparently proposing to allocate the projected costs for each year during the Solution Verification Stage across the four Companies according to the number of meters by Company as of June the prior year. I say "apparently" because none of the Company witnesses describe this allocation. I assume this is the proposed allocation, as it is consistent with the proposed allocation among rate classes within each Company, discussed below, and is generally consistent with the allocation in the Financial Model (OCA-II-11, Follow-up).

Each individual Company is proposing to collect the deployment costs allocated to it through its specific SMT-C Rider. Each Company proposes to calculate the rates under its SMT-C Rider by allocating those costs among its rate classes according to the number of meters by rate class as of June the prior year. Companies witness Valdes describes the development of SMT-C rates on pages 3 to 12 of his Direct Testimony.

Q. HAS THE COMMISSION APPROVED THESE COST ALLOCATION METHODOLOGIES IN ITS ORDERS IN PRIOR PROCEEDINGS?

A. Yes, to some degree.

In its Orders in prior proceedings for West Penn and for what were then the three FirstEnergy utilities, the Commission approved allocation of each Company's smart meter plan costs among its rate classes according to number of meters. However, the Commission Order in the prior proceeding for what were then the three FirstEnergy utilities is silent regarding the allocation of joint smart meter plan costs among the three utilities. In this proceeding the Companies appear to be proposing to allocate those costs according to each Company's number of meters as of June each year, which is consistent with the allocation of costs within each Company approved by the Commission. I agree that the method of allocating the costs among the four Companies should be consistent with the Commission-approved method of allocating costs within each Company.

In its Orders in prior proceedings, the Commission did not approve a specific time period each Company should use to calculate the number of meters for allocation purposes. In this proceeding, the Companies are proposing to use the number of meters as of June each year. Rather than relying on the number of meters for only one month, I recommend the each Company use its annual average number of meters for the year ending June 30.

Q. WHAT IS YOUR RECOMMENDATION REGARDING THE COMPANIES' PROPOSAL TO ALLOCATE COSTS BASED UPON THE NUMBER OF METERS IN JUNE EACH YEAR?

A. I recommend that the Commission require the Companies to use their annual average number of meters for the year ending June 30 to allocate costs of the Deployment Plan among the four Companies each year. I further recommend that the Commission require each Company to allocate its portion of the annual Deployment Plan costs among its rate

classes using the Company's annual average number of meters for the year ending June 30.

Proposed Measurement and Reporting of Savings

Q. IS IT CRITICAL THAT THE COMPANIES ESTABLISH A METHOD FOR ACCURATELY MEASURING AND TRACKING THEIR ACTUAL SAVINGS FROM THE DEPLOYMENT PLAN.

A. Yes. The actual savings the Companies achieve from the deployment of smart meters are expected to offset, or reduce, the total costs the Companies collect from ratepayers under Rider SMT-C. Given the magnitude of the Deployment Plan costs the Companies are seeking to collect, it is particularly critical that the Companies establish a method for measuring the savings accurately and for crediting the actual savings against the actual costs of their Deployment Plan each year. The actual savings that the Companies report each year should be included as credits in the calculation of their respective SMT-C rates each year. Under the statute, and to ensure just and reasonable rates, it is essential that the Companies measure all savings accurately each year and report those measured savings.

Q. HAVE THE COMPANIES PROPOSED METHODS FOR MEASURING AND TRACKING ACTUAL SAVINGS IN EACH OF THEIR PROJECTED FOUR AREAS OF POTENTIAL SAVINGS?

A. Yes. The Companies are projecting to achieve savings in four areas of their operations - meter reading, meter services, back-office systems and contact center. They have proposed methods for measuring and tracking their actual savings in each of these four areas on pages 58 through 64 of the Deployment Plan. Under the proposed methods the

Companies would calculate savings by measuring reductions in various relevant metrics. The Companies suggest such metrics as meter reader headcount, average meter reader Full Time Equivalent ("FTE") labor costs, fleet costs, number of meter reading handhelds, back office headcount, back office FTE labor costs and contact center FTE costs.

One of the most critical elements in the application of these methods will be the identification of appropriate metrics and the establishment of accurate "baseline" levels for each of those metrics. The baseline level of each metric provides the reference level against which the Companies would measure reductions. Mr. Fitzpatrick states that the Companies are proposing to set these baseline levels based upon actual levels for each metric as of December 31, 2013 (Fitzpatrick, page 17).

Q. IS IT CLEAR THAT THE COMPANIES' ACTUAL COSTS AS OF DECEMBER 31, 2013 WILL SERVE AS REASONABLE BASELINE AMOUNTS FOR MEASURING ACTUAL SAVINGS IN EACH OF THEIR PROJECTED FOUR AREAS OF POTENTIAL SAVINGS?

A. No. The Companies' actual costs as of December 31, 2013 are not the revenue requirements upon which their currently effective rates are based. Instead, the test year revenue requirements underlying the current rates of Met-Ed and Penelec date back to 2006 according to the Companies' response to OCA-II-16(d). The test year revenue requirements underlying the current rates of Penn Power and West Penn date back even further, to 1996, according to the same data response. Thus, it is not at all clear or obvious that the Companies' actual costs as of December 31, 2013 will provide appropriate baseline amounts for the calculation of savings and the establishment of just and reasonable rates.

Q. WHAT IS YOUR RECOMMENDATION REGARDING MESUREMENT AND REPORTING OF SAVINGS FROM THE DEPLOYMENT PLAN.

A. I recommend that the Commission require the Companies to file their proposed baseline levels, along with the data supporting the baseline levels, as part of their 2014 SMT-C filing. The Companies should include in their filings the test year revenue requirements underlying the current rates, including the composition of those revenue requirements by account. I further recommend that the Commission provide intervenors the opportunity to review and challenge the Companies' proposed baselines.

Request for Recovery of West Penn CIS Costs from 2009

Q. PLEASE SUMMARIZE WEST PENN'S REQUEST TO RECOVER $5.1 MILLION IN CIS COSTS.

A. Company witness Valdes discusses this request starting on page 14 of his Direct Testimony.

Q. PLEASE SUMMARIZE THE BACKGROUND TO THIS ISSUE.

A. West Penn, as part of its SMIP filing at Docket M-2009-2123951, included approximately $45.1 million for costs related to Phase I and Phase II activities, including amounts for modernizing the Company's CIS. My direct testimony in that proceeding presented my position that West Penn's investment to modernize its CIS was an investment one would expect a utility like West Penn to make in its normal course of business.

My position in that proceeding was based upon, and supported by, various admissions made by West Penn. First, West Penn stated that the CIS, which is its billing

system, was installed in the 1970s and that prior to the Company's 2009 modernization investment, the Company had not made any major investments to upgrade that system since 1999. West Penn also acknowledged that the CIS was used by all of its parent corporation's distribution operating companies, including West Penn's sister companies operating in Maryland and West Virginia. West Penn further acknowledged that 52 percent of the CIS costs would be allocated to its sister companies in Maryland and West Virginia, and those sister companies would seek to collect those allocated costs through distribution base rate proceedings in their respective states.

In rebuttal, West Penn witnesses Heasley and Arthur each stated that the Company needs to modernize its CIS in order to support the deployment of smart meter technology and the rate offerings enabled by that technology. However, neither Mr. Heasley nor Mr. Arthur explicitly denied that modernizing the CIS was an investment that West Penn would make in its normal course of business. Instead, both Company rebuttal witnesses simply stated that they understood Act 129 to allow recovery of those capital costs as part of the implementation of smart meter technology.

In my surrebuttal in that proceeding, I stated my understanding was that the extent to which Act 129 does or does not allow for recovery of expenditures that the Company would make as part of its normal course of business would be the subject of legal interpretation in the briefs that the parties would file later in that proceeding.

The parties to Docket M-2009-2123951 ultimately entered a settlement under which they agreed to allow West Penn to recover $40 million of costs through its SMIP rider. They also agreed that West Penn could seek recovery of the remaining $5.1 million directly related to the CIS in its next distribution base rate or as part of the smart meter surcharge in connection with its Revised SMIP filing, with all parties reserving their rights to

challenge any such request. West Penn seeks recovery of the remaining $5.1 million in this proceeding.

Q. HAS MR. VALDES PRESENTED ANY NEW EVIDENCE TO REFUTE YOUR POSITION THAT THE COMPANY'S INVESTMENT TO MODERNIZE ITS CIS WAS AN INVESTMENT IT WOULD MAKE IN ITS NORMAL COURSE OF BUSINESS?

A. No. In his Direct Testimony on pages 15 and 17, Mr. Valdes repeats the positions presented by Mr. Heasley and Mr. Arthur in their rebuttal testimonies in Docket M-2009-2123951. Mr. Valdes also notes that the investment in the CIS has proven used and useful. This argument misses the point. The point is not the used and usefulness of the CIS system. Instead, the point is that the Company's investment in modernizing its CIS was one that it would and should make in its normal course of business, and therefore, the costs of the CIS should not be collected through the SMT-C rider.

Q. WHAT IS YOUR RECOMMENDATION REGARDING WEST PENN'S REQUEST TO RECOVER CIS COSTS FROM 2009?

A. I recommend that the Commission not approve West Penn's request.

Q. **DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

A. Yes.

167387

EXHIBITS

James Richard Hornby

Senior Consultant
Synapse Energy Economics, Inc.
485 Massachusetts Ave., Suite 2, Cambridge, MA 02139
(617) 453-7043 • fax: (617) 661-0599
www.synapse-energy.com

PROFESSIONAL EXPERIENCE

Synapse Energy Economics, Inc., Cambridge, MA.
Senior Consultant, 2006 to present.
Provides analysis and expert testimony regarding planning, market structure, ratemaking and supply contracting issues in the electricity and natural gas industries. Planning cases include evaluation of resource options for meeting tighter air emission standards (e.g. retrofit vs. retire coal units) in Kentucky, West Virginia and U.S. Midwest as well as development of long-term projections of avoided costs of electricity and natural gas in New England. Ratemaking cases include electric utility load retention rate in NS, various gas utility rate cases and evaluation of proposals for advanced metering infrastructure (smart grid or AMI) and dynamic pricing in MD, PA, NJ, AR, ME, NV, DC and IL.

Charles River Associates (formerly Tabors Caramanis & Associates), Cambridge, MA.
Principal, 2004-2006, *Senior Consultant,* 1998–2004.
Expert testimony and litigation support in energy contract price arbitration proceedings and various ratemaking proceedings. Productivity improvement project for electric distribution companies in Abu Dhabi. Analyzed market structure and contracting issues in wholesale electricity markets.

Tellus Institute, Boston, MA.
Vice President and Director of Energy Group, 1997–1998.
Manager of Natural Gas Program, 1986–1997.
Presented expert testimony on rates for unbundled retail services, analyzed the options for purchasing electricity and gas in deregulated markets, prepared testimony and reports on a range of gas industry issues including market structure, strategic planning, market analyses, and supply planning.

Nova Scotia Department of Mines and Energy, Halifax, Canada.
Member, Canada-Nova Scotia Offshore Oil and Gas Board, 1983–1986.
Assistant Deputy Minister of Energy 1983–1986.
Director of Energy Resources 1982-1983
Assistant to the Deputy Minister 1981-1982

Nova Scotia Research Foundation, Dartmouth, Canada, *Consultant*, 1978–1981.
Canadian Keyes Fibre, Hantsport, Canada, *Project Engineer*, 1975–1977.
Imperial Group Limited, Bristol, England, *Management Consultant*, 1973–1975.

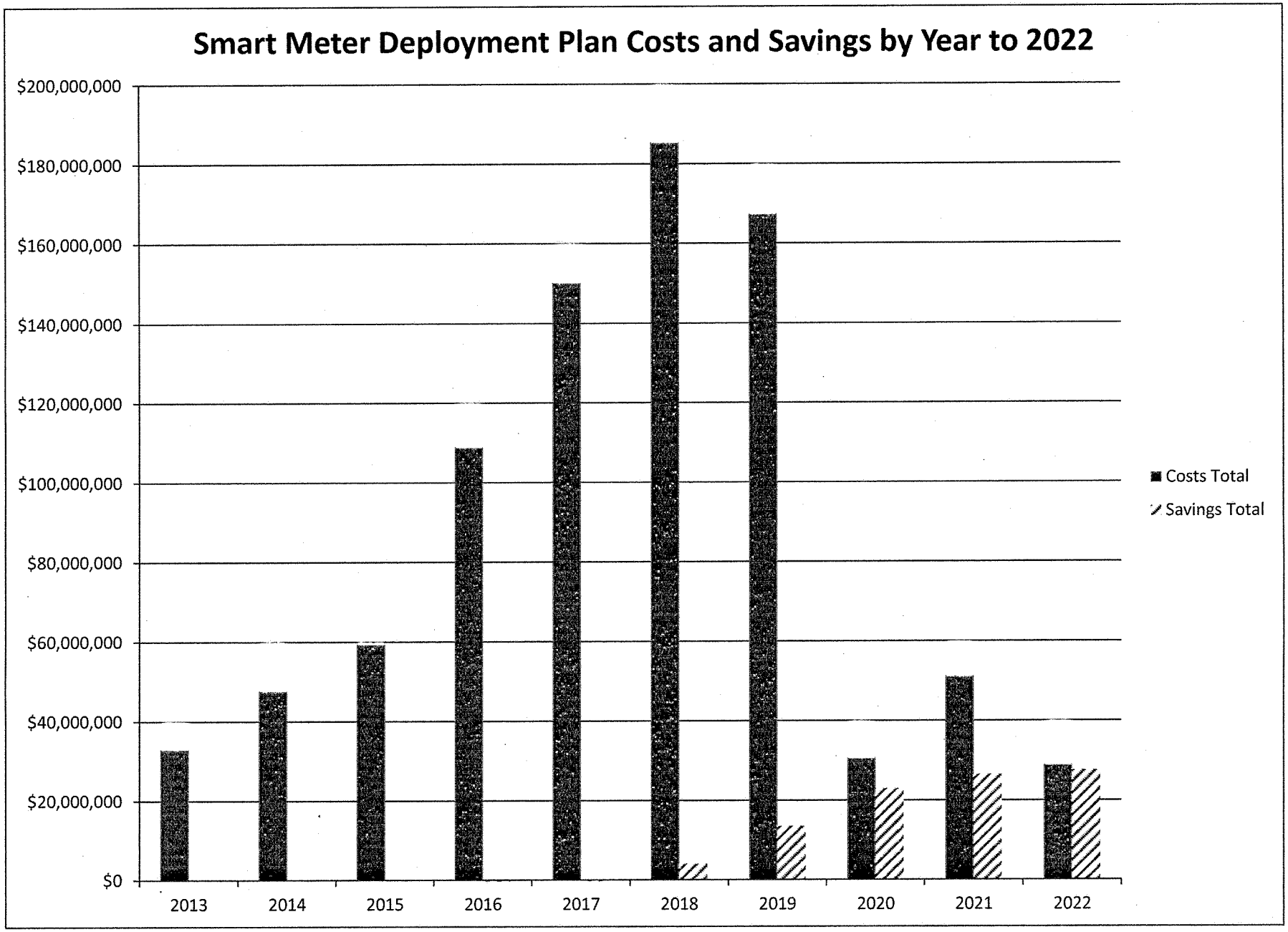
EDUCATION

M.S., Technology and Policy (Energy), Massachusetts Institute of Technology, 1979.
B.Eng., Industrial Engineering (with Distinction), Dalhousie University, Canada, 1973

Summary of Costs associated with Smart Meter Deployment Plan (nominal dollars)

Category	Deployment Stage (2013-2019)	Post Deployment (2020-2032)	Total	Percentage
Capital				
Meter & Local Area Network	$299,572,616	$43,873,686	$343,446,302	51%
Information Technology	$130,497,349	$134,985,388	$265,482,737	39%
Systems Integration	$54,932,380		$54,932,380	8%
Network & Network Mgmt	$60,000	$100,000	$160,000	0%
Program Mgmt	$1,277,321	$201,250	$1,478,571	0%
Business Staffing Requirements	$9,658,029		$9,658,029	1%
Communications/Change Mgmt	$387,038		$387,038	0%
Capital Costs Total	**$496,384,733**	**$179,160,324**	**$675,545,057**	**100%**
O&M				
Meter & Local Area Network	$44,265,577	$40,619,835	$84,885,411	15%
Information Technology	$94,072,858	$183,155,699	$277,228,558	48%
Systems Integration	$28,405,089	$3,854,335	$32,259,424	6%
Network & Network Mgmt	$4,241,600	$11,989,392	$16,230,992	3%
Program Mgmt	$10,680,657	$2,725,760	$13,406,417	2%
Business Staffing Requirements	$45,008,661	$73,795,765	$118,804,426	20%
Communications/Change Mgmt	$28,782,177	$10,452,826	$39,235,003	7%
O&M Costs Total	**$255,456,618**	**$326,593,613**	**$582,050,231**	**100%**
Total Costs				
Meter & Local Area Network	$343,838,193	$84,493,521	$428,331,713	34%
Information Technology	$224,570,207	$318,141,087	$542,711,295	43%
Systems Integration	$83,337,469	$3,854,335	$87,191,804	7%
Network & Network Mgmt	$4,301,600	$12,089,392	$16,390,992	1%
Program Mgmt	$11,957,978	$2,927,010	$14,884,988	1%
Business Staffing Requirements	$54,666,689	$73,795,765	$128,462,454	10%
Communications/Change Mgmt	$29,169,215	$10,452,826	$39,622,042	3%
Total Costs	**$751,841,352**	**$505,753,937**	**$1,257,595,288**	**100%**
	60%	**40%**	**100%**	

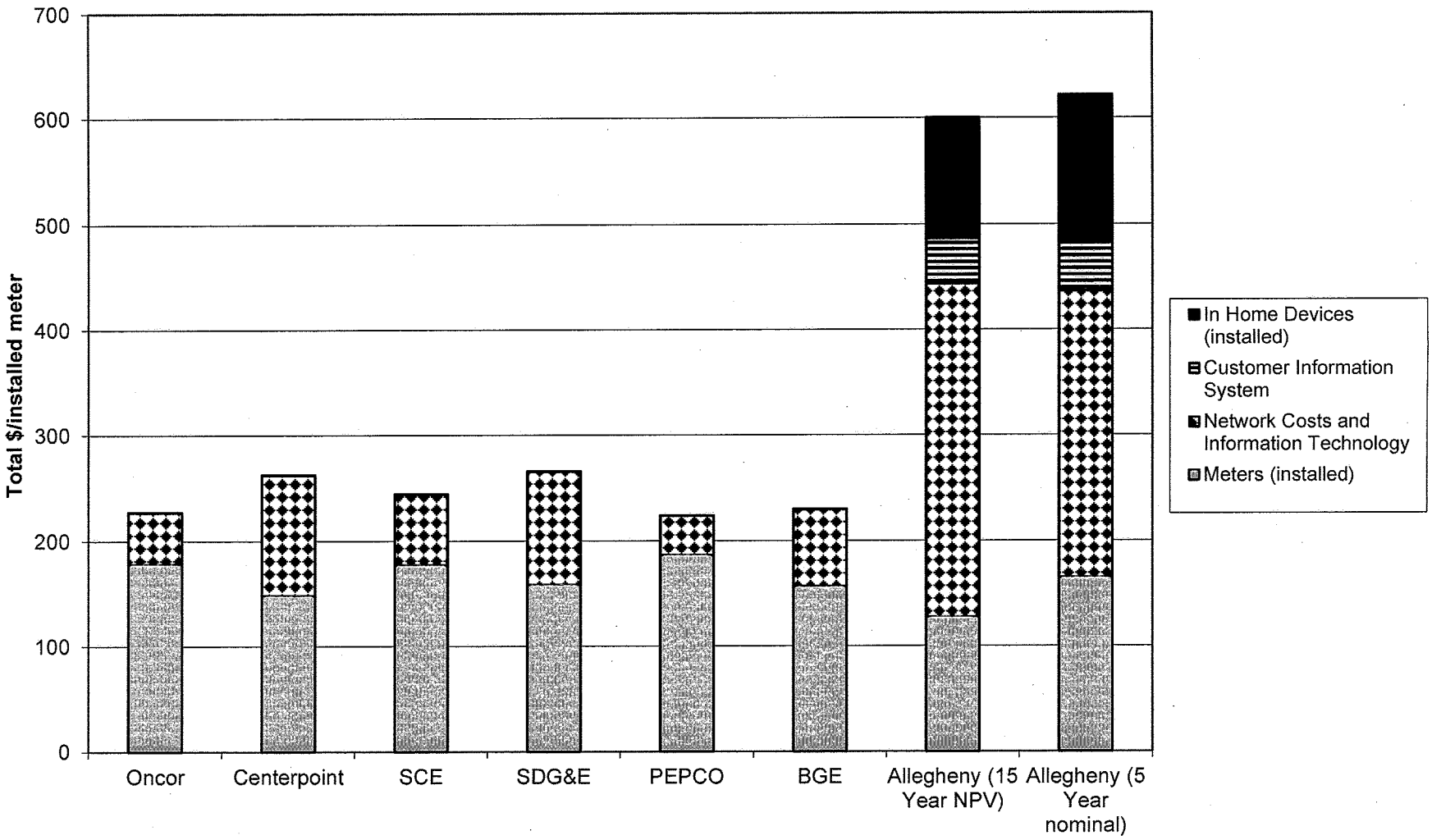
Notes
Data from Response from OCA Set II, No. 4


Smart Meter Deployment Plan Costs and Savings by Year to 2022
$200,000,000
$180,000,000
$160,000,000
$140,000,000
$120,000,000
$100,000,000
$80,000,000
$60,000,000
$40,000,000
$20,000,000
$0
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
Costs Total
Savings Total

Summary of Costs and Savings associated with Smart Meter Deployment Plan by Year through 2022 (nominal $)											
Category	Solution Validation Stage (2013-2017)					Full Deployment Period (2018-2022)					Total
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
COSTS & SAVINGS BY YEAR											
Capital	$3,559,442	$13,220,130	$31,425,808	$74,934,547	$109,612,866	$140,364,503	$123,267,437	$6,693,240	$27,033,119	$4,023,222	**$534,134,314**
O&M	$29,460,555	$34,406,892	$27,907,103	$33,939,054	$40,588,794	$45,044,079	$44,110,140	$24,003,024	$24,106,407	$24,970,188	**$328,536,237**
Costs Total	**$33,019,997**	**$47,627,022**	**$59,332,912**	**$108,873,601**	**$150,201,660**	**$185,408,583**	**$167,377,577**	**$30,696,263**	**$51,139,526**	**$28,993,410**	**$862,670,551**
Savings Total	**$0**	**$0**	**$0**	**-$538,047**	**-$435,615**	**$3,998,781**	**$13,532,624**	**$23,026,983**	**$26,513,264**	**$27,587,970**	**$93,685,961**
CUMULATIVE COSTS AND SAVINGS BY YEAR											
Costs	**$33,019,997**	**$80,647,019**	**$139,979,931**	**$248,853,532**	**$399,055,192**	**$584,463,775**	**$751,841,352**	**$782,537,615**	**$833,677,141**	**$862,670,551**	
Savings	**$0**	**$0**	**$0**	**-$538,047**	**-$973,662**	**$3,025,119**	**$16,557,743**	**$39,584,727**	**$66,097,990**	**$93,685,961**	

Notes
Based on response to OCA Set II, No. 4

Capital Cost of Allegheny Power Smart Meter Plan versus Advanced Metering Infrastructure (AMI) Projects of Other Utilities (as $ per installed meter)



Capital Cost of Allegheny Power Smart Meter Plan versus Advanced Metering Infrastructure (AMI) Projects of Other Utilities								
Utility	**Oncor**	**Centerpoint**	**SCE**	**SDG&E**	**PEPCO**	**BGE**	**Allegheny (15 Year NPV)**	**Allegheny (5 Year nominal)**
State	TX	TX	CA	CA	MD	MD	PA	PA
Data - Projected or Actual, Year					P, 2009	P, 2009	P, 2009	P, 2009
Regulatory Commission Approval (Yes/No	Y	Y	Y	Y	N	N	N	N
# meters (million)	3	2.4	5.3	2.3	0.57	2.1	0.715	0.715
Toptal System Capital costs (million $)								
Meters	535	356	723	364	106	329		
Meter Installation			217					
Sub- total Installed Meter Cost	**535**	**356**	**940**	**364**	**106**	**329**	**91**	**118**
Network Communication	80	99			5	14		
Distribution automation								
Meter Data Management System	55				16	99		
Other							226	194
Customer Information System							31	34
In Home Devices							81	98
Total	682	629	1294	611	128	482	**429**	**444**
Unit capital costs of system expressed as $ per installed meter								
Meters (installed)	178	148	177	158	187	157	127	165
Network Costs and Information Technolog	49	114	67	108	37	73	316	272
Customer Information System							43	48
In Home Devices (installed)							113	137
Total	**227**	**262**	**244**	**266**	**224**	**230**	**600**	**622**

Smart Meter Deployment Plan costs per Meter Installed through 2019 (nominal dollars)

Category	Deployment Stage (2013-2019)
Capital	
Meter & Local Area Network	$149
Information Technology	$65
Systems Integration	$27
Network & Network Mgmt	$0
Program Mgmt	$1
Business Staffing Requirements	$5
Communications/Change Mgmt	$0
Capital Costs Total	$246
O&M	
Meter & Local Area Network	$22
Information Technology	$47
Systems Integration	$14
Network & Network Mgmt	$2
Program Mgmt	$5
Business Staffing Requirements	$22
Communications/Change Mgmt	$14
O&M Costs Total	$127
Total Costs	
Meter & Local Area Network	$171
Information Technology	$112
Systems Integration	$41
Network & Network Mgmt	$2
Program Mgmt	$6
Business Staffing Requirements	$27
Communications/Change Mgmt	$14
Total Costs	$373

Notes

Costs from Exhibit___(JRH-2) divided by 2,014,000 meters