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Client Alert

CFE Basic Services Supply Final Electricity Rates for Commercial and Industrial Users, April 2018

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CONTENT

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I. Executive Summary

The objective of the following analysis is to present and explain the updates and regulatory amendments for the calculation of the CFE Basic Services Supply (CFE SSB) Rates.

Some key findings from the analysis:

.Beginning in Nov-2017 through Apr-2018, there have been three documents published, including Agreements and Official Letters, modifying the Agreement A/058/2016. The primary documents include:

1.Second publication: First modification - Agreement A/001/2018.
2.Third publication: Second modification - Official letter: UE-240-22445-2018
3.Fourth publication: Third modification -Agreement A/017/18

Primary milestones are outlined in Figure 2

•The "Transition Period" seeking cost recovery of CFE Basic Service Supply costs applied a new methodology. It began in Dec-2017 and ended in Mar-2018. A new methodology was announced covering a new period, "Cost Recovery Period 1" which extends from Apr-2018 to Dec-2018.

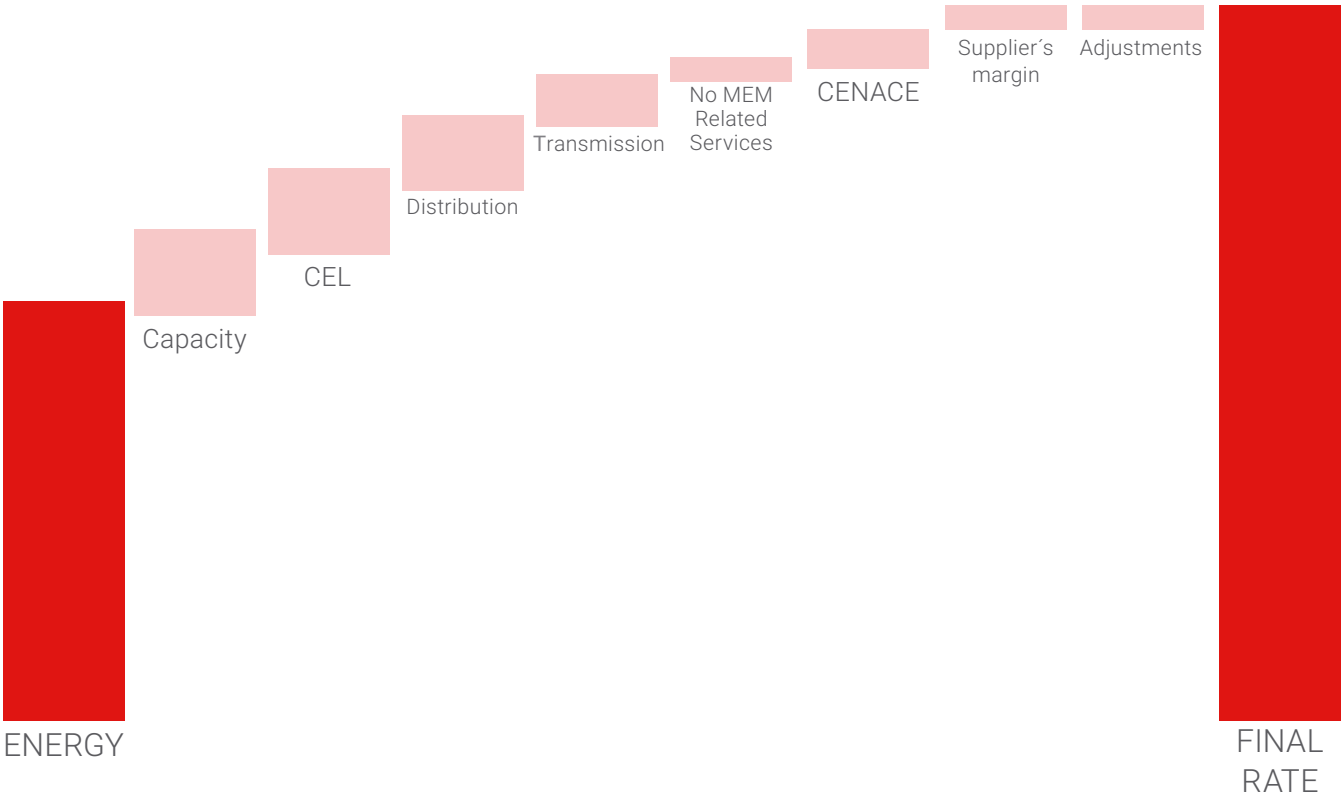
•There are many categories of costs that the Basic Service Tariff seeks to recover, and the treatment of the costs in these categories has changed with these modifications.

•Importantly, Distribution and Capacity components were modified considerably during the Transition Period. Additionally, the calculation of the Generation component was modified beginning in Feb-2018. The new treatment for these components are expected to extend over the period of "Cost Recovery" through (at least) Dec-2018.

II. Updates and Regulatory Amendments

In November 2017, the Governing Body of the Energy Regulatory Commission (CRE) published the methodology to calculate the Basic Supply Final Rates. The primary components include:

Figure 1: Primary Components of SSB Rates



Source: Zumma rg+c

As a result of the application of this new methodology, high-demand electricity users such as industrial and commercial users, reported sharp rises in their electric billing and demanded re-visions.

Figure 2: Historical and Expected Timeline of Regulatory Developments.

23/11/17	Publication of new methodology. (A/058/2017)
29/11/17	Publication of December, 2017 rates and adjustment factor. (A/061/2017)
01/02/18	First modification to the maximum demand formula for Distribution Charge. (A/001/2018)
06/03/18	Second modification to the maximum demand formula for Distribution Charge. First modification to the maximum demand formula for Capacity Charge. Adjustment to Generation charge. (UE-240-22445-2018)
01/04/18	End of gradual Transition Period and beginning of Cost Recovery Period 1.
30/04/18	Third modification to the maximum demand formula for Distribution Charge Second modification to the maximum demand formula for Capacity Charge Modification of the Calculation Methodology to adjust the Generation Charge (A/017/28018)
Jul-18	Recovery of the deficit generated from Dec-2017 to Mar-2018. First review of fuel prices. (A/017/28018)
Oct-18	Second review of fuel prices. (A/017/2018)

Source: Data from Diario Oficial de la Federación and CFE, Zumma rg+c

III. Discussion of the Modifications

The CRE has provided three fundamental modifications since November 2017:

1. On Feb 1, 2018 the CRE published Agreement A/001/2018. Importantly, it modified the calcula tion of the maximum demand used for the Distribution rates. These had previously established in Agreement A/058/2016 and utilized an annual peak demand component. The new formula utilizes the minimum between the annual and the monthly maximum demand. The new formula is expressed as:

$$\min\{\text{Dmax}_{annual}, \text{Dmax}_{monthly}\}^{1}$$

2. Secondly, in order to dampen the rate increase and the peaks for the Feb-2018 rates, an Offi-cial Letter (UE-240-22445-2018) between CRE and CFE was published. The Letter established that, for February, the monthly variation of the generation cost should range within -3% and 9%, compared to Jan-2018. The Official Letter also established that during the Transition Period (Dec-2017 to Mar-2018), the formulas for calculating maximum demand applicable to Distribu-tion and Capacity rates are:

Distribution:

$$\min\{\text{Dmax}_{annual}, \text{Dmax}_{monthly}, \frac{\mathbf{Q}\text{monthly}}{24*d*\text{F.C.}}\}^{2}$$

Capacity:

$$\min\{\text{Dmax}_{peak}^{3}, \frac{\mathbf{Q}\text{monthly}}{24*d*\text{F.C.}}\}^{4}$$

In addition to the modification in the calculation formula, both the agreement and the official letter, establish that the adjustments would be applied retroactively from December 1, 2017.

•This may explain some unexpected adjustments in the CFE SSB bills over the last few months. In most cases, these adjustments are treated as bonuses for end users as a result of decreases in the distribution and capacity charges implied by this reformulation.

•Selected practical examples of the application of these formulas are contained in Annex I of this document.

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1. $\mathbf{Dmax}_{annual}$: Maximum demand from the previous 12 months.
   $\mathbf{Dmax}_{monthly}$: Maximum demand from the billing month.
2. $\mathbf{Dmax}_{annual}$: Maximum demand from the previous 12 months.
   $\mathbf{Dmax}_{monthly}$: Maximum demand from the billing month.
   Qmonthly: Monthly consumption recorded in the billing (kWh)
   d: days from the period billing
   F.C.: Load factor from the Agreement A/58/2017
3. If there is no peak load, the maximum demand on the billing month will be used.
4. $\mathbf{Dmax}_{monthly}$: Maximum demand from the billing month.
   Qmonthly: Monthly consumption recorded in the billing (kWh)
   d:days from the period billing
   F.C.:Load factor from the Agreement A/58/2017
5. $\mathbf{Dmax}_{monthly}$: Maximum demand from the billing month.
   Qmonthly: Monthly consumption recorded in the billing (kWh)
   d:days from the period billing
   F.C.: Load factor from the Agreement A/58/2017
6. If there is no peak load, the following formula will be used
   $$\frac{\mathbf{Q}\text{monthly}}{24*d*\text{F.C.}}$$
7. $\mathbf{Dmax}_{monthly}$: Maximum demand from the billing month.
   Qmonthly: Monthly consumption recorded in the billing (kWh)
   d: days from the period billing
   F.C.:Load factor from the Agreement A/58/2017

On April 30, 2018, the Agreement A/017/2018 was published by the CRE in which further modified the formulas used to calculate distribution and capacity components. The CRE indicates that these formulas will be valid for the rest of the year:

Distribution

$$\min\left\{\text{Dmax}_{monthly}, \frac{\mathbf{Q}monthly}{24*d*F.C.}\right\}^{5}$$

Capacity

$$\min\left\{\text{Dmax}_{peak}^{6}, \frac{\mathbf{Q}monthly}{24*d*F.C.}\right\}^{7}$$

Unlike the previous modifications, those proposed in the April 30, 2018 Agreement are not to be applied retroactively. Thus, they are expected to be valid from Apr-2018 through Dec-2018. As mentioned previously, practical examples of their application are shown in Annex I.

In addition to the Distribution and Capacity component changes, this new agreement applies a constant relative price mechanism for the calculation of the Generation Charge component. This means that these charges will be adjusted monthly based on seasonality of energy consumption, maintaining the relative difference between the generation charges applied in Mar-2018. These modifications are shown in the update to Annex B of Agreement A/058/2017 published by CRE in Agreement A/017/2018.

In accordance with the Agreement A/017/2018, the Transition Period ended in Apr-2018 and final rates are to be charged to end-use consumers without the adjustment factor (Figure 2). However, the previous deficit amounts accumulated by the transition CFE SSB regimen between Dec-2017 and Apr-2018, will be charged to end-use consumers for cost recovery beginning in Jul-2018. As mentioned previously, this new period from Apr-2018 through Dec-2018 is referred to as Cost Recovery Period 1, and the rate calculation process is expected to be carried out in terms of the update to Annex B of Agreement A / 058/2017.

Figure 3. Adjustment Factor December 2017 – April 2018

Month	Calculated rate with trend update (%)	Calculated rate with methodology (%)
Dec-2017	80%	20%
Jan-2018	60%	40%
Feb-2018	60%	40%
March-2018	60%	40%
Apr-2018	0%	100%

Source: Data from Diario Oficial de la Federación, Zumma rg+c

IV. Final Rates Components in the Transition Period Jan-2018 to Apr-2018

This section presents an initial analysis of the price behavior of the Energy (Base, Intermediate and Peak) and Capacity components for rate categories, GDMTH, DIST and DIT during the Transition Period.

General Observations:

- The database for this initial assessment includes data with the following characteristics.
  - Broken down into three example large consumer rate categories:
    - DIT delivered >220 kV.
    - DIST delivered >35 kV, <220 kV.
    - GDMTH with demand >100 kW, delivered >1 kV, <35 kV.
  - Broken down into 17 tariff divisions or distribution zones.
  - Values shown are the actual tariff values by rate category and tariff division without conside ration of any adjustment factors.
  - Four months of data is considered in the analysis.
  - Four different energy component types:
    - Base.
    - Intermediate.
    - Peak.
    - Capacity.

Figure 4 is an example of how prices vary by rate component. In this table, the rate components for the DIST Tariff are examined by month beginning with the establishment of the SSB without adjustments. The Dec-2017 value for the relevant region (in this case the Valle de Mexico Norte) was selected as the Base Value. An index was established with the Dec-2017 actual rate equal to 100.0. A value less than 100.0 means the value for the rate component in that month is less than the Dec-2017 value; a value of more than 100.0 indicates the value of the rate component in that month is greater than in Dec-2017.

Figure 5. Valle de Mexico Norte Unadjusted Rate Values by Month

Base Dec-2017 Valle De México Norte	Dec-2017	Jan-2018	Feb-2018	Mar-2018	Apr-2018
Energía Base	100.0	24.2	32.9	59.0	30.2
Energía Intermedio	100.0	38.5	46.9	85.1	48.0
Energía Semipunta					
Energía Punta	100.0	41.5	53.1	92.2	51.7
TransmisiónC kWh	100.0	94.7	104.2	104.2	104.2
Distribución kW-mes					
CENADE_C kWh	100.0	106.8	106.8	86.9	86.9
SCnMEM kWh	100.0	100.0	100.0	100.0	100.0
Capacidad_pesos/kW	100.0	98.1	92.9	116.4	117.4
OSSB_Fijo	100.0	93.2	93.2	93.2	93.2
Total Energía Base	100.0	32.1	40.8	63.9	38.3
Total Energía Intermedio	100.0	43.7	7.5	86.8	53.0
Total Energía Semipunta					
Total Energía Punta	100.0	46.1	57.5	93.2	56.1

Source: Data from CRE, Zumma rg+c

Figure 6 is an example of how prices vary by rate component depending on the region. In this table, the rate components for the DIST Tariff are examined by month beginning with the establi-shment of the SSB without adjustments. The value for the relevant region (in this case Valle de Mexico Norte) was selected as the Base Value. An index was established for the Jalisco region with the Dec-2017 actual relevant rate component compared to the relevant rate component in Valle de Mexico Norte. A value of 100.0 means the value in Jalisco is the same as that in the Valle de Mexico. A value less than 100.0 means the value for the rate component in that month is less than the Valle de Mexico value for that month; a value of more than 100.0 indicates the value of the rate component in that month is greater than the value in the Valle de Mexico for that month.

Figure 6. Jalisco Unadjusted Rate Values by Month Compared with Valle de Mexico Norte

Base Dec-2017 Valle De México Norte Month Matched Jalisco	Dec-2017	Jan-2018	Feb-2018	Mar-2018	Apr-2018
Energía Base	85.6	127.6	101.1	99.3	139.3
Energía Intermedio	83.2	128.1	102.6	100.7	126.7
Energía Semipunta					
Energía Punta	83.0	127.4	102.5	100.8	133.1
TransmisiónC kWh	100.0	100.0	100.0	100.0	100.0
Distribución kW-mes					
CENADE_C kWh	100.0	100.0	100.0	100.0	100.0
SCnMEM kWh	100.0	100.0	100.0	100.0	100.0
Capacidad_pesos/kW	100.0	100.0	100.0	100.0	102.4
OSSB_Fijo	71.8	75.9	75.9	75.9	75.9
Total Energía Base	87.2	118.5	100.8	99.4	127.6
Total Energía Semipunta					
Total Energía Punta	84.5	122.5	102.1	100.7	127.8

Source: Data from CRE, Zumma rg+c

Key findings from the Jan-2018 to Apr 2018 subperiod include the following:

1. Feb-2018 rates decreases are due to adjustments in the Generation component.
2. Base Energy, Intermediate Energy, Peak Energy and Capacity components increased in Mar-2018 for all three rate classes included in this analysis in all regions of the country.
3. Regionally, Baja California Sur has the highest overall rate charge, as well as the largest base and intermediate energy component charges in Mar-2018.
4. In Apr-2018, Baja California Sur end-use consumers are to incur additional charges for the Peak energy component which was not invoiced in previous months. As a result, Baja California Sur will likely experience the highest overall rate charge among the 17 regions in Apr-2018.
5. During the Jan-2018 to Mar-2018 subperiod, the Capacity component has the same value for the three different rates categories examined in the analysis. While, the Capacity cost changes from month-to-month, it does not change by rate class or region. Beginning in Apr-2018, the Capacity component differs by month and rate class but does not vary by region.
6. Generally, energy prices in Dec-2017 are the highest, with prices in Mar-2018 the second highest.
7. Intermediate energy prices in Feb-2018 are abnormally low in all regions.
8. The Transmission, ISO, and the market administration rates are the same for all regions and for all months during the sample period.

Annex I

Practical examples to understand changes by applying different formulas to calculate the -maximum demand- used in the calculation of capacity and distribution charges according to CRE modifications. The analysis shows different users to illustrate differences. Real data has been used.

A. Hotel

HOTEL	
Name	Hotel example SA de CV
Period	from: 30-11-17 to 31-12-17
Rate	
New rate category	GDMTH
Rate division	Centro Sur

Charge per	Unity	April
Distribution	$/kw	205.59
Capacity	$/kw	230.2

Load Factor	0.57
Annual Dmax (kW)	2,154
Monthly Dmax (kW)	2,092
Peak Dmax (kW)	2,092
Monthly Q(kWh)	1,205,603
Billing days	30

DISTRIBUTION

Adjustment	Formula	Distribution Cost
Agreement (A/058/2016)	$Dmax_{annual}$	$442,840.86
Agreement(A/001/2018)	$\min\{Dmax_{annual}, Dmax_{monthly}\}$	$430,094.28
Oficial letter-224	$\min\{Dmax_{annual}, Dmax_{monthly}, \frac{Q\ monthly}{24*d*F.C.}\}$	$430,094.28
Agreement(A/017/2018)	$\min\{Dmax_{monthly}, \frac{Q\ monthly}{24*d*F.C.}\}$	$430,094.28

CAPACITY

Adjustment	Formula	Distribution Cost
Agreement(A/058/2016)	$Dmax_{peak}$	$481,578.40
Agreement(A/001/2018)	$\min\{Dmax_{monthly}, \frac{Q\ monthly}{24*d*F.C.}\}$	$481,578.40
Oficial letter-224	$\min\{Dmax_{monthly}, \frac{Q\ monthly}{24*d*F.C.}\}$	$481,578.40

B.Self-service stores:

SELF-SERVICE STORE		
Name	Self-service store ExampleSA de CV	
Period	from 31-01-18 a 28-02-18	
Tarifa		
New rate category	GDMTH	
Rate division	Valle de México Centro Sur	
Charge per	Unity	April
Distribution	$/kw	58.56
Capacity	$/kw	253.48

Load Factor	0.57
Annual Dmax (kW)	167
Monthly Dmax (kW)	147
Peak Dmax (kW)	147
Monthly Q(kWh)	56,251
Billing days	30

DISTRIBUTION		
Adjustment	Formula	Distribution Cost
Agreement (A/058/2016)	$Dmax_{annual}$	$9,779.52
Agreement(A/001/2018)	$\min\{Dmax_{annual}, Dmax_{monthly}\}$	$8,608.32
Oficial letter-224	$\min\{Dmax_{annual}, Dmax_{monthly}, \frac{Q\ monthly}{24*d*F.C.}\}$	$8,026.46
Agreement(A/017/2018)	$\min\{Dmax_{monthtly}, \frac{Q\ monthly}{24*d*F.C.}\}$	$8,026.46

CAPACITY		
Adjustment	Formula	Distribution Cost
Agreement(A/058/2016)	$Dmax_{peak}$	$37,261.56
Agreement(A/001/2018)	$\min\{Dmax_{monthly}, \frac{Q\ monthly}{24*d*F.C.}\}$	$34,742.94
Oficial letter-224	$\min\{Dmax_{monthly}, \frac{Q\ monthly}{24*d*F.C.}\}$	$34,742.94

C. Mining Company Example SA de CV.

MININ COMPANY	
Name	Mining Company example SA de CV
Period	from: 31-07-17 to 31-08-17
Rate	HS
New rate category	DIST
Rate division	Bajío y Golfo Centro

Charge per	Unity	April
Distribution	$/kw	0
Capacity	$/kw	253.48

Load Factor	0.74
Annual Dmax (kW)	10,393
Monthly Dmax (kW)	6,304
Peak Dmax (kW)	6,304
Monthly Q(kWh)	77,737
Billing days	30

CAPACITY		
Adjustment	Formula	Distribution Cost
Agreement(A/058/2016)	$Dmax_{peak}$	$1,597,937.92
Agreement(A/001/2018)	$\min\{Dmax_{monthly}, \frac{Q\ monthly}{24*d*F.C.}\}$	$36,983.44
Oficial letter-224	$\min\{Dmax_{monthly}, \frac{Q\ monthly}{24*d*F.C.}\}$	$36,983.44

Final note: the adjustments in the formulas to calculate the maximum demand applicable to the distribution and capacity charges help to normalize the demand curve of those users with important demand peaks such as mining companies. The impact of distribution and capacity costs on the billing is smoothed out for the following months.

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