BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF PUBLIC SERVICE COMPANY OF NEW MEXICO FOR REVISION OF ITS RETAIL ELECTRIC RATES PURSUANT TO ADVICE NOTICE NO. 507	)	Case No. 14-00332-UT
PUBLIC SERVICE COMPANY OF NEW MEXICO, Applicant	)	

DIRECT TESTIMONY AND EXHIBITS

OF

DANIEL G. HANSEN

DECEMBER 11, 2014

NMPRC CASE NO. 14-00332-UT
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WITNESS FOR
PUBLIC SERVICE COMPANY OF NEW MEXICO

DIRECT TESTIMONY OF
DANIEL G. HANSEN
NMPRC CASE NO. 14-00332-UT

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME, POSITION, AND BUSINESS ADDRESS.

A. My name is Daniel G. Hansen. I am a Vice President at Christensen Associates Energy Consulting, LLC located at Suite 400, 800 University Bay Drive, Madison, Wisconsin 53705.

Q. HAVE YOU PREVIOUSLY TESTIFIED IN UTILITY REGULATION PROCEEDINGS?

A. Yes. I have testified on issues related to revenue decoupling in Arizona, Connecticut, Minnesota, Nevada, Oregon, and Utah. In these hearings, I represented a broad range of clients, including a regulator, an environmental organization, a non-profit organization of utility investors, and investor-owned utilities. In addition, I have conducted independent evaluations of revenue decoupling mechanisms that were implemented at Portland General Electric, New Jersey Natural Gas, South Jersey Gas, and Northwest Natural Gas. My education and work experience are described in PNM Exhibit DGH-1.

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

A. I am testifying on behalf of the Public Service Company of New Mexico ("PNM").

DIRECT TESTIMONY OF
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Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. The purpose of my testimony is to introduce and support PNM's proposed four-year pilot for revenue decoupling, which is called the Revenue Balancing Account. Specifically, in the sections that follow, I will discuss:

- Why decoupling is appropriate for PNM;
- Why decoupling is preferred to alternative means of addressing PNM's disincentive to promote conservation and energy efficiency;
- Decoupling trends in the United States;
- PNM's decoupling proposal; and
- How PNM's decoupling proposal balances the public interest, consumers' interests, and investors' interests.

Q. HOW DOES YOUR TESTIMONY RELATE TO THE TESTIMONY PRESENTED BY OTHER PNM WITNESSES?

A. Mr. Gerard Ortiz provides the policy support for PNM's proposal to implement a four-year pilot for revenue decoupling called the Revenue Balancing Account; Ms. Stella Chan supports the Revenue Balancing Account; and my testimony provides a description of how the Revenue Balancing Account will operate pursuant to the terms of the tariff.

Q. AS A PRELIMINARY MATTER, PLEASE EXPLAIN WHAT A REVENUE DECOUPLING MECHANISM IS.

A. A revenue decoupling mechanism reduces or eliminates a utility's disincentive to promote conservation and energy efficiency by removing the link between the utility's sales and revenues. A decoupling mechanism removes this disincentive by creating a tracking account in which the difference between allowed and billed revenues is recorded, where allowed revenues are determined in a rate case and are reflective of the customer class's cost of service. Over-recovery of allowed revenues results in a rate decrease for customers in a future period (typically the following year). Conversely, under-recovery of allowed revenues results in a rate increase in a future period. Therefore, the decoupling mechanism makes the utility indifferent to the level of customer sales.

Q. TO WHICH CUSTOMER GROUPS DOES PNM INTEND TO APPLY ITS PILOT?

A. The Revenue Balancing Account will apply to two customer groups: Residential Service (Rates 1A and 1B) and Small Power Service (Rates 2A and 2B).

Q. WHY DOES PNM HAVE A DISINCENTIVE TO PROMOTE CONSERVATION AND ENERGY EFFICIENCY UNDER CURRENT RATES?

A. As my testimony will address in detail below, under its current rate structures, PNM collects a significant share of its fixed costs through revenues recovered through volumetric (per-kWh) rates. As such, when its customers use less energy, PNM's revenues decrease by more than its avoided costs. In other words, lower sales reduce PNM's revenues by the full amount of the volumetric rate, but only reduce its costs by the amount of avoided fuel costs. This gives the utility a disincentive to promote conservation and energy efficiency to its customers. By removing the link between utility sales and revenues, the Revenue Balancing Account would make PNM indifferent towards its customers' usage levels, thus removing PNM's disincentive to promote conservation and energy efficiency.

II. SUMMARY OF KEY CONCLUSIONS

Q. WHAT ARE YOUR KEY CONCLUSIONS?

A. Revenue decoupling is appropriate for PNM, is consistent with the Efficient Use of Energy Act ("EUEA"), and is preferred to alternative methods of removing PNM's disincentive to promote conservation and energy efficiency for Residential Service and Small Power Service customers. As required by the EUEA, the Revenue Balancing Account balances the public interest, consumers' interests, and investors'

interests. Consumer and investor interests are balanced primarily through the symmetry of the Revenue Balancing Account. The utility is both protected from under-recovery of fixed costs and prevented from obtaining over-recovery of fixed costs. Additional information on the balancing of interests may be found in Section VII. As I describe below, I therefore recommend the approval of the Revenue Balancing Account described in my direct testimony.

III. REVENUE DECOUPLING IS APPROPRIATE FOR PNM AND NEW MEXICO STATUTES SUPPORT ADOPTION OF REVENUE DECOUPLING FOR PNM

Q. WHAT TOPICS WILL YOU ADDRESS IN THIS SECTION OF YOUR DIRECT TESTIMONY?

A. In this section of my direct testimony, I will explain why the proposed Revenue Balancing Account pilot is appropriate for PNM. I also explain why New Mexico statutes support the adoption of a revenue decoupling mechanism for PNM.

Q. WHY IS DECOUPLING APPROPRIATE FOR PNM?

A. PNM's existing Residential Service and Small Power Service rate structures give PNM a disincentive to promote conservation and energy efficiency to those customer groups. Decoupling is a commonly used means of removing this disincentive while retaining the customer-level incentive to conserve. Moreover, decoupling is consistent with the provisions of the EUEA.

Q. PLEASE DESCRIBE THE PORTIONS OF THE EFFICIENT USE OF ENERGY ACT THAT ARE RELEVANT TO THE PROPOSED REVENUE BALANCING ACCOUNT.

A. The EUEA requires PNM to "acquire cost-effective and achievable energy efficiency and load management resources available in their service territories." *See* Efficient Use of Energy Act at § 62-17-5(G). Funding for the program costs incurred in meeting this requirement "shall be three percent of customer bills, excluding gross receipts taxes and franchise and right-of-way access fees". *See* Efficient Use of Energy Act at § 62-17-6(A). In addition, the Act directs that "[t]he Commission shall… identify regulatory disincentives or barriers for public utility expenditures on energy efficiency and load management measures and ensure that they are removed in a manner that balances the public interest, consumers' interests and investors' interests." Efficient Use of Energy Act at § 62-17-5(F).

Q. HAS PNM IMPLEMENTED COST-EFFECTIVE AND ACHIEVABLE ENERGY EFFICIENCY AND LOAD MANAGEMENT RESOURCES IN ACCORDANCE WITH THE EFFICIENT USE OF ENERGY ACT?

A. Yes. In his direct testimony in NMPRC Case No. 14-00310-UT, PNM witness Steven Bean testifies that PNM's energy efficiency activities comply with the Efficient Use of Energy Act. (Page 6, lines 4-16.)

Q. DOES PNM FACE A "REGULATORY DISINCENTIVE OR BARRIER FOR PUBLIC UTILITY EXPENDITURES ON ENERGY EFFICIENCY" AS DESCRIBED IN THE EUEA?

A. Yes. The requirement to pursue cost-effective and achievable energy efficiency places downward pressure on PNM's sales over time. Because PNM recovers a significant share of its fixed costs through volumetric rates, any resulting sales reductions will cause PNM's revenues to be reduced by more than its avoided costs, thus creating a disincentive for PNM to promote conservation and energy efficiency.

Q. DOES PNM'S PROPOSED INCREASE IN MONTHLY CUSTOMER CHARGES FOR RESIDENTIAL SERVICE AND SMALL POWER SERVICE CUSTOMERS REMOVE PNM'S DISINCENTIVE TO PROMOTE CONSERVATION AND ENERGY EFFICIENCY?

A. No. Although PNM is proposing to increase its monthly customer charges for its Residential Service and Small Power Service customers, the resulting charges of $12.80 and $23.39 per month, respectively, will still only recover a fraction of the fixed costs allocated to those customer groups. In order to remove PNM's disincentive to promote conservation and energy efficiency, the Residential Service customer charge would need to be $62.92 per month and the Small Power Service customer charge would need to be $158.98 per month. Therefore, even under the

proposed customer charges, the Revenue Balancing Account is needed to remove PNM's disincentive to promote conservation and energy efficiency.

Q. CAN YOU DEMONSTRATE THE EXISTENCE OF THE "REGULATORY DISINCENTIVE" TO PROMOTE CONSERVATION AND ENERGY EFFICIENCY?

A. Yes. This disincentive to promote conservation and energy efficiency exists because of PNM's regulatory rate design and can be demonstrated. PNM Exhibit DGH-2 shows that for the Residential Service and Small Power Service classes, the amount of revenue collected by the fixed charges is substantially lower than the allocated fixed costs. (PNM's other customer classes are included in the exhibit for reference.) For example, the Residential customer class has a total fixed cost requirement of approximately $346 million, but only approximately $70 million would be collected from the proposed monthly customer charges. That leaves $275 million in fixed costs to be recovered through the energy charges, or $0.08583 per kWh at test-year projected sales. By definition, the level of fixed costs does not change as customers use more or less energy.[1] Therefore, when customers use less energy, PNM's revenues decline more than its ongoing cost to serve its customers. Therefore, reduced usage also reduces PNM's realized rate of return. This is true regardless of the overall level of PNM's sales or profitability. Under current rates, PNM is

[1] In the long run, persistent changes in electricity consumption can lead to changes in capital investment decisions, resulting in higher or lower levels of fixed costs.

financially better off when its customers use more electricity, and worse off when they use less. That will not change with more frequent rate cases, the use of a future test year, or with incremental increases to the monthly customer charges. The best way to remove the disincentive is to implement the proposed Revenue Balancing Account.

Q. GIVEN THAT PNM FACES A DISINCENTIVE TO PROMOTE CONSERVATION AND ENERGY EFFICIENCY, DOES THE ACT SUPPORT THE APPROVAL OF A DECOUPLING MECHANISM?

A. Yes, the EUEA actually requires the adoption of some mechanism to address PNM's regulatory disincentive related to its energy efficiency programs, provided it "balances the public interest, consumers' interests and investors' interests." PNM is required by the Amended Stipulation approved in Case No. 10-00086-UT to consider alternative means of addressing its disincentive and "act in good faith to incorporate the suggestions of other Signatories into its filing." PNM has met with stakeholders to discuss alternative means of addressing its disincentive and is making proposals to implement alternatives where appropriate. Specifically, PNM is proposing to increase demand charges for General Power (Rates 3B and 3C); Large Power (Rate 4B); Large Industrial Service 8,000 kW minimum (Rate 5B); Large Service for Universities (Rate 15B); Large Service for Manufacturing (Rate 30B); and Station Service (33B). For the new proposed Very Large Service schedule

(34B), demand rates are initially set to recover all demand-related costs. This change in rate structure serves as a partial substitute for decoupling for these customers. However, this method is not appropriate for Residential Service and Small Power Service customers, because these customers do not have the demand meters required to apply a demand charge. PNM is also proposing an increase in the monthly customer charge for these two rate classes, but as I discussed earlier in my testimony, the increase comes nowhere near removing the disincentive.

I will describe below why decoupling is preferred to alternative means of addressing PNM's disincentive to promote energy efficiency programs to these Residential Service and Small Power Service customers. I also discuss below why PNM's proposed Revenue Balancing Account pilot balances the public interest, consumers' interests, and investors' interests in accordance with § 62-17-5(F) of the Efficient Use of Energy Act.

IV. EVALUATION OF ALTERNATIVES TO THE REVENUE BALANCING ACCOUNT

Q. WHAT TOPICS WILL YOU ADDRESS IN THIS SECTION OF YOUR DIRECT TESTIMONY?

A. In this section of my direct testimony, I describe why the proposed Revenue Balancing Account is preferred to alternative methods for removing PNM's disincentive to promote conservation and energy efficiency. By evaluating these

alternatives, PNM complies with the terms of the Amended Stipulation approved in Case No. 10-00086-UT. The Stipulation states the following:

> Before PNM requests Commission approval of any mechanism to address disincentives to utility energy efficiency programs, PNM and other parties shall engage in good faith consultations regarding alternative ratemaking solutions, including alternative mechanisms such as off-system sales credits, increased demand charges or reducing the recovery of fixed costs through volumetric charges for non-residential customers. PNM shall act in good faith to incorporate the suggestions of other Signatories into its filing. Any suggestions not incorporated by PNM must be specifically identified and thoroughly analyzed in its filing.

PNM met with stakeholders on two occasions. The first meeting, on September 29, 2014, was attended by only PNM and a representative from the New Mexico Attorney General's Office. To provide an additional opportunity to discuss revenue decoupling and its alternatives, PNM held a second meeting on November 5, 2014. Commission Staff, the New Mexico Attorney General's Office, the Albuquerque Bernalillo County Utility Water Authority, and the New Mexico Industrial Energy Consumers attended. PNM gave a presentation that described the nature of its disincentive to promote energy efficiency and then presented a number of alternative means of addressing it. In addition to the alternatives discussed during the meeting, the Attorney General's Office contacted PNM following the meeting to request that PNM explore the use of a minimum bill provision as a substitute for decoupling.

Q. WHAT ALTERNATIVES TO DECOUPLING FOR ADDRESSING ITS DISINCENTIVE TO SUPPORT ENERGY EFFICIENCY PROGRAMS DID PNM EVALUATE?

A. PNM evaluated the alternatives contained in the Stipulation: increasing demand charges or reducing the recovery of fixed costs through volumetric rates for non-residential customers; and off-system sales ("OSS") credits. In addition, PNM evaluated a number of alternatives discussed during the stakeholder meetings, including: future test years; frequent rate cases; Straight Fixed Variable ("SFV") rate design; Lost Revenue Adjustment Mechanisms ("LRAMs"); and a minimum bill provision.

PNM has adopted the suggestion to use increased demand charges in place of decoupling for several customer classes, as noted above. For these customers, who already pay a demand charge and have the meter technology required to bill customers based on their demand, increasing the demand charge serves as an appropriate substitute for revenue decoupling. For its Residential Service and Small Power Service customers, PNM evaluated the options listed above, but determined that decoupling is a superior option. A discussion of each alternative follows.

Q. HOW ARE OSS CREDITS SHARED BETWEEN PNM AND ITS CUSTOMERS?

A. Currently, net margins from OSS are allocated 90 percent to customers and 10 percent to PNM. Beginning January 1, 2017 through December 31, 2019, customers will receive 100 percent of the benefit from OSS. PNM is not allowed to share in OSS net margins again until January 1, 2020, at the earliest.

Q. HOW MIGHT OSS CREDITS BE USED AS A SUBSTITUTE FOR DECOUPLING?

A. I believe the idea is that as customers use less energy, PNM would have increased opportunities to pursue OSS. The net revenues from these transactions would, in theory, be used to offset the lost fixed-cost recovery that occurs as customers use less energy.

Q. WHY IS DECOUPLING A BETTER METHOD THAN OSS CREDITS FOR ADDRESSING PNM'S DISINCENTIVE TO PROMOTE CONSERVATION AND ENERGY EFFICIENCY?

A. The primary shortcoming of using OSS credits in place of decoupling is that the amount of revenue generated from OSS does not necessarily match the amount of lost revenue from conservation and energy efficiency. The market price for electricity varies with market conditions while the amount of fixed costs to be

recovered remains constant. As it stands, PNM will pass through to customers 100 percent of the net margins from OSS beginning in 2017 and 90 percent of the benefit in the interim. If OSS credits are not large enough to offset PNM's lost fixed costs, PNM's disincentive to promote conservation and energy efficiency would remain. That is, using OSS credits in an attempt to resolve PNM's disincentive issue does nothing to address the recovery of fixed costs through volumetric rates, nor does it remove the incentive to *increase* sales. The use of OSS credits would transfer PNM's sales-related incentive issues to the wholesale side of the business if, and only if, profit margins on the wholesale market are sufficient. When the OSS credits are not sufficient to cover lost revenues, PNM's disincentive is the same as it is in the absence of the Revenue Balancing Account. In addition, customers are better off with a Revenue Balancing Account because it provides credits back to customers when PNM over-recovers its fixed costs. That is not the case with OSS credits.

Q. WHAT IS PNM'S PREFERRED SOLUTION FOR REMOVING ITS DISINCENTIVE TO PROMOTE CONSERVATION AND ENERGY EFFICIENCY?

A. PNM and its customers would benefit from implementing PNM's proposed Revenue Balancing Account and maintaining the current sharing structure regarding OSS credits. Customers currently receive 90 percent of the benefit from OSS, which will increase to 100 percent of the benefit by 2017. Under PNM's proposal, customers

can continue to benefit from OSS while the proposed Revenue Balancing Account ensures that PNM's incentives are aligned with those of its customers.

Q. DOES PNM'S USE OF A FUTURE TEST YEAR REMOVE PNM'S DISINCENTIVE TO PROMOTE CONSERVATION AND ENERGY EFFICIENCY?

A. No. A future test year establishes rates based on a forecast of sales, but does not remove the link between actual sales and PNM's revenues. Since this link is the source of the regulatory disincentive to promote conservation and energy efficiency, a future test year is not a substitute for revenue decoupling. That is, even if the future test year incorporates a forecast of usage reductions from energy efficiency programs, PNM would be financially better off if it underperformed the forecast. In the absence of the Revenue Balancing Account, PNM is better off when it sells more electricity and worse off when it sells less.

Q. DOES THE ACCURACY OF PNM'S FUTURE TEST YEAR FORECAST AFFECT THE NEED FOR THE REVENUE BALANCING ACCOUNT?

A. No. Whatever PNM's sales forecast happens to be, PNM is always better off selling more electricity to its Residential Service and Small Power Service customers in the absence of the Revenue Balancing Account. If it happens to be the case that actual sales exactly match forecast sales, then a) the Revenue Balancing Account would

not affect customer rates; and b) in the absence of the Revenue Balancing Account, stakeholders would have no way of knowing whether PNM would have attempted to promote *more* savings from its energy efficiency programs than occurred. We *would* know that it had a disincentive to do so, raising questions about whether program performance was as good as it could have been.

Q. WOULD FILING FREQUENT RATE CASES, EACH OF WHICH TAKES INTO ACCOUNT REDUCED SALES AS A RESULT OF ENERGY EFFICIENCY, REMOVE PNM'S DISINCENTIVE TO PROMOTE CONSERVATION AND ENERGY EFFICIENCY?

A. No. More frequent rate cases only reduce the length of time during which PNM loses revenue when customers participate in energy efficiency programs. Even if the sales forecast used in the rate case accounts for historical and expected sales reductions from energy efficiency programs, the link between PNM's sales and revenues remains intact. Therefore, in the absence of the Revenue Balancing Account, the disincentive to promote conservation and energy efficiency would continue to exist. Further, rate cases are expensive and time consuming, requiring a significant commitment of resources by the Commission and interested parties. In addition, there is a limit on how frequently new cases can be filed and therefore how effective this approach could be in removing the regulatory disincentive.

Q. WHAT IS SFV RATE DESIGN?

A. Under SFV rate design, *all* fixed costs are recovered through fixed charges such as monthly customer charges or demand charges. Because Residential Service and Small Power Service customers do not have a demand meter, SFV rate design would be implemented by increasing the monthly customer charge to fully recover all fixed costs. Because adopting SFV rate design does not change the total revenue requirement, the increase in the customer charge results in a decrease in the energy rate.

Q. WOULD SFV RATE DESIGN REMOVE PNM'S DISINCENTIVE TO PROMOTE CONSERVATION AND ENERGY EFFICIENCY TO RESIDENTIAL SERVICE AND SMALL POWER SERVICE CUSTOMERS?

A. Yes. SFV rate design would remove the link between PNM's sales and revenues provided the customer charges were set to recover all fixed costs allocated to those customer classes. This would require customer charges of $62.92 per customer month for Residential Service customers and $158.98 per month for Small Power Service customers.

Q. WHY DOES PNM PREFER ITS REVENUE BALANCING ACCOUNT PROPOSAL TO SFV RATE DESIGN?

A. SFV rate design would represent a dramatic change in rate design for the affected customers. While the total revenue requirement for the Residential Service and Small Power Service customers would not be affected by adopting SFV pricing, the intra-class bill impacts would be significant. For example, Residential 1A customers using 300 kWh per month would experience a doubling of their bill relative to the current rate design. Proposing SFV pricing would be inconsistent with the Commission's principle of gradualism in making changes to rate design, which is also expressed in Ms. Chan's direct testimony. In addition, SFV pricing reduces the customer-level incentive to conserve. Specifically, the reduced energy rate (relative to the energy rate that would be charged at the current or proposed customer charge levels) lowers a customer's return for pursing conservation and energy efficiency, which may make customers less likely to engage in those behaviors. In contrast, revenue decoupling does not reduce the customer-level incentive to conserve.

Q. WHAT IS AN LRAM?

A. An LRAM would allow PNM to recover the lost fixed costs associated with the sales reductions attributable to its energy efficiency programs. To implement an LRAM, the Commission would approve a rate that represents the amount of lost fixed costs per kWh, which would then be multiplied by the measured and verified

energy savings from PNM's energy efficiency programs. The total amount of lost fixed costs, calculated as the product of the conserved kWh and the cent-per-kWh fixed cost rate, would be recovered through customer rates in the following year.

Q. WOULD AN LRAM REMOVE PNM'S DISINCENTIVE TO PROMOTE CONSERVATION AND ENERGY EFFICIENCY TO RESIDENTIAL SERVICE AND SMALL POWER SERVICE CUSTOMERS?

A. Only partially. There are several concerns and limitations regarding PNM's incentives under an LRAM. First, an LRAM would not affect PNM's incentive to *increase* sales. That is, under an LRAM, PNM could effectively promote its energy efficiency programs, while at the same time offering load *growth* programs. Second, under an LRAM, PNM would only want to offer energy efficiency programs for which energy savings can be reliably estimated. This could exclude some programs from PNM's consideration, such as offering general energy efficiency tips without having a means of tracking whether or how customers act upon them. PNM refers to these as "market transformation" programs. Third, an LRAM could lead to significant disputes regarding the estimates of conserved energy. While measurement and evaluation is currently conducted by an independent evaluator approved by the NMPRC, various stakeholders would have incentives to dispute the estimates because each additional estimated kWh saved affects PNM's revenues and customer rates. Uncertainty or concerns about the accuracy of the estimated kWh

savings could reduce the extent to which the LRAM affects PNM's incentives. That is, if PNM believes that the energy efficiency savings are consistently underestimated for a particular program, it will retain a disincentive to promote that program. By contrast, because revenue decoupling is based on a comparison of metered and allowed use per customer, its performance is not affected by the accuracy of the energy efficiency savings estimates.

Q. WHY DOES PNM PREFER ITS REVENUE BALANCING ACCOUNT PROPOSAL TO AN LRAM?

A. An LRAM would only be a partial solution to PNM's energy efficiency incentive issues. The proposed Revenue Balancing Account resolves all of the concerns about LRAMs listed above: it removes PNM's incentive to increase sales; it removes disincentives to promote energy efficiency programs for which the saved energy is difficult to estimate; and it does not rely on estimates of saved energy. Finally, customers may prefer decoupling to an LRAM due to its symmetry. That is, it is possible that PNM's average energy sales per customer could increase in spite of its energy efficiency programs due to compensating factors such as a hot summer, a very cold winter, or an increase in end-use appliances. If this were to occur, PNM would return money to customers under its proposed Revenue Balancing Account. In contrast, an LRAM always results in additional collections from customers as long as there are energy efficiency savings.

Q. HOW DOES A MINIMUM BILL PROVISION FUNCTION?

A. A minimum bill specifies the minimum amount that the customer will pay per billing month. The customer's bill is calculated using the charges defined in the tariff (which may be limited to energy charges, but could also include customer or demand charges). If the resulting amount is less than the minimum bill, the customer pays the minimum bill amount. If the resulting amount is greater than the minimum bill, the customer pays that amount and the minimum bill does not affect what the customer pays. For example, if a rate consisted of only a 10 cents/kWh energy charge and a $5 per month minimum bill, any customer under 50 kWh per month (= $5.00 per month / $0.10 per kWh) would pay the $5 per month minimum bill while customers using more than 50 kWh per month would simply pay 10 cents/kWh for all usage.

Q. HOW DOES A MINIMUM BILL PROVISION DIFFER FROM A MONTHLY CUSTOMER CHARGE?

A. A monthly customer charge is paid by customers regardless of the level of their usage or the total amount of their bill. A minimum bill provision only affects a customer's bill if their otherwise applicable bill is below the minimum bill amount. This will only be true for customers with a usage level below a certain level, which is typically quite low.

Q. CAN A MINIMUM BILL PROVISION SERVE AS A SUBSTITUTE FOR DECOUPLING?

A. No, unless the minimum bill amount is set at the same level required for full SFV pricing (e.g., $62.92 per customer month for Residential Service customers). At lower amounts, a minimum bill provision would exacerbate PNM's disincentive to promote conservation and energy efficiency. Because the minimum bill is paid by relatively few customers while a customer charge is paid by all customers, the use of a minimum bill provision shifts even more fixed cost recovery to volumetric rates. The vast majority of customers are unaffected by the minimum bill provision. For these customers, usage reductions from conservation or energy efficiency continue to lead to a reduction in utility revenues that are supposed to pay for fixed costs.

V. DECOUPLING TRENDS IN THE UNITED STATES

Q. WHAT TOPICS WILL YOU ADDRESS IN THIS SECTION OF YOUR DIRECT TESTIMONY?

A. In this section of my direct testimony, I will describe the national trends in revenue decoupling, including high-level descriptions of the decoupling mechanisms currently in place in other states.

Q. IS THERE A TREND TOWARD DECOUPLING IN THE ELECTRIC UTILITY INDUSTRY?

A. Yes. Decoupling has become more prevalent in recent years for electric utilities. One study reports that between May 2009 and May 2013, decoupling increased from 12 to 27 electric utilities.[2] The same report notes that as of May 2013, decoupling was in use for an electric and/or gas utility in 26 states and the District of Columbia.

Q. HAVE YOU EXAMINED THE DECOUPLING MECHANISMS OF OTHER ELECTRIC UTILITIES?

A. Yes. I have found 26 electric utilities that currently have a decoupling mechanism in place, with an additional mechanism pending approval of a settlement agreement (Avista Utilities in Washington). The utilities with decoupling mechanisms and the states these utilities provide service in are listed in PNM Exhibit DGH-3, along with some information about the design of each mechanism.[3] A "yes" in the "RPCD" column indicates the mechanism uses a revenue per-customer design to determine allowed revenues.[4] Where "no" is indicated in the "RPCD" column, the utility trues up revenues to a pre-specified total revenue amount. For all but one utility, United

[2] *A Decade of Decoupling for US Energy Utilities: Rate Impacts, Designs, and Observations*, Pamela Morgan, Graceful Systems LLC (Dec. 2012) at pp. 2-3.
[3] The list of decoupled utilities was developed using the previously cited Morgan study and the following study: *State Electric Efficiency Regulatory Frameworks*, Institute for Electric Efficiency, July 2013.
[4] In Central Maine Power's decoupling mechanism, the allowed revenue is adjusted annually by 75 percent of the percentage change in the number of customers served (positive or negative).

Illuminating, the revenue amount changes over time according to a schedule determined at the time the mechanism was approved.

The "Include Weather Effects" column indicates whether the effects of changing weather conditions on customer sales, and therefore utility revenue, are included in the decoupling-induced rate changes. The "EE Performance Incentives" column indicates whether the utility has a separate energy efficiency incentive program in place in addition to its decoupling mechanism. The "Cap on Deferral" column indicates whether the decoupling-induced rate adjustments are capped at a certain percentage or level. The "Cap Level" column contains the amount of the cap, if applicable. The "Soft or Hard Cap" column indicates whether deferrals in excess of the cap amount are carried over into subsequent periods, a "soft" cap, or lost forever, a "hard" cap.

Q. IS THE REVENUE BALANCING ACCOUNT PROPOSED BY PNM CONSISTENT WITH INDUSTRY PRACTICES?

A. Yes. As I will show in the following section, the key features of PNM's proposed Revenue Balancing Account are commonly in use by other electric utilities.

VI. PNM'S PROPOSED REVENUE BALANCING ACCOUNT

Q. WHAT TOPICS WILL YOU ADDRESS IN THIS SECTION OF YOUR DIRECT TESTIMONY?

A. In this section of my direct testimony, I provide a detailed description of PNM's proposed Revenue Balancing Account.

Q. AT A CONCEPTUAL LEVEL, HOW DOES THE PROPOSED REVENUE BALANCING ACCOUNT FUNCTION?

A. In the proposed Revenue Balancing Account, PNM records the monthly differences between allowed and actual revenue toward fixed costs for each of the Residential Service (Rates 1A and 1B) and Small Power Service (Rates 2A and 2B) customer classes. This difference is called the "decoupling deferral." These deferrals are accumulated for 12 consecutive months, at which point the annual total is divided by forecast sales to the customer class for the following year to calculate the decoupling-induced rate change. When allowed revenue is less than actual revenue, customers receive a rate decrease in the following year. When allowed revenue exceeds actual revenue, customers receive a rate increase in the following year. The total amount of allowed revenue changes with the number of customers served, so that the Revenue Balancing Account ensures that PNM recovers a constant amount of revenue per customer regardless of customer usage levels. Because it severs the link between PNM's sales and revenues, the Revenue Balancing Account removes

PNM's disincentive to promote conservation and energy efficiency. The details of the mechanism are presented below.

Q. PLEASE DESCRIBE THE PROPOSED REVENUE BALANCING ACCOUNT IN DETAIL.

A. PNM proposes to implement a revenue-per-customer decoupling ("RPCD") mechanism. Each month, the Revenue Balancing Account deferral will be calculated as the difference between the monthly allowed revenue toward fixed costs set in this rate proceeding and the actual revenue toward fixed costs billed under the volumetric rates to those customers, as shown in Equation 1 below. Where customers pay block or time-of-use rates (e.g., Residential Service), the "actual" revenue is approximated using a single fixed energy charge ("*FCE*"). This avoids the need to compile billing data by rate block, or to apportion fixed cost recovery across the rate blocks or pricing periods.

Specifically, the RPCD mechanism will calculate monthly deferrals for each applicable customer group as follows:

Equation 1: $Deferral_{c,t} = (FCC_c \times C_{c,t}) - (FCE_c \times kWh_{c,t}^{Billed})$

where

$Deferral_{c,t}$ is the decoupling deferral for customer group c in month t;

FCC_c is the fixed cost per customer-month for customer group c;

$C_{c,t}$ is the number of customers in customer group c during month t;

FCE_c is the fixed-cost portion of the energy rate for customer group c, expressed in \$/kWh; and

$kWh_{c,t}^{Billed}$ is the billed sales to customer group c in month t.

The first term of Equation 1, FCC_c x $C_{c,t}$, represents the total allowed revenue, calculated as the fixed monthly revenue per customer multiplied by the number of customers currently served. This term shows that *total* allowed revenues change with the number of customers served. The second term of Equation 1 represents the fixed-cost recovery attained by PNM during the same month, calculated as billed sales to the customer group during the billing month ($kWh_{c,t}^{Billed}$) multiplied by the fixed cost per kWh as determined in the rate case (FCE_c). Every twelve months, the cumulative deferral for each customer group will be incorporated into customer rates for the following year by dividing the deferral amount by the forecast of sales to the customer group. A positive cumulative deferral will result in a rate increase. A negative cumulative deferral will result in a rate decrease.

Q. HOW IS THE REVENUE BALANCING ACCOUNT APPLIED TO EACH APPLICABLE CUSTOMER GROUP?

A. As noted above, the Revenue Balancing Account will apply to two customer groups: Residential Service (Schedules 1A and 1B) and Small Power Service (Schedules 2A and 2B). A separate Revenue Balancing Account will be established for each

customer group. That is, there will be class-specific values for *FCC* and *FCE*, and the deferrals and resulting rate adjustments will be calculated separately for each class. This ensures that the Revenue Balancing Account will not cause any inter-class cross-subsidies.

Q. HOW WILL THE PARAMETERS OF THE REVENUE BALANCING ACCOUNT BE SET?

A. PNM Exhibit SC-16 shows how the *FCC* and *FCE* parameters are calculated for each of the two applicable customer groups. The Total Fixed Cost Requirement is calculated as the sum of the Customer and Demand Revenue Requirements. Revenue collected from customer charges is subtracted from this amount, with the remainder representing the amount of fixed costs recovered through the energy rates. To calculate the *FCC*, the fixed cost recovered through the energy rate is divided by the test-year number of customers served in the customer group. To calculate the *FCE*, the fixed cost recovered through the energy rate is divided by the test-year sales to the customer group.

Q. WHY ARE GENERAL POWER SERVICE AND LARGE POWER SERVICE CUSTOMERS EXCLUDED FROM THE REVENUE BALANCING ACCOUNT?

A. As shown in Ms. Chan's direct testimony, PNM is proposing to increase the demand charges for the General Power Service and Large Power Service customers, which will result in a reduction in the amount of fixed cost recovery through the energy rate for these customers. For General Power Service and Large Power Service, approximately 31 percent of these classes' fixed costs will be recovered through its volumetric rate under the proposed rates. By comparison, under the current rate designs approximately 39 and 37 percent of fixed costs for the General Power Service and Large Power Service customers are recovered through the volumetric rate, respectively. While the proposed rates continue to include some fixed-cost recovery through volumetric rates, the share is low compared to the share of fixed costs recovered through volumetric rates for the Residential Service and Small Power Service customers. PNM's proposed Revenue Balancing Account includes only the Residential Service and Small Power Service customers in the interest of gradualism, which may be advisable given that this would be the first electric decoupling mechanism implemented in New Mexico. By focusing on the customer classes for which PNM faces the largest disincentive to promote conservation and energy efficiency, the proposed Revenue Balancing Account provides a good combination of effectiveness and gradualism.

Q. HOW LONG WILL THE PROPOSED REVENUE BALANCING ACCOUNT BE IN PLACE?

A. PNM proposes to implement the Revenue Balancing Account as a four-year pilot program. Specifically, Revenue Balancing Account deferrals will be calculated for 48 months beginning in the month following Commission approval of the mechanism. At some time before the end of the pilot period, PNM will file to renew the program, propose modifications, or recommend discontinuation. If no action is taken by the Commission, the Revenue Balancing Account will cease to be in effect at the end of the pilot period.

Q. HOW WILL THE REVENUE BALANCING ACCOUNT BE AFFECTED IF PNM FILES A RATE CASE BEFORE THE END OF THE PILOT PERIOD?

A. A rate case filed during the pilot period would lead to the re-setting of the Revenue Balancing Account's parameters. Specifically, the *FCC* and *FCE* parameters would be recalculated using the approved revenues, test-year sales, and test-year customer counts. The new parameter values would go into effect during the same month as the approved rates.

Q. HOW WILL THE DECOUPLING-INDUCED RATE CHANGES BE IMPLEMENTED IN RETAIL RATES?

A. The decoupling-induced rate change will be applied as a flat $/kWh adjustment to the energy charges. The same decoupling-induced rate change will be applied to each usage block or time-of-use period. Separate decoupling-induced rate changes will be calculated for each applicable rate group (Residential Service and Small Power Service).

Q. WILL THE DECOUPLING-INDUCED RATE CHANGES BE SUBJECT TO A CAP OR COLLAR?

A. Yes. If the rate adjustment produces a rate increase that is more than five percent of base customer group revenue (excluding fuel factor revenue and all applicable riders, and including base fuel), the excess deferral amount above the five percent will be carried over to the decoupling deferral account in the following year. There will be no limit on the rate reduction that the Revenue Balancing Account rate adjustment produces.

Q. IS THE LEVEL OF CUSTOMER PROTECTION PROVIDED BY THE CAP ON SURCHARGES CONSISTENT WITH INDUSTRY PRACTICES?

A. Yes, PNM's proposal provides more customer protection than the average decoupling mechanism currently in place. As PNM Exhibit DGH-3 shows, more

than half of the decoupling mechanisms currently in place do not cap surcharges at all.

Q. WILL THE REVENUE BALANCING ACCOUNT DEFERRALS BE SUBJECT TO A CARRYING CHARGE?

A. Yes, a carrying charge will be applied to Revenue Balancing Account deferrals, whether the deferrals reflect an over- or under-collection of allowed revenues. The carrying charge will be set at the Customer Deposit Interest Rate shown on the Commission web site. This rate is currently 1.72 percent.

Q. WHEN WOULD THE DECOUPLING-INDUCED RATE CHANGES TAKE EFFECT?

A. PNM will begin calculating Revenue Balancing Account deferrals in the month following Commission approval of the mechanism. Revenue Balancing Account deferrals will be accumulated from January through December, though the first year may include fewer months if the Revenue Balancing Account goes into effect sometime after January 1. PNM will file an annual report in support of the decoupling-induced rate change (which may be positive or negative) thirty days prior to PNM's first billing cycle in April of the following year. PNM will also file an advice notice for the decoupling-induced rate change that would be effective for the first billing cycle in April. The resulting decoupling-induced rate change will be

in effect from PNM's first billing cycle in April through PNM's last billing cycle in March of the following year.

Q. WHAT WILL BE INCLUDED IN THE ANNUAL REPORTS THAT DOCUMENT THE DECOUPLING-INDUCED RATE CHANGES?

A. The annual reporting will include the following:

- Calculations of the Revenue Balancing Account deferral amounts and resulting rate changes;
- The total amount of under- or over-collection of allowed revenue by class;
- Total collection of prior deferred revenue;
- The number of customer complaints regarding the Revenue Balancing Account; and
- A comparison of how revenue under traditional regulation would have differed from those collected under the Revenue Balancing Account.

The annual reports will give the Commission the opportunity to confirm that the pilot Revenue Balancing Account program is being correctly implemented. They also will provide information that may help parties decide whether to maintain (or modify) the mechanism after the pilot ends.

Q. HOW DOES THE PROPOSED REVENUE BALANCING ACCOUNT AFFECT PNM'S COST OF CAPITAL?

A. PNM witness Robert Hevert addresses this issue in his direct testimony.

Q. IS THE PROPOSED REVENUE BALANCING ACCOUNT COMPATIBLE WITH PNM'S ENERGY EFFICIENCY INCENTIVE?

A. Yes. The Revenue Balancing Account minimizes any disincentive to promote conservation and energy efficiency that is caused by the recovery of fixed costs through volumetric rates. However, the Revenue Balancing Account does not provide PNM with an *incentive* to promote conservation or energy efficiency. Rather, the Revenue Balancing Account renders PNM indifferent to the usage levels of the applicable customers. It is therefore appropriate and compatible to provide PNM with a separate incentive to promote conservation and energy efficiency, as required by the Efficient Use of Energy Act.

Q. DOES THE PROPOSED REVENUE BALANCING ACCOUNT AFFECT THE CUSTOMER-LEVEL INCENTIVE TO ENGAGE IN CONSERVATION AND ENERGY EFFICIENCY?

A. No. With the Revenue Balancing Account in place, a customer who is evaluating whether to conserve electricity can expect an immediate benefit that is the same as it would have obtained under standard rates. That is, the customer can expect a bill

reduction in the amount of the full volumetric rate, including all riders and fees, multiplied by the amount of saved energy (i.e., kWh). The portion of this bill reduction that is associated with fixed-cost recovery is then placed in the Revenue Balancing Account deferral account for the utility to recover in the following year. Because each customer uses a very small percentage of the total group-level usage, a conserving customer pays back essentially none of its own lost revenues. Therefore, a customer's decision to conserve should not be affected by the presence of the Revenue Balancing Account because the customer cannot conserve enough energy to affect the rate it pays in the following year.

Q. HAVE OTHER REGULATORS ACKNOWLEDGED THAT A DECOUPLING MECHANISM DOES NOT AFFECT THE CUSTOMER-LEVEL INCENTIVE TO CONSERVE?

A. Yes. The Oregon Public Utility Commission concluded the following in Order No. 09-020 for Docket UE-197, which approved a revenue decoupling mechanism referred to as the Sales Normalization Adjustment, or SNA, for Portland General Electric.

> Staff also argues that the SNA would create a disincentive for customers to improve their energy efficiency because the SNA would increase rates and reduce the bill savings. We believe that the opposite is true: an individual customer's action to reduce usage will have no perceptible effect on the decoupling adjustment, and the prospect of a higher rate because of actions

by others may actually provide more incentive for an individual customer to become more energy efficient. (Page 28)

VII. PNM'S PILOT DECOUPLING PROPOSAL BALANCES THE PUBLIC INTEREST, CONSUMERS' INTERESTS AND INVESTORS' INTERESTS

Q. WHAT DOES THE EFFICIENT USE OF ENERGY ACT REQUIRE TO SUPPORT ADOPTION OF THE PILOT REVENUE BALANCING ACCOUNT PROPOSAL?

A. The Efficient Use of Energy Act requires that the Commission "identify regulatory disincentives or barriers for public utility expenditures on energy efficiency and load management measures and ensure that they are removed in a manner that balances the public interest, consumers' interests and investors' interests." *See* Efficient Use of Energy Act at § 62-17-5(F). In Section III, I established the existence of the regulatory disincentive faced by PNM regarding its energy efficiency programs. The only additional requirement of the Act is to ensure that the Revenue Balancing Account balances the various interests included in the EUEA.

Q. PLEASE EXPLAIN HOW PNM'S PROPOSAL SERVES THE CONSUMERS' INTERESTS.

A. The Revenue Balancing Account serves consumers' interests by aligning PNM's financial interests with its customers' interests, which helps ensure PNM's full commitment to promoting conservation and energy efficiency. The successful

implementation and expansion of energy efficiency programs allows customers to reduce their bills without sacrificing the services they receive from their energy use. In the long term, the expansion of cost-effective energy efficiency programs can prevent the need for capital expenditures to add or replace generation, which helps reduce rates for all customers. In addition, the proposed Revenue Balancing Account includes several customer protections.

- PNM's pilot Revenue Balancing Account includes a cap on annual rate increases. Specifically, as described in Section VI, the proposed Revenue Balancing Account contains a five percent cap on the extent to which it can increase customer rates, but no limit on the amount by which it can reduce customer rates.
- The Revenue Balancing Account balances customer interests with investor interests through its symmetry. That is, the Revenue Balancing Account will *reduce* customer rates when sales per customer exceed forecast levels; and *increase* customer rates when sales per customer are less than forecast levels. This symmetry helps ensure that customers neither overpay nor underpay for the facilities used to serve them.
- The proposed Revenue Balancing Account's pilot status protects customers. After the four-year pilot period expires, PNM must demonstrate that the program has accomplished the stated goal of removing PNM's disincentive to implement conservation and energy efficiency programs.

- PNM's proposal to include annual reporting as part of this pilot program also serves the customer interests, as the Commission and other stakeholders will be able to track on an annual basis the specific elements of the Revenue Balancing Account covered by the annual report.

Q. PLEASE EXPLAIN HOW PNM'S PROPOSAL SERVES THE INVESTORS' INTERESTS.

A. PNM's proposed Revenue Balancing Account serves investor interests through the same symmetry described above. That is, the Revenue Balancing Account helps ensure that customers neither overpay nor underpay for the facilities used to serve them. In addition, the Revenue Balancing Account helps protect PNM from financial harm caused by successfully promoting conservation and energy efficiency.

Q. PLEASE EXPLAIN HOW PNM'S PROPOSED REVENUE BALANCING ACCOUNT SERVES THE PUBLIC INTEREST.

A. Section 62-17-2(A) of the Efficient Use of Energy Act declares that "the commission shall consider public utility acquisition of cost-effective energy efficiency and load management resources to be in the public interest." Therefore, by removing a barrier to the acquisition of those resources, the proposed Revenue Balancing Account serves the public interest according to the Act itself.

Q. DO YOU CONCLUDE THAT THE PROPOSED REVENUE BALANCING ACCOUNT "BALANCES THE PUBLIC INTEREST, CONSUMERS' INTERESTS AND INVESTORS' INTERESTS"?

A. Yes. The public interest is served by removing PNM's disincentive to promote conservation and energy efficiency. Consumer and investor interests are balanced primarily through the symmetry of the Revenue Balancing Account. The utility is both protected from under-recovery of fixed costs and prevented from obtaining over-recovery of fixed costs.

VII. CONCLUSIONS

Q. DO YOU HAVE ANY CONCLUDING OBSERVATIONS?

A. Yes. I recommend that the Commission adopt PNM's proposal to implement a pilot revenue decoupling mechanism for its Residential Service and Small Power Service customers. The proposed Revenue Balancing Account is consistent with the Efficient Use of Energy Act, in that it removes a regulatory disincentive for PNM to promote conservation and energy efficiency in a manner that balances the interests of consumers, investors and the public.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

Résumé of Daniel G. Hansen

PNM Exhibit DGH-1

Is contained in the following 7 pages.

Daniel G. Hansen

RESUME

September 2014

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Academic Background:

Ph.D., Michigan State University, 1997, Economics
M.A., Michigan State University, 1993, Economics
B.A., Trinity University, 1991, Economics and History

Positions Held:

Vice President, Laurits R. Christensen Associates, Inc. 2006–present
Senior Economist, Laurits R. Christensen Associates, Inc., 1999–2005
Economist, Laurits R. Christensen Associates, Inc., 1997–1999

Professional Experience:

I work in a variety of areas related to retail and wholesale pricing in electricity and natural gas markets. I have used statistical models to forecast customer usage, estimate customer load response to changing prices, and estimate customer preferences for product attributes. I have developed and priced new product options; evaluated existing pricing programs; evaluated the risks associated with individual products and product portfolios; and developed cost-of-service studies. I have conducted evaluations and provided testimony regarding revenue decoupling and weather adjustment mechanisms.

Major Projects:

Developed long-term forecasting models for an electric utility.

Conducted a review of an electric utility's load forecasting methods.

Conducted an independent evaluation of a revenue decoupling mechanism for an electric utility.

Estimated load impacts for commercial and industrial demand response programs.

Evaluated a straight-fixed variable rate design for a natural gas utility.

Estimated the load impacts from a residential peak-time rebate program.

Worked with a state's regulatory staff to evaluate alternative electricity pricing structures for residential, commercial, and industrial customers.

Assisted a utility in meeting regulatory requirements regarding the allocation of distribution services.

Evaluated a residential electricity pricing pilot program.

Evaluated the cost effectiveness of automated demand response technologies.

Evaluated and modified short- and long-term electricity sales and demand forecasting models.

Created a short-term electricity demand forecasting model.

Prepared testimony regarding the return on equity effects associated with natural gas revenue decoupling mechanisms.

Conducted an independent evaluation of two natural gas revenue decoupling mechanisms

Created forecasts of load impacts from electricity demand response programs.

Estimated historical the load impacts from electricity demand response programs.

Prepared testimony regarding a proposed natural gas decoupling mechanism.

Prepared testimony regarding the weather normalization of test year sales and revenues.

Participated on a regulatory proceeding panel to discuss decoupling mechanisms.

Prepared testimony regarding a proposed electricity decoupling mechanism.

Prepared a report and testimony regarding a natural gas decoupling mechanism.

Evaluated a model that estimated the costs associated with removing and relicensing hydroelectric facilities.

Assisted an electric utility in evaluating new rate options for commercial and industrial customers.

Designed and evaluated time-of-use and critical-peak pricing rates for an electric utility.

Reviewed cost-of-service study for a municipal electric utility.

Produced a report on rate design methods that provide appropriate incentives for demand response and energy efficiency.

Assisted in wholesale power procurement process.

Evaluated a weather-adjustment mechanism for a natural gas utility.

Assessed weather-related fixed cost recovery risk for an electric utility.

Evaluated a revenue decoupling mechanism for a natural gas utility.

Estimated price responsiveness of real-time pricing customers.

Evaluated the need for electricity transmission and distribution standby rates for a utility.

Developed a market share simulation model using conjoint survey results of electricity distributors.

Conducted conjoint surveyed of electricity distributors regarding rate structure preferences.

Developed a method to calculate a retail forward contract risk premium.

Prepared a report on the performance of Financial Transmission Rights (FTRs) in the PJM electricity market.

Reviewed a retail pricing model for use in a competitive electricity market.

Provided support in a natural gas rate case filing.

Simulated outcomes associated with alternative wholesale rate offers to electricity distributors.

Developed a business case to support a natural gas fixed bill product.

Assessed the accuracy of a natural gas fixed bill pricing algorithm.

Audited an evaluation of the costs associated with implementing a renewable portfolio standard.

Developed a model to value interruptible provisions in a long-term customer contract.

Performed a study on the determinants of electricity price differences across utilities and regions.

Developed long-term demand and energy forecasts.

Conducted market research to assess customer interest in new product options.

Recommended new retail pricing products for commercial and industrial customers.

Prepared a report on the fundamentals of retail electricity risk management.

Prepared a report that presented a taxonomy of retail electricity pricing products.

Presented at a workshop in Africa regarding deregulated electricity markets.

Prepared a report on the effectiveness of distributed resources in mitigating price risk.

Performed a valuation of energy derivatives consistent with FAS 133.

Created an electricity market share forecasting model.

Developed standby rates for an electric utility.

Developed an electricity wholesale price forecast.

Forecasted retail customer loads for an electric utility.

Assisted in mediating a new product development process with a utility and its industrial customers.

Developed a model that simulates wholesale market price changes due to retail load response.

Developed a pricing model for an innovative financial product.

Estimated changes in wholesale electricity prices due to customer load response.

Oversaw creation of software that estimates customer satisfaction with utilities.

Developed a model to economically evaluate a capital addition to a generator.

Developed a wholesale version of the Product Mix Model.

Evaluate Risk Implications of New Product Offering.

Mixed Logit Estimation of Customer Preferences.

Estimation of Customer Price Responsiveness.

Product Mix Model Workshops.

Unbundling and Rate Design.

Development of a Computer Program.

Large Commercial and Industrial Customer Rate Analysis.

Residential Customer Rate Analysis.

Survey of Power Marketers.

Development of Multi-Period Analysis Tool.

Evaluating the Effect of Alternative Rates on System Load.

Estimating the Persistence of Weather Patterns.

Electricity Customer Survey Data Analysis.

Product Mix Analysis for Small Customers.

Survey of Postal Facilities.

Professional Papers:

"An Evaluation of Portland General Electric's Decoupling Adjustment, Schedule 123," with Robert J. Camfield and Marlies C. Hilbrink, 2013.

"Evaluation of the Straight-Fixed Variable Rate Design Implemented at Columbia Gas of Ohio," with Marlies C. Hilbrink, 2012.

"The Effect on Electricity Consumption of the Commonwealth Edison Customer Application Program Pilot," with EPRI and CA Energy Consulting staff, 2012.

"The Effects of Critical Peak Pricing for Commercial and Industrial Customers for the Kansas Corporation Commission," with David A. Armstrong, 2012.

"Meeting Commonwealth Edison's Distribution Allocation Requirements from Illinois Commerce Commission Order 10-0467," with Michael O'Sheasy, A. Thomas Bozzo, and Bruce Chapman, 2011.

"Residential Rate Study for the Kansas Corporation Commission," with Michael T. O'Sheasy, 2011.

"An Evaluation of the Conservation Incentive Program Implemented for New Jersey Natural Gas and South Jersey Gas," with Bruce R. Chapman, 2009.

"A Review of Natural Gas Decoupling Mechanisms and Alternative Methods for Addressing Utility Disincentives to Promote Conservation," June 2007.

"Evaluation of the Klamath Project Alternatives Analysis Model: Reply to Addendum A of the Consultant Report Prepared for the California Energy Commission Dated March 2007," May 2007, with Laurence D. Kirsch and Michael P. Welsh.

"Evaluation of the Klamath Project Alternatives Analysis Model," March 2007, with Laurence D. Kirsch and Michael P. Welsh.

"A Review of the Weather Adjusted Rate Mechanism as Approved by the Oregon Public Utility Commission for Northwest Natural," October 2005, with Steven D. Braithwait.

"A Review of Distribution Margin Normalization as Approved by the Oregon Public Utility Commission for Northwest Natural," March 2005, with Steven D. Braithwait.

"Analysis of PJM's Transmission Rights Market," EPRI Report #1008523, December 2004, with Laurence Kirsch.

"Using Distributed Resources to Manage Price Risk," EPRI Report #1003972, November 2001, with Michael Welsh.

"Hedging Exposure to Volatile Retail Electricity Prices," *The Electricity Journal*, Vol. 14, number 5, pp. 33–38, June 2001, with A. Faruqui, C. Holmes and B. Chapman.

"Weather Hedges for Retail Electricity Customers," with C. Holmes, B. Chapman and D. Glyer. In papers for EPRI International Pricing Conference 2000.

"Worker Performance and Group Incentives: A Case Study," *Industrial and Labor Relations Review,* Vol. 51, No. 1, pp. 37–49, October 1997.

"Worker Quality and Profit Sharing: Does Unobserved Worker Quality Bias Firm-Level Estimates of the Productivity Effect of Profit Sharing?" Working Paper, May 1996.

"Supervision, Efficiency Wages, and Incentive Plans: How Are Monitoring Problems Solved?" Working Paper, November 1996, presented at the Western Economics Association Meetings, 1997.

"Has Job Stability Declined Yet? New Evidence for the 1990's," with David Neumark and Daniel Polsky, *The Journal of Labor Economics*, 1999.

Testimony and Reports before Regulatory Agencies:

Xcel Energy, Inc, Minnesota E002/GR-13-868: Testimony supporting a revenue decoupling mechanism on behalf of Xcel Energy, 2013.

Arizona Public Service Company, Arizona Docket No. E–01345A–11–0224: Testimony supporting a revenue decoupling mechanism proposed by APS on behalf of the Arizona Investment Council, 2011.

Southwest Gas Corporation, Arizona Docket No. G–01551A–10–0458: Testimony supporting a revenue decoupling mechanism contained in a settlement agreement on behalf of the Arizona Investment Council, 2011.

Otter Tail Power Company, Minnesota Docket No. E–017/GR–10–239: Testimony regarding the weather normalization of test year sales in a general rate case on behalf of Otter Tail Power Company, 2010.

Southwest Gas Corporation, Nevada Docket No. 09–04003: Testimony regarding a the return on equity effects associated with a proposed revenue decoupling mechanism on behalf of Southwest Gas Corporation, 2009.

Southwest Gas Corporation, Arizona Docket No. G–01551A–07–0504: Testimony regarding a proposed revenue decoupling mechanism on behalf of the Arizona Investment Council, 2008.

Otter Tail Power Company, Minnesota Docket No. E–017/GR–07–1178: Testimony regarding the weather normalization of test year sales and revenues in a general rate case on behalf of Otter Tail Power Company, 2008.

Massachusetts Department of Public Utilities, Docket No. DPU 07–50: Participation in a panel regarding an "Investigation into Rate Structures that will Promote Efficient Deployment of Demand Resources", on behalf of Environment Northeast, 2007.

Connecticut Light & Power Company, Docket No. 07–07–01: Testimony regarding a proposed electricity revenue decoupling mechanism on behalf of Environment Northeast, 2007.

Questar Gas Company, Docket No. 05–057–T01: Testimony regarding the effectiveness of a natural gas revenue decoupling mechanism on behalf of the Utah Division of Public Utilities, 2007.

PacifiCorp, FERC Docket No. 2082: "Evaluation of the Klamath Project Alternatives Analysis Model: Reply to Addendum A of the Consultant Report Prepared for the California Energy Commission Dated March 2007," May 2007, with Laurence D. Kirsch and Michael P. Welsh.

PacifiCorp, FERC Docket No. 2082: "Evaluation of the Klamath Project Alternatives Analysis Model," March 2007, with Laurence D. Kirsch and Michael P. Welsh.

Northwest Natural Gas Company, Oregon Docket UG 163: Testimony relating to an investigation regarding possible continuation of Distribution Margin Normalization, May 2005.

Northwest Natural Gas Company, Oregon Docket UG 152: Submitted a report in compliance with a requirement to evaluate the functioning of the Weather Adjusted Rate Mechanism, October 2005.

Fixed Cost Analysis and RDM Parameter Calculations

PNM Exhibit DGH-2

Is contained in the following 4 pages.

Line No.	Calculation of Fixed versus Variable Cost Recovery		(1A/1B) A	B	C	D	E	F	(2A/2B) G	H	I
			TOTAL ELECTRIC			Residential			Small Power		
	Description		Revenue - $	Unit Costs/ Customer	Unit Costs/ kWh	Revenue - $	Unit Costs/ Customer	Unit Costs/ kWh	Revenue - $	Unit Costs/ Customer	Unit Costs/ kWh
	Test Period Units										
1	Annual Number of Customers	Cust			6,190,610			5,495,445			634,785
2	Annual Energy Sales	Sales			8,246,833,210			3,208,643,660			907,469,792
3	**Revenue Requirements by Cost Component**										
4	Customer Revenue Requirements (Fixed)	$/Cust	$ 91,334,835	$ 14.75	$ 0.01108	$ 70,358,006	$ 12.80	$ 0.02193	$ 14,848,546	$ 23.39	$ 0.01636
5	Demand Revenue Requirements (Fixed)	$/Cust	$ 612,840,347	$ 99.00	$ 0.07431	$ 275,389,989	$ 50.11	$ 0.08583	$ 86,068,807	$ 135.59	$ 0.09484
6	**Total Fixed Cost Requirements**	L4+L5	$ 704,175,182	$ 113.75	$ 0.08539	$ 345,747,995	$ 62.92	$ 0.10776	$ 100,917,353	$ 158.98	$ 0.11121
7	Energy (Non-Fuel) Revenue Requirements (Variable)	$/kWh	$ 50,902,923	$ 8.22	$ 0.00617	$ 19,482,782	$ 3.55	$ 0.00607	$ 5,646,539	$ 8.90	$ 0.00622
8	Base Fuel Requirements (Variable)	$/kWh									
9	**Total Variable Cost Requirements**	L7+L8	$ 50,902,923	$ 8.22	$ 0.00617	$ 19,482,782	$ 3.55	$ 0.00607	$ 5,646,539	$ 8.90	$ 0.00622
10	***Total Revenue Requirements***	L6+L9	***$ 755,078,106***	***$ 121.97***	***$ 0.09156***	***$ 365,230,777***	***$ 66.46***	***$ 0.11383***	***$ 106,563,891***	***$ 167.87***	***$ 0.11743***
	Total Revenue Requirements Inc. Fuel	Rev. Req.	$ 971,590,749			$ 449,983,703			$ 130,533,745		
11	**Pricing by Revenue Component**										
12	Customer Charge Revenues	$/Cust	$ 91,338,197	$ 14.75	$ 0.01108	$ 70,362,497	$ 12.80	$ 0.02193	$ 14,847,621	$ 23.39	$ 0.01636
13	Demand Charge Revenues		$ 174,979,177			$ -			$ -		
14	**Total Fixed Cost Revenues**	L12+L13	$ 266,317,374	$ 14.75	$ 0.01108	$ 70,362,497	$ 12.80	$ 0.02193	$ 14,847,621	$ 23.39	$ 0.01636
15	**Total Variable (Energy Charge) Revenues**	kWh Rev.	$ 697,793,715	$ 112.72	$ 0.08461	$ 379,621,212	$ 69.08	$ 0.11831	$ 115,686,137	$ 182.24	$ 0.12748
16	***Total Revenues***	L14+L15	***$ 964,111,089***	***$ 127.47***	***$ 0.09569***	***$ 449,983,708***	***$ 81.88***	***$ 0.14024***	***$ 130,533,758***	***$ 205.63***	***$ 0.14384***
17											
18	Fixed Costs Recovered by Variable (Energy) Charges	L6-L14	$ 437,857,808	$ 70.73	$ 0.05309	$ 275,385,498	$ 50.11	$ 0.08583	$ 86,069,731	$ 135.59	$ 0.09485

Line No.	Calculation of Fixed versus Variable Cost Recovery		(3B/3C) J	K	L	(4B) M	N	O	(5B) P	Q	R
			General Power			Large Power			Large Service for Customers >=8,000kW		
	Description		Revenue - $	Unit Costs/ Customer	Unit Costs/ kWh	Revenue - $	Unit Costs/ Customer	Unit Costs/ kWh	Revenue - $	Unit Costs/ Customer	Unit Costs/ kWh
	Test Period Units										
1	Annual Number of Customers	Cust			52,002			2,594			24
2	Annual Energy Sales	Sales			1,930,290,534			1,131,474,613			86,000,000
3	**Revenue Requirements by Cost Component**										
4	Customer Revenue Requirements (Fixed)	$/Cust	$ 3,577,863	$ 68.80	$ 0.00185	$ 1,313,455	$ 506.34	$ 0.00116	$ 63,167	$ 2,631.96	$ 0.00073
5	Demand Revenue Requirements (Fixed)	$/Cust	$ 140,616,528	$ 2,704.06	$ 0.07285	$ 69,383,911	$ 26,747.85	$ 0.06132	$ 4,337,567	$ 180,731.97	$ 0.05044
6	**Total Fixed Cost Requirements**	L4+L5	$ 144,194,391	$ 2,772.86	$ 0.07470	$ 70,697,366	$ 27,254.19	$ 0.06248	$ 4,400,734	$ 183,363.93	$ 0.05117
7	Energy (Non-Fuel) Revenue Requirements (Variable)	$/kWh	$ 13,006,687	$ 250.12	$ 0.00674	$ 6,911,839	$ 2,664.55	$ 0.00611	$ 517,118	$ 21,546.60	$ 0.00601
8	Base Fuel Requirements (Variable)	$/kWh									
9	**Total Variable Cost Requirements**	L7+L8	$ 13,006,687	$ 250.12	$ 0.00674	$ 6,911,839	$ 2,664.55	$ 0.00611	$ 517,118	$ 21,546.60	$ 0.00601
10	***Total Revenue Requirements***	L6+L9	***$ 157,201,078***	***$ 3,022.98***	***$ 0.08144***	***$ 77,609,205***	***$ 29,918.74***	***$ 0.06859***	***$ 4,917,853***	***$ 204,910.54***	***$ 0.05718***
	Total Revenue Requirements Inc. Fuel	Rev. Req.	$ 208,187,659			$ 106,950,324			$ 7,113,048		
11	**Pricing by Revenue Component**										
12	Customer Charge Revenues	$/Cust	$ 3,577,740	$ 68.80	$ 0.00185	$ 1,313,601	$ 506.40	$ 0.00116	$ 63,167	$ 2,631.96	$ 0.00073
13	Demand Charge Revenues		$ 96,036,832	$ 1,846.79	$ 0.04975	$ 47,746,967	$ 18,406.70	$ 0.04220	$ 3,475,076	$ 144,794.83	$ 0.04041
14	**Total Fixed Cost Revenues**	L12+L13	$ 99,614,572	$ 1,915.59	$ 0.05161	$ 49,060,568	$ 18,913.09	$ 0.04336	$ 3,538,243	$ 147,426.79	$ 0.04114
15	**Total Variable (Energy Charge) Revenues**	kWh Rev.	$ 108,573,082	$ 2,087.86	$ 0.05625	$ 57,889,761	$ 22,316.79	$ 0.05116	$ 3,574,804	$ 148,950.17	$ 0.04157
16	***Total Revenues***	L14+L15	***$ 208,187,654***	***$ 4,003.45***	***$ 0.10785***	***$ 106,950,329***	***$ 41,229.89***	***$ 0.09452***	***$ 7,113,047***	***$ 296,376.96***	***$ 0.08271***
17											
18	Fixed Costs Recovered by Variable (Energy) Charges	L6-L14	$ 44,579,819	$ 857.27	$ 0.02309	$ 21,636,798	$ 8,341.09	$ 0.01912	$ 862,491	$ 35,937.14	$ 0.01003

Line No.	Calculation of Fixed versus Variable Cost Recovery Description		(10A/10B) S Irrigation Revenue - $	T Unit Costs/ Customer	U Unit Costs/ kWh	(11B) V Water & Sewage Revenue - $	W Unit Costs/ Customer	X Unit Costs/ kWh	(15B) Y Industrial Power (Universities >115kV) Revenue - $	Z Unit Costs/ Customer	AA Unit Costs/ kWh
	Test Period Units										
1	Annual Number of Customers	Cust			3,792			1,884			12
2	Annual Energy Sales	Sales			25,795,279			167,315,661			67,984,267
3	**Revenue Requirements by Cost Component**										
4	Customer Revenue Requirements (Fixed)	$/Cust	$ 164,118	$ 43.28	$ 0.00636	$ 459,573	$ 243.93	$ 0.00275	$ 53,170	$ 4,430.86	$ 0.00078
5	Demand Revenue Requirements (Fixed)	$/Cust	$ 1,868,332	$ 492.70	$ 0.07243	$ 7,454,798	$ 3,956.90	$ 0.04456	$ 3,252,235	$ 271,019.60	$ 0.04784
6	**Total Fixed Cost Requirements**	L4+L5	$ 2,032,450	$ 535.98	$ 0.07879	$ 7,914,371	$ 4,200.83	$ 0.04730	$ 3,305,405	$ 275,450.45	$ 0.04862
7	Energy (Non-Fuel) Revenue Requirements (Variable)	$/kWh	$ 133,961	$ 35.33	$ 0.00519	$ 1,022,081	$ 542.51	$ 0.00611	$ 407,805	$ 33,983.74	$ 0.00600
8	Base Fuel Requirements (Variable)	$/kWh									
9	**Total Variable Cost Requirements**	L7+L8	$ 133,961	$ 35.33	$ 0.00519	$ 1,022,081	$ 542.51	$ 0.00611	$ 407,805	$ 33,983.74	$ 0.00600
10	***Total Revenue Requirements***	L6+L9	***$ 2,166,411***	***$ 571.31***	***$ 0.08398***	***$ 8,936,452***	***$ 4,743.34***	***$ 0.05341***	***$ 3,713,210***	***$ 309,434.20***	***$ 0.05462***
	Total Revenue Requirements Inc. Fuel	Rev. Req.	$ 2,847,766			$ 13,275,240			$ 5,444,364		
11	**Pricing by Revenue Component**										
12	Customer Charge Revenues	$/Cust	$ 164,118	$ 43.28	$ 0.00636	$ 459,564	$ 243.93	$ 0.00275	$ 52,953	$ 4,412.74	$ 0.00078
13	Demand Charge Revenues		$ -			$ -			$ 3,252,453	$ 271,037.74	$ 0.04784
14	**Total Fixed Cost Revenues**	L12+L13	$ 164,118	$ 43.28	$ 0.00636	$ 459,564	$ 243.93	$ 0.00275	$ 3,305,406	$ 275,450.48	$ 0.04862
15	**Total Variable (Energy Charge) Revenues**	kWh Rev.	$ 2,683,648	$ 707.71	$ 0.10404	$ 12,815,679	$ 6,802.38	$ 0.07660	$ 2,138,956	$ 178,246.36	$ 0.03146
16	***Total Revenues***	L14+L15	***$ 2,847,765***	***$ 750.99***	***$ 0.11040***	***$ 13,275,243***	***$ 7,046.31***	***$ 0.07934***	***$ 5,444,362***	***$ 453,696.84***	***$ 0.08008***
17											
18	Fixed Costs Recovered by Variable (Energy) Charges	L6-L14	$ 1,868,333	$ 492.70	$ 0.07243	$ 7,454,806	$ 3,956.90	$ 0.04456	$ (0)	$ (0.0)	$ (0.00000)

Line No.	Calculation of Fixed versus Variable Cost Recovery		(30B) AB	AC	AD	(33B) AE	AF	AG	(34B) AH	AI	AJ
			Industrial Power (Manuf, 12.5 kV)			Service for Station Power 33B			Large Power Service >=3,000kW		
	Description		Revenue - $	Unit Costs/ Customer	Unit Costs/ kWh	Revenue - $	Unit Costs/ Customer	Unit Costs/ kWh	Revenue - $	Unit Costs/ Customer	Unit Costs/ kWh
	Test Period Units										
1	Annual Number of Customers	Cust			12			12			48
2	Annual Energy Sales	Sales			482,610,203			3,247,400			236,001,800
3	**Revenue Requirements by Cost Component**										
4	Customer Revenue Requirements (Fixed)	$/Cust	$ 332,935	$ 27,744.62	$ 0.00069	$ 4,199	$ 349.88	$ 0.00129	$ 159,803	$ 3,329.23	$ 0.00068
5	Demand Revenue Requirements (Fixed)	$/Cust	$ 15,733,223	$ 1,311,101.91	$ 0.03260	$ 119,320	$ 9,943.34	$ 0.03674	$ 8,615,637	$ 179,492.44	$ 0.03651
6	**Total Fixed Cost Requirements**	L4+L5	$ 16,066,158	$ 1,338,846.53	$ 0.03329	$ 123,519	$ 10,293.23	$ 0.03804	$ 8,775,440	$ 182,821.67	$ 0.03718
7	Energy (Non-Fuel) Revenue Requirements (Variable)	$/kWh	$ 2,319,241	$ 193,270.06	$ 0.00481	$ 28,826	$ 2,402.16	$ 0.00888	$ 1,426,045	$ 29,709.28	$ 0.00604
8	Base Fuel Requirements (Variable)	$/kWh									
9	**Total Variable Cost Requirements**	L7+L8	$ 2,319,241	$ 193,270.06	$ 0.00481	$ 28,826	$ 2,402.16	$ 0.00888	$ 1,426,045	$ 29,709.28	$ 0.00604
10	***Total Revenue Requirements***	L6+L9	***$ 18,385,399***	***$ 1,532,116.59***	***$ 0.03810***	***$ 152,345***	***$ 12,695.38***	***$ 0.04691***	***$ 10,201,485***	***$ 212,530.94***	***$ 0.04323***
	Total Revenue Requirements Inc. Fuel	Rev. Req.	$ 30,764,741			$ 235,037			$ 16,255,122		
11	**Pricing by Revenue Component**										
12	Customer Charge Revenues	$/Cust	$ 332,935	$ 27,744.61	$ 0.00069	$ 4,199	$ 349.88	$ 0.00129	$ 159,803	$ 3,329.23	$ 0.00068
13	Demand Charge Revenues		$ 15,732,890	$ 1,311,074.21	$ 0.03260	$ 119,322	$ 9,943.50	$ 0.03674	$ 8,615,636	$ 179,492.42	$ 0.03651
14	**Total Fixed Cost Revenues**	L12+L13	$ 16,065,826	$ 1,338,818.82	$ 0.03329	$ 123,521	$ 10,293.38	$ 0.03804	$ 8,775,439	$ 182,821.65	$ 0.03718
15	**Total Variable (Energy Charge) Revenues**	kWh Rev.	$ 14,698,921	$ 1,224,910.11	$ 0.03046	$ 111,516	$ 9,293.00	$ 0.03434	$ 7,479,684	$ 155,826.74	$ 0.03169
16	***Total Revenues***	L14+L15	***$ 30,764,747***	***$ 2,563,728.93***	***$ 0.06375***	***$ 235,036***	***$ 19,586.37***	***$ 0.07238***	***$ 16,255,123***	***$ 338,648.40***	***$ 0.06888***
17											
18	Fixed Costs Recovered by Variable (Energy) Charges	L6-L14	$ 333	$ 27.72	$ 0.00000	$ (2)	$ (0.15)	$ (0.00000)	$ 1	$ 0.02	$ 0.00000

List of Current Revenue Decoupling Mechanisms

PNM Exhibit DGH-3

Is contained in the following page.

Row	Utility	State	RPCD?	Include Weather Effects?	EE Performance Incentives?	Cap on Deferral	Cap Level	Soft or Hard Cap?
1	Glendale Water & Power	California	No	Yes	No	No	n/a	n/a
2	PG&E	California	No	Yes	Yes	No	n/a	n/a
3	SCE	California	No	Yes	Yes	No	n/a	n/a
4	SDG&E	California	No	Yes	Yes	No	n/a	n/a
5	United Illuminating	Connecticut	No	Yes	Yes	No	n/a	n/a
6	PEPCO	District of Columbia	Yes	Yes	No	Yes	10% of base rate	Soft
7	Hawaii Electric	Hawaii	No	Yes	Yes	No	n/a	n/a
8	Idaho Power	Idaho	Yes	No	No	No	n/a	n/a
9	Central Maine Power	Maine	Mostly	Yes	No	Yes	2% of dist. rev.	Soft
10	Delmarva	Maryland	Yes	Yes	No	Yes	10% of base rate	Soft
11	PEPCO	Maryland	Yes	Yes	No	Yes	10% of base rate	Soft
12	Baltimore Gas & Electric	Maryland	Yes	Yes	No	Yes	10% of base rate	Soft
13	Fitchburg Gas & Electric	Massachusetts	No	Yes	Yes	Yes	1% of total rev.	Soft
14	Western Mass. Elec.	Massachusetts	No	Yes	Yes	Yes	1% of total rev.	Soft
15	Mass. Elec. and Nantucket	Massachusetts	No	Yes	Yes	Yes	3% of total rev.	Soft
16	Central Hudson	New York	No	Yes	Yes	No	n/a	n/a
17	Consolidated Edison	New York	No	Yes	Yes	No	n/a	n/a
18	NYSEG	New York	No	Yes	Yes	No	n/a	n/a
19	Niagara Mohawk	New York	No	Yes	Yes	No	n/a	n/a
20	Orange & Rockland	New York	No	Yes	Yes	No	n/a	n/a
21	Rochester Gas & Elec.	New York	No	Yes	Yes	No	n/a	n/a
22	American Electric Power	Ohio	Yes	Yes	Yes	Yes	3% of dist. rev.	Soft
23	Duke Energy Ohio	Ohio	Yes	No	Yes	Yes	3% of dist. rev.	Soft
24	Portland General Electric	Oregon	Yes	No	No	Yes	2% of total rev.	Hard
25	Narragansett Electric	Rhode Island	No	Yes	Yes	No	n/a	n/a
26	Avista, pending	Washington	Yes	Yes	No	Yes	3% of total rev.	Soft
27	Puget Sound Energy	Washington	Yes	Yes	No	Yes	3% of total rev.	Soft
		# Yes	10	24	17	13		

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF PUBLIC SERVICE COMPANY OF NEW MEXICO FOR REVISION OF ITS RETAIL ELECTRIC RATES PURSUANT TO ADVICE NOTICE NO. 507	)	**Case No. 14-00332-UT**
PUBLIC SERVICE COMPANY OF NEW MEXICO, Applicant.	)	

AFFIDAVIT

STATE OF WISCONSIN)
) ss
COUNTY OF DANE)

DANIEL G. HANSEN, Vice-President at Christensen Associates Energy Consulting, LLC, upon being duly sworn according to law, under oath, deposes and states: I have read the foregoing **Direct Testimony and Exhibits of Daniel G. Hansen** and it is true and accurate based on my own personal knowledge and belief.

SIGNED this 2nd day of December, 2014.

DANIEL G. HANSEN

SUBSCRIBED AND SWORN to before me this 2nd day of December, 2014.

NOTARY PUBLIC IN AND FOR
THE STATE OF WISCONSIN

My Commission Expires:

10/05/2018