

COMMONWEALTH OF VIRGINIA  
STATE CORPORATION COMMISSION



**Report to the General Assembly**  
**Competition for Electric**  
**Metering, Billing, and Other Services**

September 1, 1999

**Response to § 56-581 B of the Code of Virginia**

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**REPORT TO THE GENERAL ASSEMBLY**  
**COMPETITION FOR ELECTRIC**  
**METERING, BILLING AND OTHER SERVICES**

**SEPTEMBER 1, 1999**

**EXECUTIVE SUMMARY**

The Commission submits this report to the General Assembly in accordance with its statutory obligation, pursuant to § 56-581 B of the 1999 Virginia Electric Utility Restructuring Act, to evaluate future competition in retail electricity metering, billing and other services.

**I. Objectives of Report**

The objectives of the report are to:

- (1) provide background information about metering and billing products and providers, and insights into how products and providers are changing;
- (2) establish and tentatively apply a methodology for evaluating the benefits and concerns associated with competitive metering and billing services, taking into account current and future industry changes; and
- (3) explain that effective implementation of electricity competition will require rapid and accurate decisions concerning whether, when and how, and for which customer groups, to introduce competition in metering and billing services; so that the decisions will be responsive to industry changes and consistent with other Commission decisions affecting metering and billing.

**II. Changes in the Metering and Billing Businesses Make Competition in These Services a Possibility**

For many years, the local utility has been the sole provider of basic metering and billing services. For most customers today, the utility owns, installs and maintains a simple electromechanical device that a utility employee must read manually by looking at the meter dial. Customers generally have few, if any, billing service options.

In recent years, the metering and billing industries have changed significantly. These changes include new products, such as (1) automated meter reading ("AMR") technology, which uses communications systems to provide the benefits of frequent meter readings from a remote location and access to other home services, and (2) new billing services, including Internet access to billing information and a single bill for

various services and locations. New providers also are entering metering and billing markets, particularly as utilities "outsource" both standardized and highly specialized metering and billing services by contracting with third parties to provide the services that the utilities in turn sell at retail to their customers.

AMR and other technologies offer benefits to customers and competitive suppliers of electricity alike, thereby promoting competition in the retail electricity market. The communications networks that AMR systems employ allow electricity suppliers (1) to predict demand more accurately and avoid financial penalties associated with contracting for the delivery of too little or too much generation and (2) to compete for customers by offering creative pricing programs based upon time of usage and value-added services, such as Internet access, home security and appliance control. Utilities currently do not have the same strong incentive future competitors will have to offer AMR to most customers. The reasons include the following: (a) the utilities do not have to offer innovative services and pricing programs to get customers, and (b) the utilities' status as vertically integrated regulated monopolies that own inputs and enjoy cost-of-service ratemaking reduces the risks of contracting for generation.

Advanced metering systems employ different types of communications technologies to make remote readings possible. The communications networks that are "dedicated" to electric utility functions are less costly, but are less conducive to metering competition because they require a high concentration of customers within an area and are less likely to support non-electric services. The use of "transparent" multi-purpose networks presently is more costly, but is better suited to competitive metering. For this reason, Commission decisions affecting the type of AMR systems employed may affect the future of metering competition.

### **III. Evaluation of the Potential for Competition in Metering and Billing Services**

Evaluating metering and billing competition requires the identification of (1) individual components of metering and billing that are suitable candidates for competition; (2) potentially appropriate suppliers, which may or may not include competitive electric service providers, the distribution company and its affiliates, and third-party providers; (3) criteria for evaluation; and (4) the benefits and concerns associated with metering and billing competition for each of the possible services. Potential benefits include lower prices, product innovations and the promotion of competition in the market for retail electricity. Concerns include safety, reliability and customer readiness. The analysis also should consider the distribution of benefits and the likelihood of effective competition.

The Commission's evaluations in this report find that competition in metering and billing services can bring more benefits to consumers than the provision of these services by a monopoly; and, conversely, that the continued provision of these services by a monopoly can impede the development of electricity competition that the General Assembly has mandated.

Specifically, competitive billing can promote competition in the retail electricity market by (1) facilitating communication between suppliers and customers and (2) allowing suppliers to distinguish themselves by offering value-added services. Customers can seek and obtain new billing and payment options, such as a single bill for related services. Competition also can promote diverse electricity pricing and billing information options, since the distribution company's historic billing system, designed for a different industry structure, might otherwise limit the electricity suppliers' ability to introduce new rate structures.

Competitive metering also can stimulate competition in the retail electricity market by promoting the use of AMR, which allows suppliers to compete by offering innovative pricing plans and value-added services and to improve predictions of demand. If and when communications companies and providers of metering services in other industries enter the electric market, further technological innovation and associated cost reductions will be possible.

Implementation of competition in metering and billing services will require careful consideration of customer preparedness, safety, standards, and alertness to changes in the total cost of electric service.

The report's evaluations are tentative, because they are not the product of a formal, fact-based review specific to Virginia utilities and because of rapid change in the metering and billing businesses.

**IV. Recommendation: Because of the Rapid Changes in the Metering and Billing Businesses, the Implementation of Competition Will Be More Likely to Succeed if the Commission Has the Ability to Authorize Metering and Billing Competition on a Timely Basis in Response to Evolving Facts**

Industry changes have a significant effect on the analysis of the benefits and concerns associated with competition. Innovative technologies are emerging, costs are falling and third-party providers are supplying more services that utilities sell to retail customers. Other states are opening retail metering and billing markets to competition on varying schedules. Also, it is possible that different customer classes, different utilities and different regions will reach readiness for metering and billing competition at different times. Given this dynamic nature of the business, policymakers will need to reassess the changes in the benefits and costs of competition for a given service on a more frequent basis than the annual recommendations that the statute requires. The variety, complexity, and uncertainty of changing factors that must be considered in making appropriate competitive decisions for metering and billing services require a reiterative and evolutionary decision-making process that is driven by factual circumstance, not a predetermined implementation schedule.

These factors suggest that Commission authority to decide whether, when and how to subject metering, billing and other retail services to competition will result in the smoothest and surest implementation of such competition by allowing the Commission to



respond swiftly to changing facts. Such authority is consistent with statutes in several other states that are introducing competition in the retail market for electricity.

Also, the decisions of whether, when and how to introduce metering and billing competition must be consistent with Commission decisions affecting AMR technology. These decisions – which the Commission must make regardless of whether there is metering or billing competition – will also affect the viability of metering competition due to the fact that some systems are suitable for competition and others are not. The Commission will have to decide whether to require the distribution company to provide AMR if requested by a customer or a competitive supplier and, possibly, whether and on what terms to allow the distribution company to install AMR for some or all customers.

## I. INTRODUCTION

The 1999 Virginia General Assembly enacted the Virginia Electric Utility Restructuring Act (the "Statute") with the goal of providing ratepayers the benefits of competition in the sale of electricity.<sup>1</sup> The Statute mandates that retail customers shall have the opportunity to choose a competitive supplier of electric power ("competitive energy service provider" or "ESP"), beginning no later than January 1, 2002, with the phase-in completed by January 1, 2004 (with a possible one-year extension).

While the General Assembly required competition only in the supply of electricity, it recognized that consumers might benefit from retail competition in metering, billing and other services that the incumbent utility company presently provides. Specifically, § 56-581 B of the Restructuring Act states:

No later than September 1, 1999, and annually thereafter, the Commission shall submit a report to the General Assembly evaluating the advantages and disadvantages of competition for metering, billing and other services which have not been made subject to competition, and making recommendations as to when, and for whom, such other services should be made subject to competition.

This first annual report examines the possibility of competition in metering and billing services. Specifically, the report evaluates whether such competition will benefit retail purchasers of electricity in two ways: first, by promoting the success of competition in the retail electricity market; and second, by reducing the costs and increasing the quality and diversity of metering and billing products themselves. The report establishes a methodology for weighing these benefits against the concerns that competition in metering and billing services raises.<sup>2</sup>

The implementation of competition in a historically monopolistic industry is a difficult task. Competition in metering and billing services can support the implementation effort in several ways. From the perspective of potential competitors, metering and billing are services that provide a direct communication link to customers. Direct communication with customers is essential to establishing commercial relationships that in turn are necessary to capture and maintain a long-term market share. Forcing customers to take these services from the incumbent utility therefore deprives the

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<sup>1</sup> Chapter 23, amending Title 56 of the Code of Virginia.

<sup>2</sup> The statute calls for a report on "metering, billing and other services." As this report explains, the services of "metering" and "billing" in fact include many discrete services that might be offered to consumers. Given the breadth of these categories, the Commission has not yet identified any "other services," outside of the categories of metering and billing, that might be suitable for competition. The Commission will continue to study this matter.

new energy service providers ("ESPs") of a key competitive tool, the very tool which the utility can continue to use unabated. Subjecting metering and billing to competition also allows ESPs to differentiate themselves – differentiation itself is central to competition – by offering "value-added" services in addition to electric power. Further, new metering products like "advanced meter technologies," compared to standard metering technology, allow ESPs to predict their customers' energy requirements more accurately, thereby lowering the risk of entering the retail electricity market. Effective competition – the only type of competition that benefits consumers by lowering prices and increasing product quality and diversity – cannot exist unless new competitors enter the market, gain market share and stay. To do so, the new competitors need to offer their own versions of metering and billing services.

In addition to attracting new electricity competitors, metering and billing competition can benefit electric consumers directly. Multiple providers of metering and billing services can reduce the costs and increase the diversity of these products, more surely than will (or has) the provision of these services by a monopoly. Among these products are automated meter reading services that open possibilities of purchasing diverse products through the meter and accessing creative electricity pricing plans based on meter readings more frequent than the present once-a-month practice.

This report also identifies the concerns that competition in metering and billing presents, such as billing and metering accuracy, customer readiness, potential lost economies of scale and scope, and safety. The report assesses the likelihood and seriousness of these concerns and describes strategies for mitigating them.

The metering and billing businesses are not static. Technology, costs, products, providers and marketing techniques are changing rapidly. How these factors interact with each other, and with supplier and customer behavior, are changing as well. This dynamic evolution affects not only today's cost-benefit analysis of competition, but also the appropriate procedure for making the competition decision. While the Commission makes tentative evaluations of the appropriateness of metering and billing competition, this report notes certain caveats about those evaluations. Consistent with those caveats, and with the dynamic realities of the electricity industry including its metering and billing sectors, this report recommends that the General Assembly authorize a process for determining whether, when and how to make metering and billing services competitive that is responsive to these realities. That process would involve authorizing the Commission to decide, subject to legislated criteria, whether and on what terms to subject metering, billing and other services to competition. Such an approach would (1) allow the timely responsiveness now lacking in the statute and (2) enable the Commission to coordinate the metering and billing decisions with other related Commission decisions that impact the future of the metering market.

These points are explained further in the three ensuing Parts.

**Part II** describes the recent changes in the metering and billing industries, including the new products and providers in today's markets. This Part II provides the

information necessary to identify the products and providers that will form the basis for competition.

**Part III** responds to the Statute's directive by (1) establishing a methodology for evaluating the appropriateness of competition, (2) identifying the advantages and concerns related to competitive metering and billing (taking into account the industry changes identified in Part II), and (3) formulating tentative evaluations.

**Part IV** presents and explains the Commission's recommendation that the General Assembly direct the Commission to make decisions concerning the appropriate products to subject to competition, and the times when that competition should begin. Such authority would allow (1) a quicker response to the changes in the factors subject to evaluation in Part III and (2) coordination with Commission metering decisions made necessary by changing metering technologies and the implementation of retail electricity competition.

In preparing this report, the Commission Staff held discussions with several stakeholders, including customer representatives, metering companies, energy marketing companies, investor-owned utilities, municipal power systems and electric cooperatives. The Commission also surveyed activities in other states. The information gleaned from these discussions and surveys is conveyed throughout the report. Appendices B and C present a direct summary of metering and billing initiatives in other states.

The Commission appreciates this opportunity to submit this report, and looks forward to answering any questions.

## **II. RECENT CHANGES IN THE METERING AND BILLING BUSINESSES CREATE THE POTENTIAL FOR COMPETITION**

For many years, the sole provider of metering and billing services has been the local utility. All customers within a particular class (residential, commercial and industrial) received largely the same services. More recently, technological progress and new entrants into the metering and billing businesses have fostered a growing number of metering and billing products. Those factors, combined with state laws authorizing the introduction of retail competition, have prompted a reexamination of the traditional, utility-only provision of metering and billing.

These industry-wide changes, which are discussed in this Part II, create the context for the Commission's evaluations in Part III and its recommendation in Part IV. This Part II has the following subparts:

**Subpart A** explains that the utility has been the traditional provider or procurer of metering and billing services.

**Subpart B** explains the new metering and billing products and providers that have emerged, providing opportunities for retail competition in those markets.

**Subpart C** explains that the Commission may make decisions requiring or allowing the distribution company to offer advanced metering technologies, which decisions in turn may affect the possibility of retail metering competition.

### **A. The Utility Has Been the Traditional Provider or Procurer of Metering and Billing Services**

Traditionally, the vertically integrated utility has been the dominant, if not exclusive, provider of metering and billing services to retail customers. The utility traditionally has offered few, if any, metering and billing product choices to most customers. The following is a description of the typical provision of metering and billing services.

#### **1. The Metering and Billing Service Provider**

The utility itself provides all metering and billing services, although other companies manufacture metering equipment.

Meter Ownership: The utility owns the meter.

Meter Installation: The utility installs the meter.

Meter Maintenance: The utility provides maintenance and repair in its own shop. The utility removes meters and brings them to its shop for calibration based on random checks and statistical information.

- Meter Reading: A utility employee reads the meter.
- Billing: The utility processes meter data, calculates the bill, issues the bill and collects payment.
- Meter Manufacture: Four companies produce 99% of the electromechanical meters used by residential and small commercial customers.<sup>3</sup>

## 2. The Metering and Billing Products

The utility has offered most customers, of all classes, the following basic metering and billing products without optional features.

Metering Equipment: The currently predominant metering technology is the manually read electromechanical meter. This meter is an inexpensive, reliable device with a mechanism that spins as the customer consumes electricity. The meter provides cumulative usage data, without indicating when during the month or day the usage occurred or how much demand was imposed at any point in time.

Meter Reading: The electromechanical meter does not provide data in electronic form, but rather shows usage on a dial display. The utility must send a meter reader to the site, generally once a month, to read the dial and record the cumulative usage which is compared to the reading from the previous month to calculate monthly usage.<sup>4</sup>

Billing Service: The utility processes the data collected by the meter reader and calculates a bill for bundled electric service. The utility generally issues a standard bill for bundled electric services for each meter, processes payments and handles collections. Most customers do not have the opportunity to request a customized bill.

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<sup>3</sup> White Paper on Direct Access Metering and Data Communication Requirements (National Assoc. of Regulatory Utility Commissioners, March 31, 1998) (hereinafter cited as the "NARUC Report"), sec. 4.3.2.3.

<sup>4</sup> As noted later in this Part II of the report, Virginia Power has installed remote meter reading capability in certain areas of high customer density. Additionally, Allegheny Power generally reads meters and bills its customers every other month. Also, a few small electric cooperatives rely on customer-provided monthly meter readings with periodic meter reading checks by cooperative personnel.

## **B. New Metering and Billing Products and Providers Have Emerged**

In recent years, the metering and billing industries have changed significantly. These changes include new products. Among the new products are (1) automated meter reading ("AMR") technology, which uses communications systems to provide the benefits of frequent meter readings and other home services (see Subpart B.1 below); and (2) new billing services, including Internet access to billing information and a single bill for various services and locations (see Subpart B.2 below). New providers also are entering metering and billing markets, particularly as utilities "outsource" metering and billing services by contracting with third parties to provide the services that the utilities in turn sell at retail to their customers (see Subpart B.3 below).

### **1. Automated Meter Reading and Other Advanced Metering Technologies**

While the manually read electromechanical meter remains the predominant metering device, automated meter reading ("AMR") systems gradually are replacing the electromechanical meter for larger customers and some residential customers. AMR systems include two essential features that allow meter readings from remote locations at daily, hourly or more frequent intervals:

First, the meter must be capable of creating electronic usage data (instead of the traditional mechanical dial display that a person must look at and record manually). Creating electronic data entails replacing the meter or adding an electronic module that converts the existing meter into a device that can transmit electronic data.

Second, AMR requires a communications system for transferring electronic meter data. Possible communications vehicles that AMR systems may employ include power lines, telephone lines, radio systems and "broad band" systems.

This subpart describes (1) the potential benefits of AMR generally (Subpart a), (2) differences between types of AMR systems (Subpart b), and (3) the reasons for the very limited deployment of AMR by vertically integrated utilities (Subpart c).

#### **a. The Benefits of Automated Meter Reading**

The benefits of AMR to retail electricity customers and suppliers stem from the use of communications systems that provide (1) electricity suppliers the ability to obtain meter readings at intervals more frequent than the traditional monthly reading; and (2) customers access to other non-electricity home services.

**i. Frequent meter readings:** Automated meter reading ("AMR") devices use communications technologies that permit more frequent meter readings from a remote, central location. AMR technology eliminates the need for a person to read each meter manually, while allowing the measurement of usage during a particular time

period. The electricity supplier's ability to identify more precisely when a customer uses electricity produces the following benefits:<sup>5</sup>

- (a) A customer benefits if his or her electricity supplier offers a pricing plan that allows the customer to access variations in the price of electricity and to schedule usage accordingly.
- (b) A competitive electricity supplier benefits from the availability of recent actual consumption data that enables the supplier to schedule wholesale power deliveries more accurately, thereby reducing the risk of incurring the penalties that result from contracting for the delivery of too little or too much electricity.

**ii. Access to other services:** Some advanced meters use communications technologies that are capable of providing various types of "value-added" services, other than the measurement of electric usage. The services that customers may be able to purchase in conjunction with remote meter reading include:

- (a) the ability to program home appliances and thermostats to respond to changes in the price of energy;
- (b) telephone, cable and Internet access; and
- (c) home security.

For example, Tampa-based TeCom Inc. offers the "InterLane Home Manager", which uses a two-way communication system between the customer and the utility to offer various packaged services. The system reads and records electricity usage, but also "integrates energy management, home automation [customers can program appliances], advanced entertainment, communications and security features."<sup>6</sup> The system also enhances operations by reporting electric power outages and meter tampering to the utility and allowing remote electric service connection and disconnection.

### **b. Different Types of Advanced Meter Systems**

Advanced metering systems employ different types of meter devices and communications technologies to make remote readings possible. The various

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<sup>5</sup> In order to realize each of these benefits in a competitive electricity market, the metering interval must correspond to the same time interval on which the wholesale financial settlement process is based. Otherwise, an estimated load profile for the customer will be used to assign wholesale energy and associated cost responsibility to the supplier, regardless of the customer's actual interval usage. In this case, the supplier would have no incentive to incur the cost of more frequent meter readings or offer variable pricing options since the accumulation of this more detailed actual consumption data would not affect the supplier's wholesale cost of serving the customer. Refer to Part III.B.2.c for a fuller explanation.

<sup>6</sup> "Home Automation Market Mushrooming," Electric Light & Power, April, 1999.



technologies differ in at least three aspects: (1) the ability to supply value-added services, (2) cost, and (3) the need for a geographic density of customers. We briefly describe these features of radio-based mobile meter reading systems and different network-based AMR systems.

**i. Mobile meter reading:** Mobile meter reading systems equip meters with a radio transmitter that communicates usage data to a mobile van or hand-held receiver. This system (1) lowers reading costs, because the receiver can record meter data faster than a utility employee reading meters manually; and (2) eliminates the need to estimate bills due to the inability to access the meter. This technology is an enhancement of traditional equipment, but does not increase the frequency of readings. The technology is a relatively low-cost investment compared with other advanced meter systems, but does not provide the opportunity for value-added services that AMR may offer. To be cost-effective, this technology must serve a high number of meters in a particular geographic area.

**ii. Network-based AMR systems:** AMR systems use various communications systems to transfer data. A simple "dumb" electronic meter combined with a "smart" network dedicated specifically to utility uses currently is cheaper. Because it must serve a high density of customers within a geographic area, however, it is suited to service by a monopoly provider of metering services. The sophisticated "smart" meter using a multi-purpose "transparent" communications network currently is more expensive, but is better suited to service by multiple competitive providers and can support more value-added services.

Dumb Meter/Smart, Dedicated Fixed Networks. This system requires a simple module that allows the existing meter to create electronic "pulses." The meter itself does not retain information. A customized, dedicated wireless communication network converts the pulses into usable data. The dedicated network is capable of providing the meter reading function and certain distribution functions, but is less likely than multipurpose networks to provide a vehicle for value-added services. The system must serve a high number of meters within an area to be cost effective. For this reason, monopoly utilities prefer this type of system and have deployed this AMR technology only in high-population areas.<sup>7</sup>

Smart Meter/Transparent Multi-Purpose Networks. "Smart" meters create and process the necessary data at the meter level. They can use existing public communications systems, including telephone or paging networks, that are not tailored exclusively to the metering function. These systems are currently more expensive, but are better suited for retail meter services competition because they do not require the high customer density of a dedicated network and have the potential to provide more value-added services.

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<sup>7</sup> In Virginia, Virginia Power has introduced AMR in certain densely populated areas. To date, it has installed approximately 450,000 AMR meters in Northern Virginia, Richmond and Norfolk.

**c. Utility Incentives to Deploy AMR on a Large Scale are Not as Strong as the Incentives of New Competitors**

Generally, utilities under regulation have not had as strong an incentive to invest aggressively in advanced metering technologies as would new competitors. There are several reasons.

First, as a result of serving the entire market within their territories, the utilities do not have to compete for most customers by offering innovative pricing programs based upon time of usage. Therefore, to the extent that utilities have deployed AMR for small customers, it has been in densely populated areas that produce cost savings for the utility.

Second, the utilities are vertically integrated, owning the inputs necessary to provide retail electric service, and therefore do not face the risks involved with contracting for generation. Competitive suppliers use frequent meter reads to avoid incurring the costs associated with failing to correctly estimate demand. Any costs associated with the utilities' failure to accurately predict customer demand, "disappear within the vertically integrated regulated utility and are included in the rate base."<sup>8</sup>

Third, utilities have claimed that costs associated with AMR are high relative to the cost savings that the utility could achieve using the technology. Many large commercial and industrial customers have found the technology cost effective because they are large energy users and have automation systems that put meter information to use to manage demand. The cost of AMR technology is falling, and the use of AMR is rising correspondingly.

**2. New Billing and Account Services Are Emerging in Response to Greater Demands for Information and Bill Consolidation**

Many utilities are developing customer service systems, including Internet sites that allow customers to access account information and communicate complaints. For example, Kansas City Power and Light maintains an AccountLink web site where customers can access their bill, payment history and consumption history. Central Illinois Light Company and other utilities have established "state of the art" customer service facilities.

Even though the utility is the exclusive provider of the retail bill, other entities have capitalized on customers' desire to receive a single bill for multiple services and locations ("consolidated billing"). These companies offer to act as customer billing agents who receive and handle payment of a customer's bills for different locations and services.

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<sup>8</sup> NARUC Report, sec. 4.1.3.3, p. 36.

### **3. New Providers Are Entering Metering and Billing Markets, Particularly as Utilities "Outsource" Metering and Billing Services**

Utilities are finding that they can save money by "outsourcing" many of their services, including metering and billing. The utility contracts with third parties that specialize in these services. The utility in turn sells the third-party service to its customers. Outsourcing may extend to third-party ownership and installation of meter communications modules and networks.

Outsourcing in metering and billing is increasing for at least two reasons. First, metering and billing technologies are becoming more complex, requiring greater specialization; a utility may not have the expertise to maintain sophisticated AMR equipment and communications facilities. Second, metering and billing processes are becoming more standardized, allowing providers in non-electric industries to provide high-volume services to electric customers. A company that specializes in billing services for several industries may be able to provide billing services more efficiently than the utility itself.

There are a number of examples of "outsourcing" providers of metering and billing services contracting with utilities. SPL Worldgroup, Inc. will provide Pacific Gas & Electric ("PG&E") with a new billing engine and will acquire all of PG&E's customer information applications. Several AMR companies specializing in communications networks have contracted with utilities to provide metering equipment and meter reading services for retail customers. In states that have opened retail metering and billing markets to competition, competitive energy suppliers also may rely on outsourcing.

#### **C. In Anticipation of Competition in the Retail Market for Electricity, the Commission Will Need to Make Decisions Regarding AMR Systems that Affect the Future of Retail Metering Competition**

Regardless of whether there is competition in metering and billing services, the Commission will have to address the use of AMR technology in the newly competitive retail market for electricity. There are several reasons. First, the Commission will have to decide whether to require the distribution company to provide AMR if requested by a customer or a competitive supplier.<sup>9</sup> Competitive suppliers may argue that they need to have access to the frequent meter data that AMR provides in order to: (1) accurately estimate their generation needs and (2) offer competitive pricing programs to customers. Second, if the distribution company seeks to install AMR systems for certain customers

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<sup>9</sup> For instance, the Pennsylvania Commission requires the distribution company to install advanced meters upon request, with the incremental cost paid by the customer or supplier. 189 P.U.R.4th 162 (Oct. 19, 1998). The Commission establishes a catalog of approved metering devices based upon committee recommendations. See also Docket No. 98-810 (Maine P.U.C. Nov. 30, 1998). In California the utilities must offer at least two out of three services that permit customers to access hourly data. Dec. 98-12-022 (Dec. 3, 1998).

or system-wide, the Commission will have to address the appropriateness of the action, including the terms of cost recovery.

The Commission's AMR decisions will affect the type of AMR technology that the distribution company employs, and, in turn, the deployment of this type of technology may affect the future viability of competition in metering. As discussed in Subpart II.B.1.b above, a dedicated network AMR system is more cost effective for a monopoly provider of metering services that can rely on a high density of customers within a geographic location. Transparent, multi-purpose networks presently are more costly; but they do not require a high concentration of customers, and are better suited for competition in metering. Also, such networks provide greater opportunities for value-added services that competitive providers will want to offer.

According to the NARUC Report, Sec. 1.2.2, "[l]ike it or not, regulators must decide the degree to which they will favor dedicated AMR networks." The Report describes the dilemma confronting commissions (id.):

. . . [T]he regulatory choice now is to: (a) Encourage dedicated AMR networks to bring advanced metering benefits to more electric customers sooner. OR (b) Do not encourage dedicated networks, allowing a more diverse grid of transparent networks to (more slowly) develop, with greater competition and potentially greater functional capability.

#### **D. Conclusion**

This Part II has described the growing number of metering and billing products and providers. Gradually replacing the basic electromechanical meter, once the only meter option available to customers of all classes, are a variety of advanced meters that incorporate communications technology. Electronic payment, Internet account access and other billing and customer service options are becoming more widely available, due also in large part to advances in communications technology. More and more companies that specialize in the new technologies are providing metering and billing services to monopoly utilities, which resell the services to their retail customers.

The foregoing description of metering and billing products and services providers is integral to making a determination about metering and billing competition, for three reasons:

First, prior to evaluating the possible arrangements for supplying retail metering and billing services on a competitive basis, decision-makers must have an understanding of two basic features of today's markets: (1) the suppliers, including the entities providing the services to the monopoly utility, and (2) the range of available products. The evaluation methodology described in **Part III** below begins with the identification of metering and billing services and the possible participants in a competitive market.

Second, as part of the evaluation of the advantages of competitive metering and billing, decision-makers must factor into their analysis the effects that changing products

and providers have on competition's potential benefits and likelihood of success. For example:

- (1) These new products and providers impact directly the product choices, cost savings, access to innovative pricing plans and potential economies of scale that Part III identifies as potential benefits of competition in metering and billing.
- (2) New products and providers also impact the likelihood of successful competition in metering and billing markets. The many new third-party providers of metering and billing services to the existing monopoly utility will serve in future competitive markets as either (or both) of the following: (1) direct retail providers of services to customers; or (2) suppliers of services to electricity suppliers bundling metering and billing with electricity. Also, the new metering and billing products provide the opportunity for suppliers (including competitive suppliers of electricity) to compete based upon innovative product offerings and, through AMR, innovative pricing plans.

Finally, decision-makers must be aware that even after an evaluation based on existing facts, there is a need for ongoing analysis of metering and billing industry changes and the ability to alter the competition decision in response to those changes. We address the Commission's possible roles in fulfilling this need in **Part IV** below.

### **III. EVALUATION OF THE POTENTIAL FOR COMPETITION IN METERING AND BILLING SERVICES**

The General Assembly has established a central goal: competition in the sale of electricity to retail customers. An evaluation of the potential benefits of competition in metering and billing services must consider whether and how that competition will (1) serve that central goal and (2) otherwise affect consumers of metering and billing products. **Part III.A** presents a methodology for conducting an evaluation. **Part III.B** applies this methodology to presently known facts, and offers tentative conclusions.

#### **A. Methodology for Evaluating the Appropriateness of Competition**

An evaluator of the appropriateness of competition in particular metering and billing services must do the following:

- (1) **define** possible competitive metering and billing services;
- (2) **identify** the types of competitive entities that may be appropriate providers of each service; and
- (3) **weigh** the potential benefits and costs of introducing competition for each service, according to objective assessment criteria.

We discuss each requirement below.

#### **1. Potential Competitive Metering and Billing Services**

The first requirement in the evaluation process is to identify separable services that competitive entities could offer. By systematically identifying each potentially separable component, this step assures that historic "bundling" practices are examined, rather than continued unquestioningly. This process also protects against inefficient "unbundling," because it will identify those components that, for physical or economic reasons, should not be separated from traditional monopoly services. Finally, specification of potentially separable services allows one to distinguish those services for which competition is appropriate initially, from those for which additional analysis is necessary. Such a measured approach will have benefits over an "all or nothing" approach.

##### **a. Metering**

Potential competitive metering services could include:

- (1) provision and ownership of meter,
- (2) meter installation,
- (3) operation and maintenance (testing, calibration, and repair),

- (4) data collection (meter reading), and
- (5) data management (validation, editing, estimation, accumulation, and communication).

**b. Billing**

Billing services could include:

- (1) preparation of bills,
- (2) issuance of bills, and
- (3) payment collection and processing.

These two lists are tentative. Various states have defined or labeled these components differently, and the components can change as technology and commercial practices find new uses for individual or combined (or "rebundled") components. Note also that although the aforementioned items are listed separately, competitive sellers are likely to rebundle, for delivery to retail customers, many, if not all, of the services that may be found competitive.

**2. Potential Competitive Providers and Market Structures**

The second requirement is to identify possible providers of metering and billing services and the conditions under which these entities may participate in the retail market. Such entities may include the distribution utility, or its affiliates, ESPs, and third-party competitive service providers. Details follow.

**a. Metering**

A useful list of alternative scenarios for the competitive supply of metering services comes from the Maine Commission:

- (1) Customers may purchase metering services from a third-party provider, a competitive electricity supplier or the distribution company.
- (2) Customers may purchase metering service separately from the distribution company, or bundled with electricity from a competitive electricity supplier (which may outsource the service to third parties).
- (3) The distribution company does not offer metering service to retail customers but may supply the service to retail providers.

- (4) The distribution company is the exclusive provider of metering services to retail customers, but must procure the service by competitive bid.<sup>10</sup>

Various states have authorized one or more of these market structures. For example:

**California, New Hampshire, and New York** have authorized the provision of retail metering services by either the distribution utility or the consumer's ESP. These entities, in turn, may contract for wholesale metering services with competitive third-party providers.

A **Nevada** regulation allows retail metering services to be provided by any licensed competitive provider, but the distribution utility is prohibited from providing any competitive service except through an affiliate under a commission-approved agreement.

**Pennsylvania**, for at least one utility, has authorized the provision of retail metering services by the distribution utility or any licensed competitive provider.

A state might authorize competitive providers to sell metering to some customers but not others. A New Hampshire decision (presently delayed due to litigation) would limit the authorization of competitive metering to customers with demands exceeding 100 kW. A New York decision authorizes competitive metering for customers with demands equal to or exceeding 50 kW.

We noted previously that the separable components of metering and billing services might change with changes in technology and consumer and seller practices. The same is true for market structure. For example, some have suggested initially limiting the authorized providers of retail metering services to the distribution utility (or an affiliate) and the consumer's ESP, while allowing each of these entities to contract for wholesale metering services with competitive third-party providers. These limitations, the argument goes, would facilitate accountability and allow customers to progress up the "learning curve" without confronting too many choices. Regulators could remove the limitations as consumers learn more and regulators determine that the new standards and regulations in place are effective.

#### **b. Billing**

Most states that have considered this issue have allowed retail billing of customers by their selected ESPs, with variations. For example:

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<sup>10</sup> Provision of Competitive Meter and Billing Services, Docket No. 98688 (Me. P.U.C., Sept. 19, 1998).



**California, Delaware, Illinois, Maryland, Oregon, and Texas** have allowed a customer to choose between receiving (a) a "consolidated bill" from either the distribution utility or their ESP, or (b) separate billings from each.<sup>11</sup>

**Massachusetts, New Hampshire, and Maine** allow the ESP to bill customers for electric power, but have not provided for the ESP consolidated billing option.

Consumers in **Pennsylvania** may choose to receive retail billing services from the distribution utility, the customer's ESP, or any other licensed energy provider.

A **Nevada** regulation allows retail billing services to be provided by any licensed competitive provider, but the distribution utility is prohibited from providing such service except through an affiliate under a commission-approved agreement.<sup>12</sup>

One variation on these approaches illustrates how the market structure for billing services can interact with the market structure for other electric services. Consider an ESP that wishes to procure distribution service from the local distribution utility, and rebundle that distribution service with electricity sales to retail customers. In that situation, the distribution utility would have no commercial relationship with the retail customer. Since the distribution utility would have no commercial relationship with the retail customer, it would have no reason to bill that customer. In this situation the ESP would have billing responsibility. However, the ESP might choose to "hire" the distribution utility to provide billing services.

### **3. Competitive Service Assessment Criteria**

The third requirement in the evaluation process is to assess the benefits and costs of introducing competition for one or more potentially competitive metering and billing services (as identified in step 1) under varying market structure options (as identified in step 2).

#### **a. Potential Benefits**

The evaluation process should address at least three possible benefits:

- (1) **Will the proposed competitive market structure result in lower prices for the service and/or other services to consumers?** This question would evaluate the effect of metering or billing competition on the prices of all electric services, not only the price of the specific metering or billing service component. For example, competitive metering may lead to a

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<sup>11</sup> Consolidated billing refers to the inclusion of charges from both the distribution utility and the ESP on one bill.

<sup>12</sup> Pennsylvania, Maryland, Delaware, California, Texas and Oregon have not authorized competitive billing or metering options for the consumers of electric distribution cooperatives or municipals.

larger deployment of more expensive advanced meters for customers. While metering cost may increase, these advanced meters may provide these customers with access to lower energy supply prices that more than offset the increased metering cost. New economies of scale and competition for market share also may contribute to lower metering and billing service costs.

- (2) **Will the proposed competitive market structure result in greater product choices for consumers?** This question would consider whether competition will (a) stimulate new offerings of packaged or value-added services (such as consolidated billings, Internet services, and energy management and security systems) and (b) spur technological development that may support these or other products and services.
- (3) **Will the proposed competitive market structure promote competition in other markets, including the market for the retail sale of electricity?** This question evaluates whether metering and billing competition will facilitate the reduction of entry barriers in the markets for other electric services. For example, competitive metering may enhance the ability of an individual ESP to distinguish itself by offering innovative energy pricing options and billing procedures or formats that foster new customer/supplier relationships.

Analysis of these benefits also must include two additional considerations. First, it is appropriate to consider whether all customers will benefit from the proposed competitive market structure, or whether some customers will benefit more than others. Competition for a service may impact various customer groups differently. For example, a trade-off of higher up-front metering cost for lower long-term energy cost may be a more attractive option for customers who can finance the up-front investment, or who have suppliers willing to help finance that investment. Second, it is appropriate to consider the likelihood of effective competition that will allow consumers to realize the potential benefits of competition. There must be enough qualified and willing suppliers to provide the service and not be barriers to entry. It may be possible to take actions that reduce barriers to entry.

#### **b. Potential Concerns**

The potential benefits must be weighed against various concerns, including:

- (1) the need to educate consumers to assure their progress along the learning curve;
- (2) the need to establish, monitor and enforce standards, rules, and certification requirements to ensure adequate control mechanisms for safety, accuracy and reliability; and
- (3) the net negative effects, if any, of unbundling on economies of scale or scope, after considering the possibility of new economies of scale from the

entry of providers with broader geographical bases and providers serving markets in addition to the electricity market.

Analysis of these concerns should also consider the likely effectiveness of measures to mitigate those concerns.

## **B. Application of the Evaluation Methodology to Billing and Metering Services**

Having set forth an evaluation methodology, we now apply that methodology to billing services (Part III.B.1) and metering services (Part III.B.2). For each of these two categories, we (a) describe advantages, (b) discuss concerns and means to mitigate them, and (c) offer tentative conclusions as to the appropriateness of competition. In Part III.B.3, entitled "Caveats," we explain why our conclusions are tentative. Finally, in Part III.B.4 we note certain tax issues which, while outside the scope of this report, warrant future legislative attention.

### **1. Competition in Billing Services**

Before discussing the advantages and concerns related to the introduction of competition in billing services, we wish to clarify what "competition in billing services" means. As noted in Part II, in today's industry the utility provides all portions of electric services and bills for those portions. The introduction of ESPs as competitive providers of electric service makes several new billing scenarios possible. The set of potential options depends, in part, on whether the distribution company continues to sell distribution service directly to retail customers or whether the ESP purchases distribution services and resells it to customers in a package with electricity and, possibly, other services.

**If the ESP sells electricity to the consumer while the distribution utility sells distribution service to the consumer, then either:**

- (1) the ESP and the distribution utility provide separate bills to the customer (possibly by contracting with billing companies to provide billing services on behalf of the ESP or the distribution utility);
- (2) the ESP provides the customer a single consolidated bill (possibly by contracting with a billing company acting to provide billing services on the ESP's behalf) and remits the appropriate share of the proceeds to the distribution utility;
- (3) the distribution utility provides the customer a single consolidated bill (possibly by contracting with a billing company to provide billing services on the distribution utility's behalf) and remits the appropriate share of the proceeds to the ESP; or

- (4) a third-party billing company, selected by the customer, provides a bill to the customer for one or both services and remits the appropriate share of the proceeds to the ESP and the distribution company.

**If the ESP purchases (and pays for) distribution service from the distribution utility, and then bundles this distribution service with the ESP's electric service and resells the bundle to the consumer, then either:**

- (1) the ESP bills the customer for the entire bundle (possibly contracting with a billing company to provide billing services on the ESP's behalf); or
- (2) a third-party billing company, selected by the customer, provides a bill to the customer for the bundled service and remits the proceeds to the ESP.

The ensuing discussion about the advantages and concerns relating to competition in billing services is a generic one which can apply to each of these options.

**a. Advantages**

**i. Enhanced ESP-customer communication:** Eliminating the utility's present monopoly over billing promotes competition in the retail market for electricity because the billing process establishes a key communication link between the supplier and its customer. This link allows the ESP to fashion marketing strategies for particular customer segments, build name recognition and "brand" its products. One representative of an energy marketing company stressed the importance to marketing of the customer opening the bill each month to see the company's logo. To introduce competition in electric sales but deny competitors the strategic tools necessary to achieve those sales is inconsistent.

**ii. New billing and payment options and "value-added" services:** By sending out their own bills, ESPs can offer customers a choice of bill format and information content, the timing and terms for billings and payments, and consolidated bills for multi-site locations and multi-utility service (such as combined electric, gas, and water bills).

**iii. Diverse pricing and information options:** Present billing systems managed by distribution companies will not necessarily accommodate the ESP's varied billing and communication innovations. These existing rate and format options reflected in present utility billing systems were designed to service the present, limited set of electric service options, not the new ones that will emerge under competition.

Consider a distribution utility which performs consolidated billing for an ESP. (In this context, consolidated billing would be including in one bill to the customer a charge for utility distribution service and a charge for the ESP's electricity sales.) The distribution utility might offer two options to the ESP:

- (1) Under the "**bill ready**" option, the ESP determines the quantity purchased by each of its customers, calculates the total charge and submits to the

distribution utility this total charge information. The utility then includes this ESP charge as a single line item on a consolidated bill sent to each customer.

- (2) Under the "**rate ready**" option, the ESP provides the distribution utility with a pricing structure that the utility incorporates in its billing system. The utility applies this rate to the quantity of electricity which the utility has delivered to the ESP's customer, calculates the ESP's charge and includes that charge on the customer's consolidated bill.

These options have a limiting effect on the ESP's ability to differentiate its product. Here are two examples:

- (1) It is likely that the ESPs pricing structure for the sale of electricity will differ from the utility's pricing structure for the sale of distribution service. There may be differences in the number or type of pricing blocks (rates and billing determinants), changes in seasonal prices, or special arrangements such as weekend or vacation discounts. These differences may render the utility's existing system unsuitable for the "rate ready" option. The result would be that the utility's historic practices would limit the ESP, when using the "rate ready" option, to certain rate structures; yet a key purpose of competition was to facilitate the competitive introduction of new rate structures.
- (2) For both the "bill ready" and "rate ready" consolidated billing options, the utility likely will have limitations on bill formatting and the space available for ESP communications to its customers. An ESP cannot build customer loyalty if limited to three lines on the consolidated bill.

In short, mandatory reliance on the utility's billing system will limit ESPs in terms of the pricing options that can be offered and the communication strategies they use with customers. Since pricing and communication are central to competition, a continuation of monopoly billing is incompatible with the introduction of retail competition.

**iv. Economies of scale and scope:** The billing industry is advancing in terms of geographic scope and technological sophistication. ESPs serving Virginia can use national or regional billing services that offer significant economies of scale and scope, by providing billing services for many clients offering many services. These new competitive entities may also offer and promote more innovative and efficient billing and payment options, such as paperless, Internet-based electronic transactions.

**v. Simplification of customer payment and reduction in confusion:** Many customers hope to have all electricity-related services on a single bill. Competition in billing services can give energy service providers and billing companies an opportunity to respond to that customer preference. Also, once a customer has gone through the process of selecting a new electricity supplier, the customer may be expecting to receive

bills from that supplier (rather than from the former supplier), along with regular communications about the new supplier's pricing plans or products.

**vi. Distribution of benefits:** While larger and commercial customers are more likely to avail themselves of innovative product options, there is no reason to conclude that other customers ultimately will not choose these options as they become more knowledgeable and as costs decrease. Moreover, all customers will benefit from the ability to receive direct communications from their ESP and from new economies of scale.

**vii. Likelihood of effective competition:** There are many potential providers of billing services. ESPs have strong incentives to provide a bill to customers. As indicated in Part II, many companies already are providing billing services to monopoly utilities. Any company that issues bills is a potential market entrant, including credit card companies, communications companies and others. As is the case with the retail electricity market, in order to promote competition in a newly competitive retail market for any service the Commission will need the ability to impose measures that prevent the exercise of market power by the incumbent.

## **b. Concerns**

**i. Consumer readiness:** Consumers encountering electric competition for the first time may not currently be prepared for the host of choices in electric services. The availability of competitive billing options will steepen the learning curve. Effective public education programs will be necessary. Choices in billing options are, however, neither technically challenging nor a new experience for consumers. Consumers are likely to accept the new complexity in light of the benefits of new billing and payment options.

**ii. Billing accuracy:** Increasing the number of entities providing billing services may increase the number of entities that the regulator (or the market) must oversee to minimize error or fraud. However, similar risks exist with respect to the billing of any competitive service. To address these concerns, the Commission might consider appropriate minimum standards and requirements for billing record retention, billing format, and the provision of adequate information to consumers to facilitate billing verification. Additionally, the "Virginia Electronic Data Transfer Working Group" process should include standards that ensure the timely provision of necessary data to the billing party.<sup>13</sup>

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<sup>13</sup> The Virginia Electronic Data Transfer Working Group ("VAEDT") was formed in February 1999 to formulate proposed standards and guidelines for the electronic exchange of information among market participants in order to facilitate business transactions. In addition to addressing electronic data standards, the process considers practical and operational standards for informational needs and the timing and flow of such information among parties to facilitate transactional efficiency. For example, this process will address the timing and flow of data from the party that accumulates and processes consumption data to the party that calculates and issues bills.

**iii. Coordination with implementation of retail generation competition:** Under electricity competition, the seller of distribution service (the traditional utility) will be different from the seller of electric service (the ESP). The two entities' billing systems must be coordinated pursuant to carefully designed rules and standards. This coordination process will be necessary even without competitive billing. That is, even if the utility were to send bills on behalf of ESPs (rather than the ESPs sending their own bills), some level of utility billing system flexibility will be necessary to accommodate ESP pricing options and the provision of associated billing information to customers. The process of upgrading utility systems to accommodate these changes will require close attention and compatibility with the goals of competition.

**iv. Economies of scale:** Given the two sets of services (distribution and electric sales), there may be a need for duplicative billing systems. Duplication causes costs, which might not have existed with a single billing provider. These costs are sometimes referred to as a loss of economies of scale or scope associated with having the traditional utility providing all services itself.

These potential lost economies are actually attributable to the introduction of electric services competition, as distinct from the introduction of competitive billing. The various restructuring efforts will produce three separate entities – the distribution utility, the ESP, and the Regional Transmission Entity – where there used to be only a utility. Regardless of decisions regarding competitive retail billing, each independent business entity must perform basic business functions such as accounting, billing and collecting in some manner.

**v. Communication protocol:** The receipt of a separate or consolidated bill from an ESP will require some clarification as to who is responsible for service initiation and termination, and whom to call in the event of a distribution reliability or safety issue, such as a downed wire or an outage, among other issues. As it has in the past, the Commission will need to establish clear protocols as to how such communications are made.

### **c. Tentative Evaluation**

For many decades, consumers have received only the utility's message. Competition cannot develop effectively if competitors cannot now communicate their own message, using their own styles and methods. Competitive billing supports retail electricity competition, the central goal of the Statute, by allowing ESPs to serve as the primary business contact for customers. The Commission is aware of no concerns sufficient to warrant a rejection of the competitive billing option.

Our concern runs the other way: we question whether and how electricity competition can be effective if sellers and buyers cannot choose their own means of communication. To invite a business to come to Virginia, and invest in equipment, staff, advertising and all other prerequisites of commercial success, but then require the seller to rely on a third party to bill and collect for its services, is inconsistent with customary

practice. It is particularly inappropriate where the third party – here, the utility – is a competitor of the seller.

This reasoning is in line with that of most states that have considered the competitive billing issue. These states have adopted, or appear to be moving toward adoption of, a competitive market structure that at a minimum provides at least two options:

- (1) ESPs can separately bill their retail customers for energy supply, or
- (2) customers can receive a consolidated billing.

In many cases, the customer may choose either the distribution utility or the ESP to provide consolidated billing. Under other market structures, the consolidated billing option is available only from the distribution utility.

Moreover, in Virginia's gas and telecommunications industries, the seller of the competitive service directly bills the customers. In the telecommunications industry, competitive long distance carriers can and do direct bill customers for their services – particularly business customers. Consolidated billing of local and long distance services results solely from negotiated agreements between long distance and local exchange carriers. In the gas industry, gas marketers sell their product (the energy component) to industrial customers in Virginia and elsewhere, direct billing their customers for that service. Additionally, residential gas pilots (for competitive retail access) currently underway in Virginia permit direct billing by gas marketers. Marketers participating in these pilots may, however, elect to have the local distribution company ("LDC") bill customers for supplier services as a LDC tariff service.

Since many customers may prefer to receive only one electric bill, the initial market structure for billing services should accommodate this preference. Moreover, to promote the development of a robust retail electric sales market, the initial market structure should recognize that smaller and newly arriving ESPs may not have retail billing systems in place. These entities should be able to pay the utility for use of its traditional billing system, and the utility should be required to add a reasonable amount of flexibility to that system to accommodate certain billing options. The Commission should establish fees for these utility services to assure the utility takes on no undue financial risk.

The ESP-customer communication link established through competitive billing will create fertile ground for the introduction of new non-electric services and value-added services, for which combined billing might be appropriate.

The concerns identified above are real. Current information indicates, however, that these concerns can be managed with a careful implementation process. Such a process must (a) be compatible with the timing of restructuring, (b) recognize and accommodate the differences in preparedness among various customer classes, (c) provide sufficient time to develop adequate standards and rules, and (d) identify necessary changes in present utility practices and compensate the utility fairly for making



those changes. The Commission will need the authority and flexibility to make this process successful.

## **2. Competition in Metering Services**

### **a. Advantages**

**i. New pricing options and value-added services:** Allowing customers and their ESPs to choose metering configurations adds flexibility and variety to pricing, energy management and risk management options. Assuming substantial generation savings and reasonable risk, consumers (or ESPs on behalf of their customers) will see more expensive advanced metering equipment as a cost-saving measure. If generation saving opportunities are slim or too risky, the customer can select a less expensive metering option. Either way, the market would decide.

New forms of metering also may enable ESPs to offer new value-added services like gas or water metering, Internet access, local telephone bypass, and security systems. Should electricity itself become a commodity offering slim profit margins, innovative pricing and usage plans, and value-added services, will be important mechanisms by which sellers differentiate themselves and win and retain customer loyalty. Such pricing and service flexibility may be important features for attracting to Virginia suppliers wishing to serve small consumers. Some frequently cited examples of potential value-added services require new and expensive communication technologies, such as broad band options including coaxial cable or fiber optics. While these technologies are not currently economically practical for deployment as single-purpose metering applications, they may become more so as technology advances and when markets develop in which the seller is offering multiple products.

**ii. Technological and process innovation:** Competition among providers of metering services should stimulate technological innovation and cost reductions. Until recently, the technology developed and offered by the meter manufacturers has been designed to service the comparatively simple metering needs of the traditional monopoly utility industry, which provides a relatively uniform electric product. Consequently, metering technology has largely focused on a single purpose: metering electrical consumption for use in billing based on regulated flat rates, with attention directed toward capturing economies of scale with respect to meter density. With competition in electric sales and in metering services, the meter industry will likely respond with efforts to develop economical hourly metering alternatives as well as value-added services. These efforts should produce advances in technology and in economies.

**iii. Consistency with functional unbundling:** The General Assembly has mandated a separation of generation from transmission and distribution, and subjected generation to retail competition. The cost of generation varies more with the amount and timing of energy consumption than does the costs of transmission and distribution services. In fact, transmission and distribution costs are largely fixed costs. Since one purpose of competition is to reduce generation costs, allowing sellers of energy

to package their sales with metering services will be more likely to introduce efficiencies in energy usage that will reduce generation costs.

**iv. Potential economies of scale and scope:** The entrance of regional and national providers of advanced meter technologies that do not depend on geographical concentrations of customers creates the possibility for new economies of scale. We discuss this issue in greater detail in the section addressing concerns over the potential loss of economies of scale below.

**v. Distribution of benefits:** While larger customers are more likely initially to avail themselves of advanced metering technologies, there is no reason to conclude that other customers ultimately will not choose these options in order to access creative pricing and value-added services as they become more knowledgeable and as costs decrease.

**vi. Likelihood of effective competition:** There are many potential providers of meter services. ESPs have strong incentives to provide advanced metering to customers in order to (1) accurately predict demand and (2) offer value-added services and competitive electricity pricing. As indicated in Part II, many companies already are providing metering services to monopoly utilities. These companies, telecommunications companies and companies that provide metering in other industries are potential providers. As is the case with the retail electricity market, in order to promote competition in a newly competitive retail market for any service the Commission will need the ability to impose measures that prevent the exercise of market power by the incumbent.

## **b. Concerns**

**i. Accuracy and reliability of consumption data:** Metered consumption data provides the basis for billing retail consumers, as well as periodic financial settlements among wholesale generation market participants. The success of the industry restructuring process depends on the integrity of the metering function and the reliability and accuracy of consumption data.

The metering process incorporates a number of essential control elements, including meter tracking, meter testing, monitoring of service endpoints, meter data validation and editing, and data security. Standards and control elements have been developed over time based on the premise of a single provider with full accountability. Many of the control elements are intertwined with and across numerous existing utility information systems. The present system, under which monopoly utilities perform metering activities in compliance with well-established standards and practices and subject to the oversight of utility commissions, has ensured accurate and reliable measurement of retail consumption.

The introduction of multiple parties, having varying interests and incentives, will increase the complexity of the standardization and review process. Redesign of control systems and standards will be necessary. The Commission will need to structure a

systematic analysis of the various components of metering to ensure that new control structures assure accountability. The Commission will need flexibility to mesh this analysis and redesign with its general implementation of competition.

**ii. Economies of scale and scope:** Competitive metering may result in the loss of economies of scale and scope. Existing utility meter reading practices include manual meter reading and fixed network automatic meter reading ("AMR") systems. The economics of these systems benefit from geographic meter density. The introduction of competitive metering would reduce this density. Additionally, as monopoly service providers with a large and reasonably predictable need for new meters, utilities have been able to negotiate significant quantity based price discounts with meter manufacturers. Data management and control systems may also be administered more efficiently by a single provider due to the avoidance of duplicative system costs. Finally, economies of scope between metering and other distribution functions may be reduced by competition. For example, meter readers typically play important roles in detecting energy diversion, monitoring the condition of distribution facilities with respect to maintenance needs or safety concerns, assisting in major power restoration efforts, and serving as an informal communication links between the utility and its customers. The loss of economies of scope can be more significant for smaller companies, like cooperatives and municipals.

The foregoing commentary, however, reflects a static view of the industry. It is more likely that competition will introduce new approaches and technologies that are more effective and efficient than present practices. For example, while meter reading economies of scale based on meter density could be lost, other economies of scale resulting from large national service providers working in concert with metering manufacturers may result. Additionally, the potential consumer benefits associated with value-added services and other electric services (reductions in energy supply cost) must be considered in any economic analysis.

**iii. Safety:** Meters are attached to potentially lethal voltage levels. Insufficiently skilled installers would be exposed to electrocution risks. Incorrectly wired meter installations would pose risks to customers or their structures. Distribution utilities currently provide extensive training and oversight to ensure that meter workers are properly qualified for assigned tasks. These risks vary significantly with respect to the service size and the complexity of the meter installation, and there are counterparts to these risks in other competitive services.

New efforts would be necessary to assure uniform and adequate qualification levels in light of the introduction of new competitive entities. The Commission would need to establish adequate standards, procedures, and provider certification requirements to ensure the qualifications of all service providers and their workers for the physical installation and maintenance of meters.

**iv. Interjurisdictional coordination:** Among the new players in metering competition may be architects and homebuilders, who may work with prospective home buyers or apartment building owners to install meters at the time of construction. An advanced meter, purchased in bulk by developers and rolled into the

cost of a major real estate purchase and paid for over the life of the mortgage, may be an efficient means of introducing sophisticated equipment that reduces customer costs. These possibilities point to the need for coordination among agencies like the Commission, which might be prescribing standards for meter-grid compatibility, accuracy, and safety; and those agencies charged with designing and enforcing building codes. Coordination will be necessary to minimize overlaps and gaps in essential standards or regulations.

**v. Consumer readiness:** As with competitive billing, the learning curve of different customer classes will require special attention. Consumers will need to learn how to make the tradeoff between higher metering costs and lower energy costs. They will need to understand what drives energy prices and how their consumption can affect their costs. Some consumers may be prepared to make these decisions now, while others may not. Effective public education efforts will be necessary. The Commission will need to monitor the readiness level of different consumer classes to avoid a premature implementation of competitive metering for any particular customer class.

### **c. Tentative Evaluation**

Given the General Assembly's decision to introduce competition in generation, the most significant advantage of competitive metering would be the additional tools consumers will have to shop effectively among sellers of electricity. Customers will be able to select among pricing and risk options according to their own consumption patterns and risk preferences.

The key meter feature that provides for significant flexibility with respect to pricing options is the measurement of hourly consumption data. Absent hourly metering, the pricing options offered by ESPs to consumers will be limited, most likely restricted to flat prices. If hourly consumption data is not available, the ESP, will have to procure and deliver wholesale generation based on an estimated hourly load pattern curve (known as a "class load profile") that reflects the average load pattern for each customer class served by that ESP. Regardless of a customer's actual hourly consumption, the ESP serving that customer will be assigned by wholesale sellers an hourly energy responsibility and associated cost based on this class load profile. An ESP in this situation would have no means of obtaining wholesale generation cost savings that might result from a consumer's more efficient energy consumption pattern (shifting usage from higher-cost peak demand periods to lower-cost off-peak periods). As a result, the ESP would have no incentive to send a price signal to the consumer to encourage such efficiency, and a key reason to introduce competition into the electric industry would be lost. In short, hourly metering provides the ESP and the consumer the opportunity to realize wholesale generation market savings that result from more efficient energy consumption. The ability to access these potential wholesale savings allows for a variety of retail pricing options by which the ESP and its customer may share the potential savings and associated risk.

Certain limited hourly metering options could be made available through regulations imposed on distribution utilities, but this "command and control" approach would not offer the full array of potential benefits that may be provided by competition in

metering. For example, the Commission perhaps could order utilities to provide hourly metering capability through fixed network automatic meter reading ("AMR") systems. It is not clear, however, how many consumers will be interested in substantially modifying consumption patterns or accepting the risks associated with variable pricing options. Therefore, significant investment would be required without clear benefits. For those consumers who are not interested in pursuing pricing options associated with hourly metering, such investment would be wasted. In this sense, government-ordered deployment of fixed network AMR systems very well may not be the most economical approach. Further, a full scale deployment of fixed network AMR systems today would also likely restrict future options with respect to other advanced metering technologies that could better support value-added services as industry restructuring progresses and markets develop.

An alternative regulatory approach incorporating the concept of choice would be to require distribution utilities to offer hourly metering options to consumers and/or ESPs, with the consumer or ESP paying the incremental cost in excess of normal metering expense. In fact, at a minimum, an approach similar to this will most likely be essential until competitive metering issues are fully resolved. However, regulated entities do not have the same financial incentives as competitive entities to satisfy the metering needs of an ESP or its consumer. A regulated approach would most likely result in substantially fewer and perhaps more costly metering options than those provided by a competitive market, as well as less flexibility with respect any special metering service needs.

It is reasonable to anticipate that a robust competitive market would be superior in meeting consumer needs with respect to providing hourly metering and communication alternatives. These alternatives would support a variety of pricing options and information needs, potential value-added services, and encourage technological innovation and associated cost reductions. Such advantages would benefit industry restructuring as a whole.

It is true that there are significant complexities associated with competitive metering services, especially with respect to the development of technical standards and crucial metering and meter data control systems. Because of the critical importance of the accuracy and reliability of consumption data, these issues must be examined to develop solutions and evaluate the costs and risks of such solutions against the expected competitive benefits. Of course, the readiness of various customer classes and the effect of lost economies of scale or scope, if any, must be factored into this analysis as well.

It will also be important to monitor developments in states that have implemented competitive metering to gain insights from their experiences. Currently, only California (beginning January 1, 1999) has fully implemented competitive metering for all customer groups. Implementation on a utility-by-utility basis is in progress in Pennsylvania. These recent implementations do not allow for meaningful evaluation at present. Seven other states have decided to implement competitive metering between now and 2005.

### **3. Caveats**

The foregoing discussion makes clear that competition in a number of billing and metering services can make significant contributions to competition in retail electric services. This evaluation is tentative, however, for several reasons. First, it is based on information gathered to date, resulting from research obtained from industry reports, activities in other states, and informal meetings with interested stakeholders. The evaluation is not the product of a formal, fact-based review specific to Virginia utilities and consumers, which would provide a surer basis for a final decision in each of the areas discussed above. The Commission's intention, consistent with the recommendation in Part IV below, would be to establish formal investigations regarding these issues. Formal proceedings would accommodate more detailed evaluations and provide an appropriate forum for all interested parties to espouse their positions and offer supporting evidence. These proceedings should provide additional important information to evaluate.

Second, there are complexities involved in the metering and billing processes, both known and unknown. Some will be worked out and disappear, while new ones are likely to arise. The Commission wishes to make the best decisions in this area based on the best information available at the time of the decision. Inaccurate and unreliable consumption measurement or billing would have detrimental impacts on public confidence in the restructuring process. The best way to address these concerns is in the context of particular services, where appropriate measures can be designed according to a time schedule, and with appropriate stakeholder involvement, to assure their success.

Third is the concept of phasing in competition for particular services. Transitions can limit complexity for retail customers as well as provide for clear assignment of accountability. As consumers establish their preferences and sellers develop more products, it may be appropriate to authorize competition for more providers and purchasers.

These caveats form the basis of our recommendation that the General Assembly direct the Commission, subject to clear criteria, to make determinations of the specific services that should be subject to competition and the timing of those decisions. We detail the bases for these recommendations in Part IV.

### **4. Tax Issues**

The 1999 Virginia General Assembly enacted Senate Bill 1286 which made major revisions to the tax policy of the Commonwealth as it affects the electric industry. Pursuant to this legislation, a corporate income tax will be imposed on electric public service corporations that will replace the currently imposed two percent gross receipts tax.<sup>14</sup> Anticipated revenue losses associated with these changes will be recovered by the

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<sup>14</sup> In the past, public service corporations, including those selling electricity, paid the gross receipts tax but not the corporate income tax. Electricity sellers other than public service corporations were subject to the corporate income tax. The change places all competing sellers of electricity on the same tax footing.

consumption tax that will also replace the local gross receipts tax<sup>15</sup> and the special regulatory tax.<sup>16</sup>

The application of corporate income tax to the changing electric industry will create new issues for the Department of Taxation. "Merger" and "nexus" issues will be areas of major concern as new suppliers enter the market. For example:

- (1) If an existing or future supplier of electric service to Virginia retail consumers merges with an out-of-state company, tax officials will need to apportion corporate income between the Virginia and non-Virginia activities.
- (2) As new suppliers of electricity and electric services (such as metering and billing services) sell their products to Virginia customers, questions will arise as to what level and types of activities constitute "doing business in Virginia" for purposes of the corporate income tax. Some of the new entrants may be national firms, the bulk of whose activities occur outside the state. Tax officials will need to identify those activities which contribute to Virginia net income, so as to apply the tax accurately.

The Commission staff will be available to discuss and assist the General Assembly and the Department of Taxation with these issues.

Finally, any potential change in the provision of billing and metering services that results in new parties (suppliers other than the distribution company) performing these services will require an assessment of the need for statutory clarification or revisions with respect to the billing and collection of state and local consumption taxes.

One possible solution to the application of tax law to billing and metering services would be to bring the new providers of these services within the definition of "service provider" as defined in § 58.1-2901 of the Code of Virginia. This change should be addressed only after we have a better understanding of the new entities that may provide billing and metering services in a deregulated market.

The Commission staff will be available to provide assistance to the General Assembly as this issue is studied.

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<sup>15</sup> Currently a local gross receipts tax may be imposed by every county, city or town at a rate not to exceed one-half of one percent on sales to the ultimate consumer in such locality. The tax is remitted by the electric distribution company to each locality.

<sup>16</sup> Currently a special regulatory tax may be levied at a rate not to exceed two-tenths of one-percent of gross receipts from business done within the Commonwealth. The tax is collected by the State Corporation Commission and is used by the Commission to defray the cost of supervision and administration of all laws relative to public service corporations.

**IV. RECOMMENDATION: BECAUSE OF THE RAPID CHANGES IN THE METERING AND BILLING BUSINESSES, THE IMPLEMENTATION OF COMPETITION WILL BE MORE LIKELY TO SUCCEED IF THE COMMISSION HAS THE ABILITY TO AUTHORIZE METERING AND BILLING COMPETITION ON A TIMELY BASIS IN RESPONSE TO EVOLVING FACTS**

The preceding analysis leads us to the conclusion that the determination of whether competition should be introduced for metering and billing services, for which services and customers, and when, must be based on a careful and timely factual analysis. A directive to the Commission to make these findings and introduce competition where appropriate is the path most consistent with the General Assembly's 1999 decision to introduce competition at retail for generation. Subpart A below sets forth the basis for this conclusion:

**Subpart A.1** discusses how the dynamic changes in metering and billing products and providers (as described in Part II above) may affect the definition of service components, possible market structures and the balance of benefits and concerns associated with competition (Part III above).

**Subpart A.2** explains the Commission's need to coordinate its decisions regarding AMR technology (described in Part II above) with the decision regarding competitive retail metering services.

**Subpart A.3** demonstrates that such commission authority lies within the mainstream of competition statutes in other states.

**Subpart B** asks that the General Assembly grant the requested authority during the 2000 session, so that should the Commission ultimately determine that metering and billing competition is necessary, the implementation could occur in time for the mandatory commencement of the phase-in, i.e., January 1, 2002.

**A. The Commission Should Have the Authority to Determine Whether and When to Introduce Metering, Billing and Related Retail Services to Competition**

As the agency charged with implementing the General Assembly's mandate of retail competition in electricity, the Commission must be able to (1) respond to changing factors in the competition analysis and (2) ensure consistency between its decisions regarding AMR technology and its decisions on the appropriateness and timing of metering and billing competition. These two factors, discussed in more detail next, underscore the need for Commission authority to determine the timing and type of metering and billing competition.



## **1. Industry Participants Will Expect Expedient, Fact-Based Responses to Changing Facts**

As we discussed in Part II, changes are occurring in metering and billing markets. Innovative technologies are emerging. The costs of technology are falling. Third-party providers are supplying the services that utilities sell to retail customers. Other states are opening retail metering and billing markets to competition. These and other changes have a significant effect on the analysis of the benefits and concerns associated with competition, as discussed in Part III.

For example:

- (a) The development of new technologies indicates that competition will result in more innovative product offerings and lower energy costs.
- (b) The standardization of technologies indicates that competition will offer lower service costs and ease market entry.
- (c) An increase in the number of qualified potential suppliers increases the likelihood of effective competition.
- (d) The development of licensing standards and service/equipment standards reduces concerns over the impact of competition on safety and reliability.
- (e) An increase in customer understanding of metering, billing and other electric services reduces concerns regarding customer confusion.
- (f) An increase in customer demand for innovations in metering and billing increases the likelihood of effective competition.

The dynamic nature of these factors demands a decision-making process that is both evolutionary and expedient. The existing statute allows only for an annual report. If, after Commission submission of its annual report, the assessment factors change substantially (a certainty), the necessary response would be delayed until the next year when the Commission submitted its next annual report. The sellers of services – and the customers demanding those services – will need and expect action more promptly.

Moreover, differences in facts affecting different utilities, customer categories and regions will require a series of implementation decisions that are likely to vary in terms of products, timing and other factors. Each such decision should take into account decisions made previously as sellers, buyers and regulators learn from previous outcomes. Under the present statute, these decisions would have to take the form of multiple statutory amendments over a number of years. A Commission rulemaking process, with opportunities for fact-specific exceptions and adjustments based on changing facts, all subject to legislative guidance, would be more efficient.

## **2. Commission Authority to Designate Competitive Services Will Allow the Commission to Coordinate that Decision with Commission Decisions Regarding AMR Systems**

As discussed in Part II, the mandatory introduction of generation competition at retail will require the Commission to make decisions affecting the type of technology used for metering. Those decisions will be necessary regardless of whether the General Assembly authorizes metering or billing competition; yet, those decisions will affect the possibility for metering competition because some types of advanced metering are suitable for a competitive market and others are not. In order for the state to have a consistent policy regarding competition in metering, therefore, decisions regarding AMR technology must reflect the state's policy regarding retail competition in metering.

Part II explained that the decision to favor either dedicated or transparent networks affects competition. Dedicated networks are suited to a monopoly providing service to all customers within an area, while transparent networks do not depend on a concentration of customers and are capable of supporting the value-added services that competitive suppliers want to offer. Installation of dedicated network systems by distribution companies now may preclude competition later:

Regionally dominant suppliers of meter communications services may experience low competition once they are established. . . . When energy service providers have ideas for new services that cannot be supported by these networks, the economic obstacles to new service introduction will be larger than if AMR is accomplished by a diversity of transparent networks. We will again be faced with deciding whether a large scale infrastructure investment by society is justified.<sup>17</sup>

The Commission also must consider the future of competition in metering and billing in considering whether to permit a utility to install AMR systems. The Commission, assuming no metering competition, might approve the utility's deployment of an AMR system. If the General Assembly later subjects metering to competition, the utility may claim stranded costs.

In light of the relationship between various Commission decisions and future competition, the Commission should have the ability to coordinate outcomes and ensure that the state has consistent and coherent policies regarding metering, billing and other electric services.

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<sup>17</sup> NARUC Report, Executive Summary, p. 3.

### 3. Commission Authority to Make Decisions Regarding Competition in Metering, Billing and Other Services Is Consistent with Restructuring Statutes in Other States

The majority of state statutes addressing the issue either authorize the commission to determine whether metering, billing and other services are competitive, or directly allow customers to shop for these services.

Commissions have authority over the decision to subject metering to competition in **Arkansas, Delaware, Illinois, New Jersey, Ohio** and **Pennsylvania**. Legislation in **Oregon** also authorizes the state commission to establish rules regarding the provision of metering services, but requires that meter installation, testing, and maintenance remain with the distribution utility.

The same states authorize the commissions to subject billing to competition, except that the **Delaware** and **Illinois** statutes specifically allow competitive electricity providers to provide a consolidated bill for energy, distribution and transmission services.<sup>18</sup>

In **California** and **New Hampshire**, the commissions have interpreted general statutory language as authorizing them to order competition in metering and billing.<sup>19</sup>

In **Maine, Maryland, Nevada, Texas** and **Arizona**, the legislation mandates competition in metering and billing.<sup>20 21</sup>

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<sup>18</sup> Ark. S.B. 7911 sec. 23-19-501; Sec. 1011(a) Delaware Electric Utility Restructuring Act of 1999 (H.B. 10); 220 Ill. Comp. Stat. sec. 5/16-113; Section 8(c) New Jersey Electric Discount and Energy Competition Act; Sec. 4928.04, S.B. 3 (Ohio, 1999); 66 Pa. C.S. sec. 2804(1)(I)(3); Sec. 15, S.B. 1149 (Oregon 1999).

<sup>19</sup> Decision 97-12-048, 182 P.U.R.4th 284 (Dec. 3, 1997) (interpreting Cal. Pub. Util. Code sec. 366 (a)); Electric Utility Restructuring, 184 P.U.R.4th 213 (N.H. Pub. Util. Comm'n, Mar. 20, 1998) (interpreting N.H. Rev. Stat. Ann. sec. 374-F:1,I).

<sup>20</sup> Sec. 3202.4 Maine Rev. Stat. Title 35-A; Sec. 7-511 Maryland Ann. Code Article - Pub. Util.; Nev. Rev. Stat. sec. 704.976(1); Sec. 39-107, S.B. 7 (Texas 1999); Sec. 40-202.B Ariz. Rev. Stat.

<sup>21</sup> In a few states, statutes establish delays in the implementation of competitive metering until after electricity competition goes into effect. For example, in Delaware the statute grants the state commission authority to address competitive metering after an initial transition period. The Maryland and Texas statutes, while mandating competitive metering, establish implementation dates two to three years after the provision of initial customer choice of electricity suppliers. In each of these three states the implementation of competitive billing is scheduled coincident with the implementation of retail choice.

In addition, restructuring statutes in Massachusetts (Sec. 312 Mass. Acts of 1997, Chapter 164) and Connecticut (Sec. 72 Conn. Public Act 98-28) require the commission or other state agency to study and make recommendations as to whether competitive metering and billing would be in the public interest.

In determining whether to grant similar authority to the Commission, the General Assembly may want to consider specifying criteria or findings which the Commission must apply or make before authorizing metering or billing competition. For example, the General Assembly may decide to require that the Commission, before authorizing competition for a particular metering or billing service, make a finding that such competition is in the public interest, taking into account such criteria as: the potential to lower prices for the service or some other service; the potential to result in greater product or service choices for consumers; the potential to promote competition in other markets; customer preparedness; the effects on reliability and safety; and the readiness of new competitors to enter the market.<sup>22</sup>

**B. Commission Authority to Make Competitive Service Decisions Starting in 2000 Is Necessary to Implement Competition in Those Service Markets by 2002**

The General Assembly has required the Commission to begin the introduction of retail generation competition by January 1, 2002. It is possible, however, that the Commission will determine that competition in one or more metering or billing services is necessary to the success of that competition.

To allow for this possibility of implementing metering and billing competition by 2002, it is important that the General Assembly act during the 2000 session to give the Commission authority. Deferring legislative action could adversely affect competition in the markets for those services and the retail electricity market for several reasons:

- (1) Potential electricity sellers may decide not to enter the Virginia market if they cannot make an informed prediction about which services they may offer.
- (2) Potential providers of retail metering and billing services may not be able to enter the market successfully without substantial lead time to develop their products.
- (3) Action during the 2001 session would leave the Commission with only 6 or so months to plan the unbundling process and develop protocols and licensing requirements.

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<sup>22</sup> For example, the **New Jersey** statute requires the board to develop standards that must include "evidence of ease of market entry; presence of other competitors; and the availability of like or substitute services in the relevant market segment and geographic area. Section 8(c), New Jersey Electric Discount and Energy Competition Act (1999); see also Nev. Rev. Stat. sec. 704.976(3); Sec. 4928.04, S.B. 3 (Ohio 1999).

## **CONCLUSION**

The 1999 General Assembly mandated competition in retail sales of electricity. Implementing competition after decades of monopoly service is a difficult task. Freeing customers to purchase metering and billing services from entities other than the monopoly utility will increase the chances that new competitors will enter the market, establish strong relationships with customers, and stay for the long term. Only if such entry occurs, and lasts, can competition work.

This report has explained that the technology, providers and products in the metering and billing area are changing rapidly. This dynamic feature of the market, and the close connection these services have to electricity competition generally, support the need for the Commission to have the authority, subject to legislative criteria, to make the detailed decisions and perform the fine-tuning necessary to assure that competitors and consumers have the tools they need to succeed under competition.

The Commission appreciates this opportunity to report to the General Assembly, and looks forward to providing continued assistance.

**APPENDIX A**

**§ 56-581 B OF THE CODE OF VIRGINIA**

**§ 56-581 B OF THE CODE OF VIRGINIA<sup>1</sup>**

No later than September 1, 1999, and annually thereafter, the Commission shall submit a report to the General Assembly evaluating the advantages and disadvantages of competition for metering, billing and other services which have not been made subject to competition, and making recommendations as to when, and for whom, such other services should be made subject to competition.

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<sup>1</sup> Chapter 23 (Virginia Electric Utility Restructuring Act), amending Title 56 of the Code of Virginia..

## COMPETITIVE METERING AND BILLING SERVICES: STATE IMPLEMENTATION

STATE → POLICY ↓	Arizona <sup>1</sup>	California <sup>2</sup>	Delaware <sup>3</sup>	Illinois	Maine	Maryland
<b>Restructuring Law/ Date Approved</b>	Arizona Revised Statutes Title 40, Chapter 2 (May 29, 1998)	California Public Utilities Code Division 1, Chapter 2.3 (September 23, 1996)	Delaware Code Title 26 Chapter 10 (March 31, 1999)	Illinois Compiled Statutes Chapter 220 ILCS 5/Art. 16 (December 16, 1997, New Law June 30, 1999)	Maine Revised Statutes Annotated, Title 35-A, Chapter 32 (May 29, 1997)	Maryland Annotated Code Article – Public Utility Companies (April 8, 1999)
<b>Implementation of Retail Choice</b>	December 31, 1998 – December 31, 2000	January 1, 1998	October 1, 1999 – October 1, 2000	October 1, 1999 – May 1, 2002	March 1, 2000	July 1, 2000 – July 1, 2003
<b>Statutory Authorization of Competitive M&amp;B</b>	Statute mandates competitive M&B.	Statute grants PUC authority over competitive M&B.	Statute mandates competitive billing; grants PSC authority over competitive metering.	Statute mandates minimum billing options; grants ICC authority to unbundle metering and billing.	Statute mandates competitive M&B.	Statute mandates competitive M&B.
<b>Competitive Billing</b>						
<b>Implementation Dates</b>	December 31, 1998 for customers with load of at least 1 MW.  December 31, 2000 for all other customers.	January 1, 1998	October 1, 1999 for customers with peak monthly load >1 MW.  January 15, 2000 for customers with peak monthly load >300 kW.  October 1, 2000 for all other customers.	October 1, 1999 – October 1, 2000 (I&C customers)  May 1, 2002 (residential customers)  (Dates apply to minimum billing options only.)	Not later than March 1, 2002. (PSC may establish earlier date not prior to March 1, 2000)	July 1, 2000
<b>Types of Services Authorized</b>	To be determined by ACC	Billing	Billing	To be determined by ICC	Billing and collection	Billing
<b>Types of Providers Authorized</b>	To be determined by ACC	Separate bills from ESP & UDC, <u>or</u> consolidated bill from either the ESP or UDC.	Separate bills from ESP & UDC, <u>or</u> consolidated bill from either the ESP or UDC.	Separate bills from ESP & UDC, <u>or</u> consolidated bill from either the ESP or UDC.	Separate bills from ESP & UDC, <u>or</u> consolidated bill from the UDC.	Separate bills from ESP & UDC, <u>or</u> consolidated bill from either the ESP or UDC.
<b>Competitive Metering</b>						
<b>Implementation Dates</b>	December 31, 1998 for customers with load of at least 1 MW.  December 31, 2000 for all other customers.	January 1, 1998 for customers with load of at least 20 MW.  January 1, 1999 for all other customers.	To be determined by PSC after transition period.	To be determined by ICC.	Not later than March 1, 2002 (PSC may establish earlier date not prior to March 1, 2000)	January 1, 2002 for large customers.  April 1, 2002 (all other customers)
<b>Types of Services Authorized</b>	Metering, meter reading	Meters, meter installation, meter O&M services, meter testing and certification, meter reading, meter data management.	To be determined by PSC	To be determined by ICC	Provision of meters, meter maintenance, meter testing, meter reading	To be determined by PUC
<b>Types of Providers Authorized</b>	To be determined by ACC	ESP or UDC	To be determined by PSC	To be determined by ICC	To be determined by MPUC	To be determined by PUC
<b>Application of Competitive M&amp;B to Cooperative and Municipal Electric Companies</b>	Co-ops and public power entities are exempt from retail access. Those that elect to participate are subject to competitive M&B.	Co-ops and municipals are exempt from retail access. Those that participate are exempt from competitive M&B.	Delaware Electric Cooperative must participate in retail access, but is required to issue a consolidated bill and retain metering functions.	Co-ops and municipals are exempt from retail access. Those that participate are subject to competitive M&B.	No exemptions for co-ops and other consumer owned utilities.	Co-ops must participate in retail access; municipals are exempt. Those that participate are exempt from competitive M&B.

(See notes for abbreviations used in this table.)



**COMPETITIVE METERING AND BILLING SERVICES: STATE IMPLEMENTATION (Continued)**

STATE → POLICY ↓	Massachusetts	Nevada <sup>4</sup>	New Hampshire <sup>5</sup>	New York <sup>6</sup>	Oregon <sup>7</sup>	Pennsylvania <sup>8</sup>	Texas
<b>Restructuring Law/ Date Approved</b>	Chapter 164 of the Acts of 1997 (November 25, 1997)	Nevada Revised Statutes Title 58, Chapter 704 (July 16, 1997, New Law June 9, 1999)	New Hampshire Revised Statutes Ann. Title 34, Chapter 374F (May 21, 1996)	N/A	S.B. 1149 (July 23, 1999)	Pennsylvania Consolidated Statutes Title 66, Chapter 28 (November 26, 1996)	Texas Utilities Code Title 2, Chapter 39 (June 18, 1999)
<b>Implementation of Retail Choice</b>	March 1, 1998	March 1, 2000	January 1, 1998	May 1, 1998 – December 31, 2001	October 1, 2001 (nonresidential)	January 1, 1999 – January 1, 2001	January 1, 2002
<b>Statutory Authorization of Competitive M&amp;B</b>	Statute mandates minimum billing options; requires DTE to make recommendations on competitive M&B to legislature by January 1, 2001.	Original statute granted PUC authority to designate M&B potentially competitive; new statute mandates competitive M&B.	Statute grants PUC authority over competitive M&B.	No restructuring statute enacted.	Statute mandates minimum billing options; grants PUC limited authority over competitive metering and billing.	Statute grants PUC authority over competitive metering and billing.	Statute mandates competitive M&B.
<b>Competitive Billing</b>							
<b>Implementation Dates</b>	Not later than 6 mos. after March 1, 1998. (Applies to minimum billing options only.)	Not later than March 1, 2000.	January 1, 1998	May 1, 1998 – December 31, 2001	October 1, 2001 for nonresidential customers; to be determined for residential customers.	1999-2000 (varies by utility)	January 1, 2002
<b>Types of Services Authorized</b>	To be determined by DTE/legislature	Account services, billing, payment collection and processing.	Billing services	Billing, collection, and processing	Billing and collection services	Billing	To be determined by PUC
<b>Types of Providers Authorized</b>	Separate bills from ESP & UDC, <u>or</u> consolidated bill from the UDC.	Any licensed alternative seller. (UDCs prohibited by law.)	Separate bills from ESP & UDC, <u>or</u> consolidated bill from the UDC.	Separate bills from ESP and UDC	Separate bills from ESP and UDC, <u>or</u> consolidated bill from either the ESP or UDC.	Separate bills from ESP and UDC, <u>or</u> consolidated bill from either the ESP or UDC, or any other ESP.	Separate bills from ESP & UDC, <u>or</u> consolidated bill from either the ESP or UDC.
<b>Competitive Metering</b>							
<b>Implementation Dates</b>	To be determined by DTE/legislature.	Not later than March 1, 2000.	January 1, 1998 for customers with maximum demands >100 kW. To be determined by PUC for smaller customers.	Approved for customers with demands of at least 50 kW; dates to be determined by PSC. Implementation delayed for other customers.	To be determined by PUC.	1999-2000 (varies by utility)	January 1, 2004 for commercial and industrial customers. September 1, 2005 for residential customers.
<b>Types of Services Authorized</b>	To be determined by DTE/legislature.	Provision of the meter, O&M (installation, testing, calibration and repair), meter reading, data management.	Meters, metering services	Meter sales, installation, removal, testing, maintenance, reading, data translation, and customer association/validation/-editing/estimation.	To be determined by PUC.	Meter installation, removal and maintenance. Reading, data translation, and customer association/-validation/editing/estimation	To be determined by PUC.
<b>Types of Providers Authorized</b>	To be determined by DTE/legislature	Any licensed alt. seller. (UDCs prohibited by law.)	UDC or ESP	UDC or ESP	To be determined by PUC	Varies by utility for services provided.	To be determined by PUC
<b>Application of Competitive M&amp;B to Cooperative and Municipal Electric Companies</b>	No co-ops in state. Municipals are exempt, but can choose to participate.	Small public utilities and municipals are exempt from retail access. Those that participate are subject to competitive M&B.	No exemptions for co-ops or municipals.	Co-ops are not regulated by the PUC. PUC restructuring order did not include municipals.	Co-ops and municipals are exempt from retail access. Those that participate are exempt from competitive M&B.	Co-ops must participate in retail access, but are exempt from competitive M&B. Municipals are exempt, but can opt in.	Co-ops and municipals are exempt from retail access. Those that participate are exempt from competitive M&B.

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## Abbreviations, General Notes and Endnotes

### Abbreviations:

ACC – Arizona Corporation Commission  
DTE – Department of Telecommunications and Energy  
ESP – Energy Service Provider  
ICC – Illinois Commerce Commission

M&B – Metering and Billing  
PSC – Public Service Commission  
PUC – Public Utility Commission  
UDC – Utility Distribution Company

### General Notes:

- a. This chart is based on information derived from both legislative statutes and state regulatory commission orders.
- b. As of August 1, 1999, 24 states had decided to implement retail competition. The 13 states listed in this table are also implementing competitive metering and/or billing. Three state commissions (Arkansas, New Jersey, and Ohio) have been given the authority to determine whether metering and billing should be open to competition, subject to certain statutory requirements, but no decisions have been made. In four other states (Montana, New Mexico, Oklahoma, and Rhode Island), legislation does not address competitive metering and billing, and the state commissions in these states have not addressed the issue either. Michigan and Vermont have issued regulatory orders without legislative guidance, but have not addressed competitive metering and billing. Connecticut's and Virginia's legislatures directed the state commission to make recommendations.

### Endnotes:

<sup>1</sup> Arizona was not able to meet the December 31, 1998, deadline for the commencement of retail choice. The ACC proposed rule states that an affected utility's customers will initially be eligible for competitive electric services on the date set by commission order in each affected utility's stranded cost and unbundled tariff proceeding. Under ACC proposed rules, competitive services are defined as all aspects of retail service except those specifically defined as noncompetitive. Under the proposed rules noncompetitive services include the provision of energy and demand data by an affected utility or UDC to ESPs. Metering equipment ownership would be limited to the affected utility, UDC, ESP or their representative, or the customer, who must obtain the equipment through the affected utility, UDC, or ESP. Maintenance and servicing of the metering equipment would be limited to the affected utility, UDC, and ESP or their representative. Each utility, billing entity or meter reading service provider may at its discretion allow for customer reading of meters. Under ACC proposed rules, an affected utility or UDC is not precluded from billing its own customers for distribution service, or from providing billing services to ESPs in conjunction with its own billing.

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<sup>2</sup> Consumers in California can own their meters, but meter services must be provided by either the UDC or ESP. The UDC or ESP may subcontract meter services to a third party or the ESP may contract with the UDC; however, customers cannot purchase metering services directly from a third-party provider.

<sup>3</sup> During the transition period in Delaware, an ESP may supply additional meters to customers at the ESP's expense.

<sup>4</sup> In Nevada, the provider of a noncompetitive service (e.g., a distribution company), is prohibited from providing a potentially competitive service, except through an affiliate of the provider (subject to commission approval). In providing a potentially competitive service, an affiliate of the provider of a noncompetitive service may use the name or logo, or both, of the provider of a noncompetitive service.

<sup>5</sup> Due to litigation from utilities, retail choice has not been implemented in New Hampshire. Meter testing will remain the sole responsibility of UDCs. ESPs and UDC affiliates may install advanced metering networks; UDCs need prior commission approval.

<sup>6</sup> Under the terms of a negotiated settlement for the Rochester Gas & Electric service territory, ESPs purchase delivery services from RG&E and render a single bill. The PSC is in the process of considering other billing options. A PSC staff proposal would allow ESPs in any service territory the opportunity to issue a consolidated bill. The staff's proposal would not preclude ESPs and utilities from agreeing upon other arrangements such as an UDC consolidated bill. PSC order approving competitive metering requires each utility to file unbundled tariffs for metering by October 1, 1999, to be effective November 1, 1999, on a temporary basis. Data communications mechanisms and metering protocols are required to be developed by April 1, 2000. ESPs may choose whether or not to offer competitive metering services to their customers. Customers may obtain metering services directly from a UDC or an eligible ESP, or from an ESP or UDC that employs the services of an eligible, non-utility meter service provider or meter data service provider.

<sup>7</sup> Statute specifies that electric meter installation, testing and maintenance shall be performed only by a distribution utility.

<sup>8</sup> In Pennsylvania UDCs and qualified ESPs may provide advanced meter services. The meter owner has a responsibility to read the meter. UDCs and MSPs may install advanced meters though variations exist among service territories. Meter testing is an additional authorized competitive advanced meter service in General Public Utilities' service territory. UDCs are responsible for energizing, discontinuing, and terminating service. Customers may choose a third-party ESP to provide billing service. A customer may choose to receive a separate, third bill from the meter service provider.

## **APPENDIX C**

### **METERING AND BILLING COMPETITION: DETAILED REGULATORY HISTORY IN SELECTED STATES**

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## INTRODUCTION

Regulatory agencies and/or legislative bodies in all 50 states and the District of Columbia have addressed, or are addressing, the issue of electric industry restructuring. As of August 1, 1999, twenty-one states had enacted restructuring legislation and three states had issued comprehensive regulatory orders without new legislation. State legislatures or state regulatory bodies in the remaining states and the District of Columbia are conducting ongoing investigations.

Thirteen states have mandated some form of competitive choice in metering and/or billing services. As of the first quarter of 1998 four states (California, Arizona, New Hampshire, and Maine) had authorized competitive metering and billing to varying degrees. By mid-1998 seven states (including Illinois, Pennsylvania, and Nevada in addition to the four previously identified) had authorized competitive metering and billing. At least three additional states (New York, Maryland and Texas) decided during the first six months of 1999 to implement competitive metering and billing. Delaware, Massachusetts and Oregon have approved limited competitive billing options while the competitive metering issue is under study.

Variations among the states exist with respect to (1) the role of the state regulatory authority, (2) the regulatory process for developing regulations, and (3) the implementation of specific policies relative to metering and billing. The specific policies referred to here include the date of implementation of competitive metering and billing, the timing relative to the deregulation of generation, the scheduled phase-in of customer classes, the extent to which various components of metering and billing are opened to competition, and the entities that are eligible to provide the various services.

Appendix B displayed the roles of the state regulatory authorities and the implementation of specific policies. This Appendix C provides a detailed description of the regulatory history and process leading to the implementation of billing and metering related policies for eight states: California, Connecticut, Illinois, Maine, Maryland, Nevada, New Hampshire, and New York. Seven of the eight states represent a sampling of the thirteen states in Appendix B that have implemented or plan to implement some form of competitive metering and billing. The eighth state, Connecticut, was not included in Appendix B, but is included in this Appendix C as an example of a state that has not yet decided to implement competitive metering and billing, but is in the process of studying the issue.

## CALIFORNIA

### Statute

The Governor of California signed that state's electric industry restructuring bill into law in September of 1996. The California electric utility restructuring law required the commencement of retail choice for generation no later than January 1, 1998. The law allowed the commission to develop a four-year phase-in schedule such that the industry would be fully competitive by January 1, 2002, but provided that any phase-in should be accomplished as soon as possible and should be equitable to all customer classes. California's restructuring act did not directly address the unbundling of revenue cycle services – metering, billing, and other information services.

### Regulatory History

The California Public Utility Commission's "Preferred Policy Decision" on electric utility industry restructuring recognized a policy framework that assumes entry by potential energy service providers ("ESPs") into the new competitive electric generation market requires unbundling generation from transmission and distribution. The order also found that specific distribution support functions like metering and billing are a vital step in facilitating direct access, whereby customers may choose their generation providers. The California Public Utility Commission ("CPUC") termed such metering and billing services "revenue cycle services."

The CPUC endorsed a framework that identifies administrative and general activities, customer service and support, meter reading, billing, and regulatory activities as examples of costs that have no unique relationship to any of the three major functional areas (generation, distribution, and transmission). The CPUC asked parties to evaluate strategies that would provide opportunities for ESPs to compete in markets for revenue cycle services while protecting the integrity of billing and metering processes.

The CPUC encouraged the creation of working groups to recommend means of implementing the policies it had adopted for restructuring the electric industry. The ratesetting working group was such a group. In a ruling dated June 21, 1996, the CPUC asked the working group to identify the extent of unbundling required by January 1, 1998 to support direct access. The working group parties did not reach agreement on the necessary level of unbundling and instead submitted a report on August 26, 1996, specifically requesting guidance from the Commission concerning distribution unbundling. The controversy centered on the fate of services and costs related to metering, billing, and other information services.

On October 25, 1996, the CPUC ordered California's utilities and other parties to provide by December 20, 1996, their comments on meter ownership, data access, meter installation, the potential extent of competition in metering and billing, bill consolidation and the impact of the standardization of communication protocols for meters. The Commission held a full-panel evidentiary hearing on January 15, 1997, receiving sworn statements from 26 witnesses representing the full spectrum of interests. The

Commission received additional information in comments that were filed on January 21, 1997 and, in response to a request from Southern California Edison Company, received final rebuttal comments on February 7, 1997. Numerous parties filed comments on the Proposed Decision on March 6, 1997, and reply comments on March 11, 1997. The final order was issued May 6, 1997.

The CPUC ordered the following with respect to metering and billing: (CPUC Decision 97-05-039, May 6, 1997)

1. Beginning January 1, 1998, Pacific Gas and Electric Company ("PG&E"), San Diego Gas & Electric Company ("SDG&E") and Southern California Edison Company ("Edison") shall provide three billing options to competing retail energy services companies: Consolidated Energy Supplier Billing, Consolidated Distribution Company Billing, and Dual Billing. In our direct access proceeding, we will consider rules necessary to for [sic] implementation of this requirement. A provider utilizing Consolidated Energy Supplier Billing shall be responsible for paying the distribution company's charges, even if its customer is delinquent or fails to pay.
2. Beginning January 1, 1998, competing retail energy service companies may provide the billing and related services for all customers and metering systems for their largest customers [demands of 20 kW or more] and beginning January 1, 1999, such firms may provide metering systems for all customers, so long as the services and systems are consistent with the other requirements discussed in this order.
3. Any energy service provider that wishes to offer its own metering services shall enter into a service agreement with the distribution company specifying the nature of the information to be collected, the means for sharing data, and a reasonable approach for ensuring that the metering equipment is installed, calibrated and maintained properly. The distribution utility shall not unreasonably refuse to enter into such an agreement. In our direct access proceeding, we will consider rules necessary to support this process, consistent with the discussion contained in this opinion.
4. No later than July 25, 1997, energy service providers, the distribution utilities and other interested parties shall confer and agree upon open architecture standards for metering and metering communication prior to the onset of competition for the provision of retail electric services. No later than that date, the participants shall file an Open Architecture Agreement in our direct access proceeding and serve the agreement on all parties.
5. No later than November 3, 1997, PG&E, SDG&E and Edison shall file, in our unbundling proceeding, cost studies and supporting



testimony that separately identifies the net cost savings resulting when billing, metering and related services are provided by another entity and proposes a means for ensuring that customers are not charged by the distribution utilities for those services in such circumstances. It is our goal to issue a decision approving unbundled charges for these services no later than January 1, 1999.

In October of 1997 the Commission adopted the approach that meter services must be provided by either the UDC or an ESP. The UDC and the ESP were free, however, to subcontract with a third party to provide the metering services, or the ESP could subcontract with the UDC for the provisioning of any component of the meter service. Meter services were grouped into three packages for initial implementation: meter ownership, meter services (installation, maintenance and testing), and meter data management services. Utilities, ESPs, or customers may own interval meters for billing purposes for direct access service. (D.97-10-087, App. A, Section H (1)(a)) In December of 1997, metering services were determined to be comprised of the following unbundled functions: (D.97-12-048, p. 9)

- meters
- meter installation
- meter operation and maintenance services
- meter testing and certification
- meter reading
- meter data management

By having the UDC or the ESP remain responsible for meter installations, the Commission can ensure that certain meter installation standards are adhered to, and that the direct access tariffs are followed. If these standards are not adhered to, the Commission can institute proceedings to revoke the registration of the ESP and take other corrective measures as provided for in the Public Utilities Code.

The limitations on competitive metering could change in the future. In December of 1997, the CPUC noted the following: "We see merit in eventually allowing customers to choose their own metering services from different providers. However, due to safety, reliability and accuracy concerns, such choices are not feasible at this time. If systems can be developed to address these concerns, we would be willing to revisit the further unbundling of metering services in the future." (D.97-12-048, 12/3/97)

## CONNECTICUT

### Statute

On April 29, 1998, the Governor of Connecticut signed Substitute House Bill No. 5005 into law as Public Act No. 98-28, An Act Concerning Electric Restructuring ("Act"). Under the Act, certain customers will be able to choose their electric generation supplier beginning January 1, 2000; all customers will be able to choose their generation supplier starting July 1, 2000. The Act addresses a number of issues relative to metering and billing.

Section 16(c) of the Act requires that electric distribution companies continue to provide metering, billing and collection services once retail choice begins. It further mandates that the Department of Public Control ("DPC") determine metering and billing protocols and establish appropriate cost-sharing allocations among electric distribution companies and electric suppliers for metering, billing, and collection services.

Section 21 of the Act requires the DPC to develop a standard billing format that enables customers to compare pricing policies and charges among electric generation suppliers. The minimum information included in each customer's bill is specified in Section 21. Section 21 also requires the DPC to develop guidelines for determining the billing relationship between the electric distribution company and electric suppliers, including but not limited to, the allocation of partial bill payments and late payments between the electric distribution company and the electric supplier. The electric distribution company shall be entitled to recover from the electric generation supplier all reasonable transaction costs to provide such billing services as well as a reasonable rate of return.

Section 72 of the Act requires that the Connecticut Energy Advisory Board ("CEAB") conduct a study of the provision of metering, billing and collection services by electric distribution companies and consider whether customers would be better served if such services were performed by electric suppliers.

### Metering and Billing Protocols

Section 16(c) of Public Act 98-28, requires that electric distribution companies continue to provide metering, billing and collection services once there is retail choice. It further mandates that the DPC determine metering and billing protocols and establish appropriate cost-sharing allocations among electric distribution companies and electric suppliers for metering, billing, and collection services. By Notice of Request for Pre-filed Testimony dated July 2, 1998, the DPC required that The Connecticut Light and Power Company ("CL&P") and The United Illuminating Company provide written testimony on the technical capabilities of the Companies to provide metering and billing services; proposed allocation methods for the costs associated with providing metering, billing, and collection services, and proposed protocols for delivering these services.

The DPC held a technical meeting on September 14, 1998, in which CL&P made a presentation on electronic data exchange ("EDE") protocols established in Massachusetts. A group discussion on EDE protocols followed the presentation. An

EDE working group, consisting of representatives from the DPC and parties and intervenors, held five technical meetings during September and October of 1998. On October 28, 1998, the Working Group submitted its report, Electronic Data Exchange Standards for Electric Deregulation in the State of Connecticut, for DPC consideration ("EDE report"). The DPC held a public hearing in this matter on October 7 and 21, 1998, and issued a draft decision on December 15, 1998.

On January 13, 1999, the DPC issued a decision adopting the relevant portions of the EDE report and found that the working group should continue to develop and refine electronic data transfer standards and protocols. In addition, the DPC approved the metering concepts proposed by the distribution companies. The working group was ordered to file a recommendation with the DPC including a description of the issues and concerns, and how provision of interval meter data could benefit electric suppliers. Companies were required to file rates and tariffs necessary to implement restructuring and to include at a minimum, tariffs for the provision of interval meter data services. Regarding billing and metering cost allocations, the DPC found it appropriate "to allow the distribution companies to allocate all standard billing and metering costs to distribution, but they must collect half from suppliers to recover costs from all customers." (Decision, Docket No. 98-06-17, January 13, 1999, p. 17)

### **Standard Billing Format**

Section 21(a) of the Act requires the Department of Public Utility Control to develop a standard billing format that enables customers to compare pricing policies and charges among electric suppliers. On and after January 1, 2000, each electric company or electric distribution company, is to include at a minimum the information specified in the Act in each customer's bill.

Section 21(b) of the Act requires the DPC to provide guidelines for determining the billing relationship between the electric distribution company and electric suppliers, including but not limited to, the allocation of partial bill payments and late payments between the electric distribution company and the electric supplier. The electric distribution company shall be entitled to recover from the electric supplier all reasonable transaction costs to provide such billing services as well as a reasonable rate of return.

On September 22, 1998, the Department of Public Utility Control published for public comment a draft billing format. The draft regulations set forth a standard billing format for the electric distribution companies to use that would provide customers with information on the pricing policies and charges of their electric suppliers. The draft regulations also provided guidelines for determining the billing relationship between the electric distribution company and electric suppliers. After receiving comments, the DPC issued a decision adopting the standard electricity-billing format.

The approved regulations require various specific items within three bill components including (a) rates, charges, and usage, (b) customer service information, and (c) electric supplier charge information. The actual format of the bill will be considered later. The regulations also require that partial or late bill payments should be applied first to the distribution company, then to former electric generation supplier outstanding balances, and finally to current electric generation suppliers.

## **Issue of Competitive Metering and Billing**

Section 72 of the Act requires that the CEAB shall, in consultation with the Department of Public Utility Control and the Office of Consumer Counsel, conduct a study of the provision of metering, billing and collection services by electric distribution companies and consider whether customers would be better served if such services were performed by electric suppliers. Section 72 also states that the board shall consider how reallocating the performance of these services could negatively impact employee staffing levels of electric distribution companies, and how it could affect reliability of collecting payments from customers including any potential impact on the security of funds collected for the competitive transition assessment, the systems benefits charge, and conservation and load management assessment and the Renewable Energy Investment Fund. The Act requires the board to report its findings along with legislative recommendations not later than January 1, 1999, to the joint standing committee of the General Assembly having cognizance of matters relating to energy.

In March of 1999, the CEAB completed its report, Alternative Models of Electric Metering, Database, and Billing Services Supply in Connecticut's Restructured Electric Industry. In accordance with the Act, the report addresses the main issues that policy makers and stakeholders will confront in determining the appropriate policy regarding the provision of metering, billing, and collections. The CEAB explained in its report that for the benefit of the diverse viewpoints that should be considered in formulating the important policy questions here, the report has avoided detailed policy recommendations. Instead, the report was prepared to initiate the process within which policy questions can be framed and addressed. In its conclusions and recommendations the CEAB stated the following:

The general benefits of the introduction of competitive options for metering, billing, and collection services arise from the anticipated cost savings and innovations that increased competition can stimulate. In addition, revenue cycle services, especially metering, can be provided in a manner whereby the cost of providing them jointly becomes less than the cost of being provided separately. The economies of joint provision arise from precise information about customer usage being available to power suppliers. The main disadvantages of unbundling involve potentially costly and unwieldy data management and sharing. There may also be some horizontal economies of scale lost as a result of many suppliers providing what once was provided by a single firm. (CEAB Report, March 1999, p. 22)

The CEAB report did not determine whether the advantages outweigh the disadvantages. As stated at the outset, the purpose of the report was to frame the questions in a manner that serves as a starting point for continued discussion and, perhaps, further study. It did not resolve the many issues and it did not develop conclusions and recommendations as to what the policy regarding unbundling should or should not be.

The primary focus of this report was to identify the operating and policy issues that are likely to arise in an unbundled regime. In accordance with that goal the report

identified a number of areas where further study, discussion, and specialized opinion might serve the interests of efficient and effective policy. The CEAB made the following recommendations:

It is hereby recommended that the overall goal of the process must be to produce a market paradigm that efficiently and effectively serves the long-term needs of all consumers. This means the efficient provision [of] power supply, distribution, and RCS [revenue cycle services] products at reasonable and competitive costs using appropriately advanced technology. This also means that price should be in line with costs and the products should be provided by financially viable suppliers. Accordingly, policies should avoid favoring the parochial requirements of any group in the electric industry hierarchy.

While some of the issues are complex and technical, in general, it appears that most of the challenges addressed in this Report can be resolved through a collaborative process among the stakeholders. Accordingly, it is herein recommended that a number of working groups be established in several areas to further identify sub-issues and processes which could lead to policy recommendations. Establishment of working groups can provide an efficient mechanism to provide the Board with solutions and recommendations for the existing technical issues. This investigation period might provide the ideal time to conduct pilot programs. The feedback from such studies could provide invaluable information to working groups, thus aiding the Board in its final recommendations. This process should proceed deliberately and cautiously.

Once the working groups have resolved the technical issues and it appears that compelling evidence does not exist that serious cost economies would be lost with the unbundling of RCS, we believe that the State could then consider unbundling RCS. Even then, this whole process need not occur at once. One approach might be to stagger the unbundling of individual services. If this methodology were adopted, the sequence of services would have to be developed to schedule the separate unbundlings. Under this scenario, the unbundling of billing and collection services should probably occur only after metering services have successfully been separated and made competitive. The unbundling timetable could be the final focus of the working groups. (CEAB Report, pp. 22-23)

Connecticut's legislature has not acted upon the CEAB report.

## ILLINOIS

### Statute

On December 16, 1997, the Governor of Illinois signed House Bill 362 into law as Public Act 90-561. The act created several new laws and made a number of changes to the Public Utilities Act. Included among the changes to the Public Utilities Act were the following:

1. A provision that utilities begin to offer delivery services\* to certain non-residential retail customers by October 1, 1999; to all remaining nonresidential customers by December 31, 2000; and to all residential retail customers in its service area by May 1, 2002. (Sec. 16-104)
2. A requirement that a utility file with the Illinois Commerce Commission ("ICC") a "delivery services implementation plan." The purpose of the plans are to detail the process and procedures by which each electric utility will provide an orderly transition from bundled tariff rates to delivery service rates. The deadlines for filing the plans with the ICC were March 1, 1999 for non-residential customers and August 1, 2000 for residential customers. (Sec. 16-105)
3. A requirement that a utility file delivery services tariffs (including standard metering and billing) with the ICC 210 days prior to the date that it is required to begin offering such services. Thus tariffs for non-residential customers were due to be filed by March 5, 1999. These tariffs have to be approved, or approved as modified, no later than 30 days prior to October 1, 1999. (Sec. 16-108)
4. A provision granting authority to the ICC to determine the extent to which such delivery services should be offered on an unbundled basis. (Sec. 16-108)

Public Act 90-561 also includes the following additional changes to the Public Utilities Act relative to new metering and billing options, as well as competitive metering and billing:

- Allows an alternative retail electric supplier ("ARES") to provide additional meters for its customers at the supplier's own expense, or an ARES may take additional metering or metering service from an electric utility as a tariffed service. (Sec. 16-124)

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\* "Delivery services" means those services provided by the electric utility that are necessary in order for the transmission and distribution systems to function so that retail customers located in the electric utility's service area can receive electric power and energy from suppliers other than the electric utility, and shall include, without limitation, standard metering and billing services.

- Requires electric utilities to file tariffs allowing ARES or other electric utilities to file a single consolidated bill. (Sec. 16-118)
- Gives the ICC the authority to allow an electric utility to require a customer to obtain an additional meter only if needed to meet reliability requirements. (Sec. 16-124)
- Requires electric utility companies to file tariffs which allow customers to elect real-time pricing. (Sec. 16-107)
- States that an electric utility's tariffed service may only be declared competitive by the ICC upon application by the electric utility. (Sec. 16-113)

On June 30, 1999, the Governor approved an amendment to the restructuring law that in part accelerated the date for retail choice for certain nonresidential customers.

### **Implementation**

On June 17, 1998, the ICC initiated Docket No. 98-0454 for the purpose of developing minimum filing requirements to accompany the initial delivery services tariffs. The ICC made explicit that no substantive issues would be resolved in this limited proceeding, but that it would attempt to create a base of information and evidence that would be available to the ICC and other parties. Outside the formal purview of 98-0454, a series of eleven working groups were designed to reach consensus on a variety of terms and conditions related to the provision of delivery services. Although a number of issues were left unresolved, the minimum information filing requirements were promulgated as Appendix A of an Interim Order dated October 21, 1998. These minimum filing requirements required submission of rate base, operating income, rate of return, and rate and tariff schedules for delivery services, as well as information to be addressed in the terms and conditions for delivery services, including metering and billing services. In particular, the following are some of the items that had to be addressed in the minimum filing requirements relative to electric utilities' terms and conditions for delivery services:

- The business and contractual requirements that must be fulfilled prior to active customer solicitation and switching of service by the ARES.
- The procedures an ARES must follow to electronically request changes to an end-user's account status, including requirements for customers that desire more than a single supplier.
- The required information and processes to request and receive customer specific billing and usage information and generic load profile data, including provisions for maintaining customer confidentiality.
- Dispute resolution procedures applicable to issues that arise between an ARES and a public utility.

- The process for maintaining a list of certified ARES and distributing the list to end-users upon request.
- The conditions under which customers can switch to and from an ARES.
- The business processes and procedures for enrolling customers that request to return to the utility as bundled customers.
- The responsibility of the customer to the utility in the event the ARES fails to pay the utility.
- The procedure under which new customers are offered the opportunity to select among available suppliers.
- Under consolidated billing by an ARES, the terms under which ARES are required to make payments to utilities.
- The utility's obligations regarding reading and transmitting meter data and procedures in the event that the ARES also meters the customer's service.
- The procedures and pricing for non-standard meter service.
- The circumstances under which a utility may provide to the ARES an estimated read.
- The process and procedures to accommodate consolidated or multiple bills and the requirements governing the form and issuance of the bill.
- The terms under which a utility's delivery services to a customer can be terminated and restored.
- Information on the policies and procedures used to determine energy imbalances for customers with or without interval recording meters.

On October 13, 1998, the ICC initiated Docket No. 98-0680 initiating an investigation to address issues unresolved in 98-0454 and to define and resolve additional issues related to the development of uniform delivery services tariffs. The initiating order indicated that workshops should be utilized to reach as much consensus as possible. However, each utility would still be permitted to file the form of delivery service tariffs it believed to be appropriate and file its own delivery services implementation plan in March 1999.

In conjunction with this docket, ICC Staff sponsored a series of workshops to discuss and reach consensus on issues concerning uniform tariff provisions for delivery services. The workshops addressed issues in the areas of accounting, finance, rate design, terms and conditions, and ancillary services and unbundling. On February 18, 1999, the Commission entered an interim order that approved the items of consensus that



were achieved on various issues through the workshop process. Items of consensus included the definition of delivery services, communications protocols, load forecasting and energy imbalance settlement, consumer issues, terms and conditions, dispute resolution, finance, revenue requirements, and rates. Issues for which no consensus was reached would continue to be litigated in any appropriate docket; such issues included lottery rules, unbundling, record-keeping issues, and certain tax issues. Some of the specific items of consensus relative to metering and billing included the following:

- Electronic data exchange methods are preferred for the exchange of business data. For those delivery service providers using electronic data exchange, the Utility Industry Group subset of the American National Standards Institute ASC X12 standards should be adopted for use in Illinois for Electronic Data Interchange transactions.
- Delivery service providers will describe their methodology for estimating the hourly usage of non-interval metered customers in their March 1999 filings.
- When a customer's meter is changed out, the delivery service provider will notify the retail electric supplier of the meter status change, as well as the new meter number.
- In situations in which customers receive one bill from the retail electric supplier and one bill from the delivery service provider, the delivery service provider will send a validated meter reading to its own billing system and to the retail electric supplier. Each entity will calculate its own charges and issue its own bill.

On January 13, 1999, the ICC initiated Docket No. 99-0013 initiating a proceeding to investigate issues concerning the unbundling of delivery services, including metering and billing. On April 12, 1999, the ICC ruled as follows:

- Metering and billing should be unbundled.
- Further consideration of unbundling, including utility credits for customers choosing delivery services from another provider, will be deferred until approximately September 1, 1999 after the completion of the delivery services tariff cases. The ICC will issue an order by May 1, 2000, establishing how metering and billing should be unbundled. The proceeding should include both evidentiary hearings and a workshop process.
- Utilities are advised that there is no assurance that any investment in metering technologies will be recovered from either bundled service or delivery service customers.
- Any revenue loss by an electric utility attributable to the unbundling of delivery services should be considered in a proceeding to establish

delivery service charges, not through an adjustment to the transition charge.

### **Sample Implementation Plan and Tariff**

**Implementation Plan.** MidAmerican Energy Company was one of several electric utility companies required to file with the ICC a delivery service implementation plan and a delivery service tariff. The delivery service implementation plan was required to be filed on March 1, 1999, in accordance with Section 16-105 of the Electric Service Customer Choice and Rate Relief Act of 1997 ("Act"). Delivery service tariffs were required to be filed on March 5, 1999, in accordance with Section 16-108 of the Act.

The purpose of the delivery service implementation plan is to outline and describe the steps MidAmerican will take to provide an orderly transition from bundled tariff rates to delivery service rates for customers available to take delivery service. The plan describes the process and procedures by which MidAmerican will offer delivery services to MidAmerican's non-residential customers and customer classes. The plan is written in a question and answer format. Each section describes important issues related to the topic being described, and responds to questions related to how each section of the plan will be implemented. MidAmerican's Plan covers the following topics in significant detail:

- customer education
- lottery procedures
- customer notification of eligibility
- supplier registration
- load profiling
- customer switching
- electronic information exchange

In addition, reference is made in the plan to the following topics:

- metering
- billing
- financial settlement
- release of customer usage information
- disconnection and reconnection of service
- return to bundled service
- miscellaneous operational issues

The only references to metering and billing in MidAmerican's implementation plan notes that the requirements and provisions for the metering of energy and for billing are contained in the delivery service tariffs.

**Delivery Service Tariff.** MidAmerican also filed delivery service tariffs with the ICC in accordance with the Act. MidAmerican filed two tariffs. The first tariff governs the relationships between the Company and its delivery service customers. The second tariff governs the relationships between the Company and suppliers providing power and

energy on the Company's delivery system. MidAmerican's delivery service tariffs were developed through a year-long process that included participation in the working groups sponsored by the ICC Staff and participation in the various dockets opened by the ICC to investigate various issues related to the offering of delivery services in Illinois. MidAmerican relied heavily on the results of the working groups and the results of the proceedings in the development of its delivery service tariffs. MidAmerican's delivery service tariffs contain the terms and conditions related to the following topics:

- nature of service
- applicability
- customer eligibility
- supplier registration
- electronic data exchange
- provision of customer information
- load profiles
- customer switching
- ancillary services
- metering (provision of meter read data to suppliers, supplier metering, meter upgrades, fees, meter read errors, estimated reads)
- rates
- billing and remittance (single bill option, delivery information requirements on the bill, delivery information to multiple suppliers, budget plans)
- energy imbalance settlement
- credit
- disconnection and reconnection
- turn-on and turn-off
- emergency default service
- return to bundled service
- miscellaneous issues

### **Future Activities**

The ICC must now review and approve the delivery services tariffs. In addition the ICC will annually review and report the progress, participation and effect of billing experiments to the General Assembly by December 31 of each year. (Sec. 16-106) The ICC must open a proceeding to investigate the need for and desirability of different or additional unbundling of delivery services three years from the date that a tariff for delivery services is approved.

As mentioned previously, the ICC plans to reopen further consideration of unbundling metering and billing approximately September 1, 1999. The ICC will issue an order by May 1, 2000, establishing how metering and billing should be unbundled.

## MAINE

### Statute

During its 1997 Session, the legislature fundamentally altered the electric utility industry in Maine by deregulating electric generation services and allowing for retail competition beginning on March 1, 2000. At that time, Maine's electricity consumers will be able to choose a generation provider from a competitive market. As part of the restructuring process, the Act requires utilities to divest their generation assets and prohibits their participation (except through unregulated affiliates) in the generation services market. The Act also requires that the provision of electric billing and metering be subject to competition on or before March 1, 2002.

### Development of Interim Rules

The Maine Public Utilities Commission ("MPUC") recognized a need to establish interim rules to govern billing and metering for distribution service and generation service given that the legislative statute deregulates electric generation services two years prior to deregulating billing and metering. Prior to developing a proposed rule on metering and billing, the MPUC solicited written comments by issuing a Notice of Inquiry on July 6, 1998. Written comments were received from Bangor Hydro-Electric Company, CellNet, Central Maine Power Company, Dirigo Electric Cooperative, the Edison Electric Institute, EnergyEXPRESS, Enron, ITRON, MainePower, Maine Public Service Company, and the Office of the Public Advocate. Comments filed in response to the Inquiry were helpful in developing the rule. The Electronic Business Transactions (EBT) Standards Working Group, initiated in another Docket, also provided information useful in developing the proposed rule.

After considering the comments in the Inquiry, on November 30, 1998, the Commission issued a Notice of Rulemaking and Proposed Rule for comment. On July 7, 1999, the Commission held a hearing to allow interested persons to provide oral comments on the proposed rule. In its order dated March 16, 1999, the MPUC adopted a rule governing (1) metering, billing and collections by transmission and distribution utilities and competitive electricity providers operating in Maine, (2) customer enrollment for, and cancellation of, generation service, and (3) the transfer of customer information among transmission and distribution utilities and competitive electricity providers. The rules cover the period before competitive billing and metering is implemented in Maine in 2002. The terms and standards established relative to metering and billing address the following topics:

- transmission and distribution service billing
- consolidated utility billing for generation services
- charge for consolidated utility billing
- provider billing for generation services
- bill format and content
- agency billing
- bill calculation requirements
- meter installation

- meter standards
- meter reading by T&D utilities and by electricity providers
- collections and payments
- transfer of customer data
- electronic business transactions standards and training

In particular, under the interim rules (Order Adopting Rule, Docket 98-810, March 16, 1999) customers can receive separate bills or a utility consolidated bill if requested by the supplier. A nonresidential customer with demand equal to or greater than 100 kW may request the distribution utility to send its bill to the customer's energy provider, acting as the customer's billing agent. The issue of consolidated provider billing has been reserved for the rulemaking on competitive metering and billing. With respect to metering, the interim rules require the distribution utility to install and read meters for billing purposes. The distribution utility must install nonstandard meters at the request of a competitive electricity provider. A competitive electricity supplier may install its own second meter for non-billing purposes, but not at the generation side of the customer's billing meter. The ownership of meters will be investigated in the competitive billing and metering proceeding.

### **Competitive Metering and Billing**

As mentioned previously, the provisions in the rule establishing how utilities and competitive electricity providers in Maine will meter their customers' usage and issue bills cover the period before competitive billing and metering is implemented in Maine in 2002. However, the MUPC opened another proceeding, described in this section, on the provision of competitive metering and billing services.

On September 18, 1998, the MPUC opened its inquiry into the provision of competitive meter and billing services. The inquiry focused on identifying (1) services that are included in competitive billing and metering, (2) choices that should be available to the consumer in implementing competitive metering and billing, (3) necessary safety and consumer protection regulations, (4) necessary proceedings in order to implement competitive billing and metering, and (5) the time frame for implementing competitive billing and metering. Substantive comments were due by October 16, 1998.

Although the comments have been filed in response to the Notice of Inquiry, the proceeding has been temporarily closed. The legislature has changed the deadline for completion of the rule until March 2001. The MPUC has indicated that a rulemaking will not occur until 2000.

## MARYLAND

### **Statute**

On April 8, 1999, Maryland's Governor signed Senate Bill 300 into law, establishing an act for electric utility restructuring. The act will give all business customers retail access to energy providers by January 1, 2001. Residential customer choice will be phased in over three years (including cooperative customers) beginning July 1, 2000.

The act requires the Maryland Public Service Commission ("PSC") to adopt regulations or issue orders to implement competitive metering and billing. The act mandates that competitive billing shall begin on July 1, 2000, and that competitive metering shall begin on January 1, 2002 for large customers and April 1, 2002, for all other customers.

The act also requires specific requirements for billing. The act requires the PSC to require that customers' bills for electricity service indicate charges for distribution and transmission, transition charge or credit, universal service program charges, customer charges, taxes, and other charges identified by the PSC. Each electricity supplier must also provide adequate information to enable customers to make informed choices regarding the purchase of any electricity services offered by the electricity supplier. Finally, the act specifies a number of items that may be provided on bills in accordance with PSC regulations including the identity and phone number of the electricity supplier, sufficient information to evaluate prices and services, and information identifying whether the price is regulated or competitive.

The PSC is to report on the effectiveness of competition under the new law, as well as recommendations coming from the PSC roundtable proceedings that are expected to continue. According to the act, a municipal electric utility may not be required to make its service territory available for customer choice unless it elects to do so.

### **Regulatory Process**

In 1996, the Maryland PSC determined that the rapidly changing nature of the electric industry required further investigation of electric industry restructuring issues. Therefore, on October 9, 1996, the PSC instituted a proceeding on its own motion to continue its review of regulatory and competitive issues affecting the electricity industry in Maryland.

The PSC concluded that the best way of proceeding was for the PSC's staff, in consultation with stakeholders, to study and make recommendations as to how Maryland electric customers could best benefit from developing competitive markets for electric services. The PSC directed the staff to submit a report by May 31, 1997, containing staff's recommendations regarding regulatory and competitive issues facing the industry.

After the filing of the staff report, the PSC issued an order inviting Maryland's electric utilities and interested persons to comment on the report. The PSC then held a

series of legislative-type hearings in August 1997. Extensive comments, reply comments and final comments were received by the PSC from approximately 40 parties.

By order dated December 3, 1997 (Order No. 73834, Case No. 8738, 12/3/97), the PSC decided that retail competition should be phased in beginning in April 1999, to be fully available to all Maryland residents and businesses by April 2001. (The dates were revised to July 1, 2000 and July 1, 2002, respectively, by order dated December 31, 1997, and slightly revised again by Maryland's restructuring law.) In order to achieve a successful transition from a regulated to a competitive electric industry, the PSC adopted an approach relying on both adjudicatory hearings and roundtables. The PSC established six generic roundtables to address the following six issues: price protection, continuation of demand side management programs, universal service and customer protections, consumer education program, supplier authorization, and competitive metering, billing and other distribution services.

With respect to the competitive metering and billing generic roundtable, the PSC established specific dates for the filing of roundtable participant positions, the initial roundtable meeting, a final report on competitive billing, and a final report on competitive metering. The PSC also required the utilities to unbundle their existing rates into four separate components identified by staff: (1) electric supply rate; (2) transmission service rate; (3) distribution service rate; and (4) metering and billing rate.

The PSC agreed that caution, thorough evaluation, and some delay in implementation of competitive metering would be necessary. The PSC directed that competitive billing should be permitted from the start of enrollment for the first phase-in period and directed that the customer be given an option to have and pay a single bill, for both distribution and generation supplier services, which may be submitted by either the distribution utility or the supplier at the supplier's option.

### **Metering and Billing Working Group Progress**

As mentioned previously, the PSC established the Competitive Metering and Billing Roundtable as one of six roundtables to engage in developing the policy details for Maryland electric restructuring. The PSC staff established the Competitive Billing Working Group ("CBWG") to address the billing related issues. Since its first meeting in May 1998, the CBWG met on a regular, mostly biweekly basis (twenty-nine meetings) to determine how best to satisfy the PSC's charge. By order dated September 1998, the PSC reiterated its earlier position that customers must have a choice in their billing services in a restructured electric environment.

In November, 1998, an interim report was filed with the PSC which offered certain initial solutions to many of the issues, but left other issues to be resolved with input from other working groups and legislative guidance from the Maryland General Assembly. In March, 1999, a further interim report was submitted to the House Environment Committee of the Maryland General Assembly.

In its Final Report dated June 1, 1999, the CBWG defined three potential options for billing in a restructured environment: (1) consolidated local distribution company (LDC) billing, (2) consolidated supplier billings, and (3) separate billing. The report

noted that ten general sub-topic work areas were addressed and that a considerable amount of consensus had been accomplished in several areas. The ten sub-topic work areas included the following:

- customer disclosure
- bill content and format
- payment processing
- energy taxes
- universal service program
- transaction details
- competitive billing costs
- supplier qualification criteria
- transitional billing issues
- third party billing

The CBWG requested the PSC to make the necessary rulings as soon as possible in time for the July 1, 2000 implementation date.

The Competitive Metering Working Group is scheduled to take up the issue of competitive metering by September 2000 and issue a final report to the PSC by April 2001.



## NEVADA

### Statute

Nevada's electric utility restructuring act was initially approved on July 6, 1997. The restructuring law established that customers could begin obtaining generation, aggregation, and any other "potentially competitive services" from competitive suppliers no later than December 31, 1999.

The restructuring law required the Public Utility Commission of Nevada ("PUCN") to determine that any other electric service is a potentially competitive service if its provision by alternative services (1) will not harm any class of customers, (2) will decrease the cost of providing the service or increase the quality or innovation of the service, (3) is a service for which effective competition in the market is likely to develop, (4) will advance the competitive position of Nevada relative to surrounding states, and (5) will not otherwise jeopardize the safety and reliability of the electric service. (On June 8, 1998, the PUCN initially determined that metering, billing and customer service are classified as potentially competitive services.)

The restructuring law also authorized the PUCN to establish different dates for the provision of different services by alternative sellers in different geographic areas, and phase in retail choice for customers. If the PUCN determines that a market for a potentially competitive service does not have effective competition, the PUCN may determine the prices and terms and conditions for providing the service.

On June 9, 1999, the Governor approved an amendment to the restructuring law that in part revised the date for retail choice, expanded the services to be defined as potentially competitive, and required input from the governor in order to change the implementation date for retail choice. The amendments included the following:

The date upon which customers may begin obtaining generation, aggregation, **metering, billing** and any other potentially competitive services from an alternative seller must be no later than **March 1, 2000**, unless the **governor, after consultation with the** commission, determines that a different date is necessary to protect the public interest. (Nevada Revised Statutes Sec. 704.976)

The restructuring law also specified that on or before October 1, 2001, an electric service that has been found on or before that date to be potentially competitive shall be deemed to be competitive.

### Regulatory History

On August 21, 1997, the PUCN entered an order instituting an investigation of issues related to the restructuring of the electric industry. These issues included the designation by the Commission of components of electric service as "potentially competitive services" or "noncompetitive services" pursuant to statutory criteria.

On January 21, 1998, the Commission issued a procedural order that established a process for, among other things, the Commission's investigation regarding potentially

competitive services ("PCS"). The Commission solicited comments, to be submitted by February 25, 1998, on whether the Commission should evaluate services including, but not limited to, billing, customer service, metering, demand side management and physical connection as PCS, how the Commission should apply the statutory criteria for PCS status, and whether the Commission should designate the evaluated services as PCS. On March 12 and 13, 1998, the Commission conducted a workshop in order to resolve the Commission's remaining questions and certain issues raised by the submitted comments pertaining to the designation of potentially competitive services.

By order dated June 8, 1998, the Commission determined that metering and billing services satisfied all of the statutory criteria and designated both as potentially competitive services. For purposes of the analysis, the Commission determined that metering service had four components: (1) ownership (provision of the physical assets of the meter); (2) operation and maintenance (including installation, testing, calibration and repair); (3) meter reading; and (4) data management. Billing services included: (1) account services; (2) billing; and (3) payment collection and processing.

After Sierra Pacific Power Company and Nevada Power Company challenged the process that the PUCN followed to reach its conclusions, the PUCN set aside its order identifying potentially competitive services and ordered that it would determine which services were potentially competitive via a contested case proceeding. After hearings on the issues, the PUCN again ruled on November 23, 1998, that billing and metering services are potentially competitive.

By procedural order, the PUCN ordered the formation of a working group for the development of data exchange and metering services protocols. The working group was ordered to discuss, at a minimum, the development of protocols for direct access service requests, billing between a utility and alternative sellers, data exchange, and meter specific information exchange. The working group also was required to discuss the need for meter data management agents ("MDMAs") who will read, validate, and edit data; estimate missing data; and post data for use by others and, if deemed appropriate, put forth proposed protocols for MDMAs.

## NEW HAMPSHIRE

### Statute

House Bill 1392, An Act Restructuring the Electric Utility Industry in New Hampshire ("Act"), was approved on May 21, 1996. The Act authorized the Public Utility Commission ("PUC") of New Hampshire to require the implementation of retail choice of electric suppliers for all customer classes of utilities providing retail electric service under its jurisdiction. The Act directs the PUC to require such implementation no later than January 1, 1998, and further specifies that implementation may not be delayed beyond July 1, 1998, without prior legislative approval.

While the Act does not specifically address metering and billing, the PUC opined on March 20, 1998, in an order on requests for rehearing, reconsideration, and clarification (Order No. 22,875 in DR 96-150) that the legislature authorized the PUC to unbundle ancillary services, including metering and billing, recognizing such unbundling to be a critical step in the development of a competitive market for energy services. The PUC pointed to the following language in the Act as authorization to unbundle metering and billing services:

Increased customer choice and the development of competitive markets for wholesale and retail electricity services are key elements in a restructured industry that will require unbundling of prices and services . . . services and rates should be unbundled to provide customers clear price information on the cost components of generation, transmission, distribution, and any other ancillary charges. [The Commission shall] monitor companies providing transmission or distribution services and take necessary measures to ensure that no supplier has an unfair advantage in offering and pricing such services. (N.H. RSA Sec. 374-F:1; 374-F:3, III; 374-F:3, IV)

### Development of a Restructuring Plan

The New Hampshire restructuring legislation directed the PUC to develop a statewide restructuring plan. The PUC initiated the proceeding on May 30, 1996, and issued for public comment a Preliminary Plan on September 10, 1996, which set forth preliminary positions on an array of issues raised by the legislation. Since then, more than fifty parties submitted written comments on policy issues and briefs addressing legal issues. The PUC conducted fourteen legislative style hearings in December 1996 on policy issues. During January 1997, the Commission conducted fifteen days of adjudicative hearings to set interim stranded cost charges. Six public information forums were held at various locations throughout the state in January 1997 as well.

The Final Plan was issued on February 28, 1997. It included a description of the market and institutional structures necessary to provide customers with real energy service choices and ensure fair and efficient competition among retail market participants as well as a discussion of legal issues. Additionally, five supplemental orders establishing utility-specific interim stranded cost ("ISC") charges were issued concurrently with the plan. The Final Plan required each utility to file comprehensive

plans, no later than June 30, 1997, which comply with the Final Plan and the supplemental orders.

### **Metering and Billing**

In its Final Plan, the PUC addressed several issues related to metering and billing including: (1) the installation of remotely read hourly meters for large customers, (2) a requirement for utilities to provide recommendations to improve the accuracy of hourly load profiles in order to avoid billing disputes, (3) the responsibility of distribution companies for reading meters of small customers and transferring data expeditiously to competitive power suppliers, and (4) allowing competitive power suppliers to prepare their own bills or purchase billing services from the distribution company, in which case customers could receive a single bill incorporating charges for transmission, distribution, and power supply services.

The PUC also noted that two working groups related to metering issues would be established. The Granite State Electric Company was directed to submit a proposal to establish a data transfer working group which would prepare recommendations on appropriate Electronic Data Interchange standards. In addition, the PUC established a metering working group charged with the task of resolving issues concerning metering standards for competitive providers of metering equipment.

With respect to the timetable for unbundling metering and billing, the PUC stated the following in its Final Plan:

After reviewing the record on this issue, and recognizing the Legislature's aggressive timetable for introducing competition, we believe our focus in this area should be on attaining an achievable level of unbundling by 1998 and that a more comprehensive separation of competitive services should be deferred to a later date. Accordingly, we will defer the unbundling of metering and customer services for small customers and require only that energy billing services be provided competitively. Stated differently, for customers with maximum demands less than or equal to 100 kW, distribution companies will continue to provide metering and customer services. For customers with maximum demands above 100 kW, we believe an achievable level of unbundling consists of opening metering, energy billing, and customer services to competition. As a consequence of allowing competitive suppliers to provide meter reading services to customers with maximum demands in excess of 100 kW, we note suppliers now become responsible for transferring hourly data to the distribution company and the ISO. (Restructuring New Hampshire's Electric Utility Industry: Final Plan, PUC DR 96-150, February 28, 1997, pp. 36-37)

The PUC received 14 timely motions for rehearing or clarification concerning the Final Plan and ISC orders. Some of the motions concerned metering and billing related issues. On April 17, 1997, the PUC suspended and stayed portions of the Final Plan and ISC orders pending further evaluation of the issues raised in these requests. After rehearing proceedings, the PUC issued its Order on Requests for Rehearing,

Reconsideration and Clarification on March 20, 1998 (Order No. 22,875). With respect to metering and billing issues, the PUC concluded the following (p. 15):

We affirm our decision to allow competitive providers to offer energy billing services to all customers effective on the retail competition date. Competitive providers may also provide meters and metering services to large customers who choose that option. However, competitive metering will not begin before appropriate metering standards have been adopted through rulemaking. By authorizing the competitive provision of meters and metering services for large customers, we are encouraging the development of a competitive market for ancillary services, starting with the most sophisticated, energy intensive customers.

We also affirm our decision to require distribution companies to provide meters and metering services to small customers until we see evidence that those services can be better provided by the competitive market. Although we do not believe it would be practical to allow all customers to purchase meters, [they should be able to receive] their unbundled energy charges on a single consolidated bill, prepared by the distribution company. Again, the distribution company would be compensated for this billing service pursuant to a Commission approved tariff.

### **Metering Working Group**

The Commission's February 28, 1997 Final Plan called for the establishment of several working groups to address a variety of issues such as supplier registration, low income assistance, public education, energy mix disclosure requirements, competitive metering and electronic data interchange standards. The efforts of the metering standards working group are described below.

The metering working group was formed to develop standards for the competitive provision of metering services to customers whose maximum demand is in excess of 100 kW. The first metering working group meeting was held on March 21, 1997, and the working group met approximately 10 times thereafter. Participants in the metering working group included representatives from Unitil, Connecticut Valley Electric, Peregrine Energy Group on behalf of CellNet Data Systems, Enron Capital and Trade, Granite State Electric, PJA Energy and Public Service Company of New Hampshire.

The working group focused on how to best implement metering technologies and standards, within a competitive energy marketplace, for customers whose maximum demand exceeds 100 kW. The working group discussed the following topics:

- Definition of a greater than 100 kW customer;
- Load estimation, allocation, and reporting requirements;
- Data availability, format, and timeliness;
- Default metering services;
- Possible barriers to fair competition;
- Meter accuracy and testing;

- Meter accuracy dispute resolution;
- Stranded costs associated with metering equipment;
- Theft of service issues;
- National Electric Code requirements;
- Tax legislation affecting meters;
- Service disconnects and restoration;
- New metering technologies;
- Load estimation and reconciliation;
- Multiple meter logistics; and
- Customer choice versus forced compliance.

The efforts of the working groups were described by the PUC as an essential part of a successful implementation of retail choice in New Hampshire. Despite ongoing federal litigation, the groups have moved forward with their tasks.

### **Status of New Hampshire's Restructuring Efforts**

Public Service Company of New Hampshire filed a lawsuit in 1997 after the PUC issued its statewide restructuring plan which the PUC modified in the order issued March 20, 1998. The lawsuit seeks to block the PUC's ongoing efforts to bring competition to New Hampshire's electric utility industry. In April of 1998, PSNH was joined by several other utilities in asking the federal court to completely block the PUC from taking any further action to implement the restructuring law. In another development, the PUC's Electronic Data Interchange rulemaking has been temporarily stayed pursuant to order of the Federal District Court issued on April 7, 1999. The State of New Hampshire and PSNH filed a settlement agreement on electricity deregulation with state utility regulators on August 2, 1999. If approved by the PUC and the state legislature, the agreement would end the costly federal litigation brought by PSNH that has blocked competition for the last two years.

## NEW YORK

### Background

The State of New York has relied on comprehensive regulatory proceedings and individual settlements with each electric company in lieu of legislative statute to implement restructuring of the state's electric utility industry. The New York Public Service Commission ("NYPSC") began an investigation into competitive opportunities for electric service in 1993. In 1996 the NYPSC required New York's electric utilities to file proposed plans for restructuring no later than October 1, 1996. (Opinion 96-12, Cases 94-E-0952 et al., 5/20/96) As a result of settlements with each electric utility company, competition began at different times during 1998 in the utilities' service territories. Competition is being phased in under schedules unique to each utility until 2002, when all customers will be able to choose their electricity supplier.

### Competitive Metering

In November 1996, the NYPSC staff established a collaborative effort among interested parties to identify the elements of, and obstacles to, competitive metering. This effort culminated with Opinion No. 97-13 (Opinion and Order Establishing Regulatory Policies for Competitive Metering), issued on August 1, 1997. The NYPSC allowed large industrial and commercial customers, as defined by each utility, the option of owning a PSC-approved meter, but required that the meters initially should remain subject to the control of the utility. Installation, maintenance, and compliance with NYPSC regulations remain the responsibility of the host utility. The NYPSC also directed its staff to convene meetings with interested parties to attempt to resolve the technical and transitional issues associated with competitive metering. Furthermore, the staff was directed to report its progress to the NYPSC no later than 18 months from the date of the order.

In compliance with Opinion No. 97-13, meetings of the interested parties were convened in mid-August 1997 to formulate an approach to studying the issues associated with competitive metering. As a result of these meetings, five working groups emerged, each with its own review charter and each with a group leader appointed by group consensus. The groups were established according to the following topics: meter ownership and control, information flow-policy, information flow-technical, regulation, and load profiling. Final reports were submitted by all working groups, and comments on these reports were received from 12 parties. The consensus of the parties in the working groups was that there were no technical impediments to competitive metering; and that adoption of the policies and procedures outlined in the working group reports would help assure the safety, reliability and security of the electric metering system.

By its Order Providing for Competitive Metering issued June 16, 1999, the NYPSC approved competitive metering on a limited basis as follows:

For the reasons discussed above, we conclude that competitive metering offers benefits, but that extending it to all customers now is not warranted. We will make it available on a limited basis, i.e., only to customers with demands equal to or larger than 50 kW. This provides competitive

metering to the approximately 40,000 largest customers that would most benefit in the short-term from advanced metering services. This will provide real world experience with competitive metering with a limited sized, but technically sophisticated customer pool, and will help us to identify and resolve potential problems before expanding competitive metering to all customers. The reduced size of the eligible customer base could also reduce system upgrade and regulatory oversight costs.

An attractive attribute of this approach is that it can be expanded to other customer classes if innovative proposals are submitted to serve such customers. There are approximately 130,000 remaining commercial customers between 20 kW and 50 kW that might also benefit in the short term from enhanced metering capabilities, as might some of the largest residential users. Finally, this approach also provides opportunities for AMR networks to be installed by either utilities (at their risk) or non-utility entities, where economic and market conditions warrant. (Order Providing for Competitive Metering, Case 94-E-0952, 6/16/99, p. 37)

In its June 16, 1999, order the NYPSC also noted that energy service companies ("ESCOs") could choose whether or not to offer competitive metering services to their customers. Customers could obtain metering services directly from either an energy service company or a utility, both of whom may subcontract these services to meter service providers ("MSPs") or meter data service providers ("MDSPs"). ESCOs and non-utility MSPs or MDSPs have to meet certain eligibility requirements, but utilities are grandfathered as eligible MSPs and MDSPs. The components of competitive metering were defined as sales, installation, removal, testing, maintenance, reading, data translation, and customer association/validation/editing/estimation.

The utilities were directed to file unbundled metering tariffs by October 1, 1999, to be effective November 1, 1999, on a temporary basis. Utility incremental and strandable cost issues associated with implementing competitive metering are to be addressed in the individual utility rate/restructuring proceedings, to the extent permitted by the utilities' individual restructuring orders. Finally, the order delegates to staff, in consultation with the parties, the resolution of certain remaining implementation issues.

### **Competitive Billing**

In an August 1997 discussion paper on billing issues, the NYPSC staff suggested that customer preferences should drive the billing arrangements between ESCOs and utility companies. In that paper, the staff identified billing arrangements that might be employed to meet customer preferences.

Comments on the August 1997 paper were submitted by the utilities, ESCOs, and other interested parties. Following review of the staff paper and the comments of the parties, the NYPSC, in an order issued March 3, 1998, required that all utilities but



Rochester Gas and Electric allow ESCOs to render separate bills.\* The NYPSC determined that, of the arrangements identified, the "two bill" arrangement appeared to be the least costly and easiest to implement at that time, but it directed the staff to continue to work with the utilities, ESCOs and other interested parties to evaluate and develop other billing arrangements. The NYPSC did not prohibit utilities from offering other arrangements.

In November 1998, the staff issued a second discussion paper and requested comments on various issues associated with requiring utilities to allow ESCOs to render combined bills containing both the utility and ESCO components (*i.e.*, the "ESCO single bill option"). Some 25 parties submitted initial and/or reply comments on the November 1998 paper. The comments and replies discussed issues ranging from whether single billing is necessary or desirable to exactly which billing functions a utility should be required to allow an ESCO to perform.

The staff then issued a report dated May 19, 1999, in which it described a revised model for billing and recommended that the NYPSC solicit comments from interested parties. The staff's proposal would assure ESCOs of the opportunity to provide end-use customers with single consolidated bills for both utility and ESCO charges. Utilities would be required to allow ESCOs to print and mail consolidated bills, print standard utility bill messages and or distribute suitable bill inserts provided by the utility, receive and process payments, apportion and remit the utility portion of amounts collected, and provide payment details by account to the utility. The staff's proposal also addressed the need for ESCOs to meet certain requirements relative to performance standards, financial security arrangements, and billing costs. The utilities would be responsible for calculation of their own charges, maintenance of their own accounts receivables, collection action on their own past due accounts, handling inquiries about their charges and their notices, and commencement and termination of services. Utilities and ESCOs, however, could enter into agreements where the ESCO would perform some or all of these functions so long as the utility retains ultimate responsibility. The staff's proposal would not preclude ESCOs and utilities from agreeing upon other billing arrangements, such as utility consolidated billing or dual billing. The staff's proposal also recommended billing format and content. By Notice Requesting Comments issued June 7, 1999, (Case 99-M-0631) the NYPSC issued the staff report on alternative billing arrangements and asked for comments on the issues raised by the staff. Comments were due by July 26, 1999.

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\* Under the terms of a negotiated settlement for the RG&E service territory, ESCOs purchase delivery services from RG&E and render a single bill.