
CHAPTER 5 SERVICE QUALITY

Through economic mechanisms, PBR provides the distributors with incentives for economic efficiency gains. To discourage utilities sacrificing service quality in pursuing the economic incentives, service quality performance measures are included in the PBR plan.

Distributors will be expected to monitor and report on some of the service quality indicators. For other indicators, the distributors are expected to use the standards as minimum guidelines in adopting management policy, but will not be required to report on their performance.

In addition to imposing service quality performance standards, the Board may conduct surveys to determine customer satisfaction with the electricity distribution service quality. In addition, the Board will likely conduct customer research to identify those elements of service quality most important to customers for use in setting standards for the second PBR term.

The first generation service quality performance indicators include customer service indicators and service reliability indicators. The indicators included in the first generation PBR plan are listed in Table 5-1.

Table 5-1 Service Quality Indicators	
Customer Service	Service Quality
Indicators Requiring Reporting: Connection of New Services Underground Cable Locates Appointments Indicators not Requiring Reporting: Telephone Accessibility Written Response to Inquiries Emergency Response	Indicators Requiring Reporting: System Average Interruption Index (SAIDI) System Average Interruption Frequency Index (SAIFI) Customer Average Interruption Duration Index (CAIDI)

5.1 FIRST GENERATION PBR APPROACH TO SERVICE QUALITY PERFORMANCE

Generally, PBR plans include mechanisms that encourage a utility to improve or maintain its service quality. The Board is responsible for the regulation of more than 250 electric distributors of large variation in circumstances and management practices. Survey results indicate that the degree of service quality monitoring that the distributors currently carry out varied. Therefore the Board's approach to encourage the maintenance of service quality during the first generation PBR plan is to apply minimum standard guidelines for customer service indicators and to apply a utility's historic performance as its service reliability standards. Where a distributor has not monitored service reliability in the past, it is required to initiate monitoring and reporting of the indices.

The service quality indicators, and their associated monitoring requirements and minimum standard guidelines (where applicable) are described in this Chapter.

5.2 CUSTOMER SERVICE PERFORMANCE INDICATORS

A customer service indicator measures direct contact with the customer. In setting the customer service standards, minimum standard guidelines are provided that are intended to maintain customer service quality while providing the distributors with flexibility to set service levels to the demands of their customers above the minimum guidelines. The utilities are expected to achieve the minimum standards for a specified percentage of the time.

5.2.1 Connection of New Services

As a minimum performance standard for the connection of new services, new low voltage (< 750 volts) services must be connected within 5 working days from the day on which all conditions of service are satisfied, including electrical safety inspection, 100 % of the time. High voltage (\geq 750 volts) must be connected within 10 working days from the day on which all conditions of service are satisfied, including electrical safety inspection, at least 90% of the time.

The conditions of service that may need to be satisfied include payment of connection fees, signing of service contracts, completion of distribution system extensions, provision of adequate lead times for delivery of equipment and receipt of an electrical safety inspection certificate.

The distributor must monitor its performance and report the information annually to the Board as specified in Chapter 6 of this handbook.

5.2.2 Underground Cable Locates

As a minimum standard, underground cable locates must be completed within 5 working days of a customer's request, at least 90% of the time. For customers requesting a specific date, the locate must be completed within 5 working days of the requested date.

The cable locates included in this standard do not include emergency locates.

The distributor must monitor its performance and report the information annually to the Board as specified in Chapter 6.

5.2.3 Telephone Accessibility

As a minimum standard, incoming calls to the general inquiry telephone number must be answered within 30 seconds, at least 65% of the time. The provision of a voice mailbox /answering machine does not constitute compliance with this standard.

Distributors are not required to report on this performance indicator. However, the standard must be used as a minimum guideline in establishing a standard through management policy.

5.2.4 Appointments

As a minimum standard, when it is necessary to meet a customer at the customer's premises or work site to conduct utility business, customers must be offered a choice of morning or afternoon appointments. The appointments must be met at least 90% of the time. If the appointed time cannot be met the customer must be notified.

The distributor must monitor its performance and report the information annually to the Board as specified in Chapter 6 of this handbook.

5.2.5 Written Responses to Inquiries

The minimum standard for responding to requests for written information by a customer or an agent of the customer, relating to the customer's account will be within 10 working days following receipt of the request. The written response time must be met at least 80% of the time.

Distributors are not required to report on this performance indicator. However, the standard must be used as a minimum guideline in establishing a standard through management policy.

5.2.6 Emergency Response

At minimum, emergency trouble calls (i.e. fire, ambulance, police etc.) will be responded to within 120 minutes in rural areas and 60 minutes in urban areas. The arrival of a qualified service person on site will constitute the response. The minimum standards must each be met at least 80% of the time.

Distributors are not required to report on this performance indicator. However, the standard must be used as a minimum guideline in establishing a standard through management policy.

5.3 SERVICE RELIABILITY INDICES

The service reliability indices measure system outage statistics. The monitoring and reporting of service reliability indices are intended to encourage utilities to maintain their service reliability performance.

5.3.1 System Average Interruption Duration Index

The system average interruption duration index (SAIDI) is an indicator of system reliability that expresses the length of outage customers experience in the year on average. All planned and unplanned interruptions of one minute or more should be used to calculate this index. It is defined as the total hours of power interruptions normalized per customer served and is expressed as:

$$\text{SAIDI} = \frac{\text{Total Customer-Hours of Interruptions}}{\text{Total Number of Customers Served}}$$

All utilities are required to monitor and report on this index annually. Distributors that have not monitored this index in the past are required to start monitoring and reporting on this index when they start their first PBR plan.

Utilities that have at least 3-years data on this index should at minimum remain within the range of their historic performance.

5.3.2 System Average Interruption Frequency Index

The system average interruption frequency index (SAIFI) is an indicator of the average number of interruptions each customer experiences. All planned and unplanned interruptions of one minute or more should be used to calculate this index. It is defined as the number of interruptions

normalized per customer served and is expressed as:

$$\text{SAIFI} = \frac{\text{Total customer Interruptions}}{\text{Total Number of Customers Served}}$$

All utilities are required to monitor and report on this index annually. Distributors that have not monitored this index in the past are required to start monitoring and reporting on this index.

Utilities that have at least 3-years data on this index should at minimum remain within the range of their historic performance.

5.3.3 Customer Average Interruption Duration Index

The customer average interruption duration index (CAIDI) is an indication of the speed at which power is restored. All planned and unplanned interruptions of one minute or more should be used to calculate this index. It is defined as the average duration of interruptions in the year and is expressed as follows:

$$\text{CAIDI} = \frac{\text{SAIDI}}{\text{SAIFI}} = \frac{\text{Total Customer Hours of Interruptions}}{\text{Total Number of Customer Interruptions}}$$

All utilities are required to monitor and report on this index annually. Distributors that have not monitored this index in the past are required to start monitoring and reporting on this index.

Utilities that have at least 3-years data on this index should at minimum remain within the range of their historic performance.

5.3.4 Cause of Service Interruption

Monitoring the cause of outages in addition to monitoring the system reliability indices provides valuable information as to the remedial work required. The distributors should therefore maintain a record of the causes of the outages, at a minimum in accordance with the list presented in Table 5-2. While reporting of this information is not mandatory, should a review of the distributor's service reliability be necessary, the Board will expect the distributor to produce this information.

5.4 REMEDIAL ACTIVITY

Distributors whose performance fall below the minimum service quality standards for indicators for which monitoring and reporting is required must include a remedial action plan with their annual reports.

It is anticipated that by the second generation PBR plan, there will be sufficient data collected to set industry service quality performance standards. Once these standards have been established, PBR incentive mechanisms will be introduced around the service quality indicators with economic consequences.

**Table 5-2
Cause of Service Interruption**

Code	Cause
0	Unknown/Other Customer interruptions with no apparent cause that contributed to the outage
1	Scheduled Outage Customer interruptions due to the disconnection at a selected time for the purpose of construction or preventive maintenance
2	Loss of Supply Customer interruptions due to problems in the bulk electricity supply system
3	Tree Contacts Customer interruptions caused by faults resulting from tree contact with energized circuits
4	Lightning Customer interruptions due to lightning striking the distribution system, resulting in an insulation breakdown and/or flash-overs
5	Defective Equipment Customer interruptions resulting from equipment failures due to deterioration from age, incorrect maintenance, or imminent failures detected by maintenance
6	Adverse Weather Customer interruptions resulting from rain, ice storms, snow, winds, extreme temperatures, freezing fog, frost or other extreme weather conditions (exclusive of Code 3 and 4 events)
7	Human Element Customer interruptions due to the interface of utility staff with the system
8	Foreign Interference Customer interruptions beyond the control of the utility such as animals, vehicles, dig-ins, vandalism, sabotage and foreign objects