The Hashemite Kingdom of Jordan

TELECOMMUNICATIONS REGULATORY COMMISSION

REGULATORY DECISION
ON
CHARGES FOR MOBILE INTERCONNECTION SERVICES BASED ON TSLRIC+ MODELS

Board of Commissioners Decision No. 8-12/2017 issued on 15/10/2017

1 Introduction

Since 2005, the Telecommunications Regulatory Commission (hereinafter, 'TRC') has shown its motivations to adopt a "*Total Service Long-Run Incremental Cost Plus*" (hereinafter, 'TSLRIC+') as the preferred mechanism for wholesale price setting in the Kingdom.

In September 2009, the TRC published its "*Regulatory decision on the principles to be used in the construction of TSLRIC+ models for the costs of interconnection Services*"[1], which was later followed by the submission of the Hybrid TSLRIC+ models in June 2011. As a result of that process, the TRC published its regulated wholesale charges in the two decisions presented below:

- Regulatory decision on charges for fixed interconnection services based on TSLRIC+ models[2]
- Regulatory decision on charges for mobile interconnection services based on TSLRIC+ models[3]

Having reached the end of the period reflected in the previous regulatory decisions (2014), the TRC decided back in 2015 to start a new wholesale price setting process to update the applicable charges. The industry was informed in early 2016 of the initiation of this process and was welcomed to participate throughout the process at different stages such as:

- Data gathering process
- 1st and 2nd public consultations on the Hybrid TSLRIC+ Models

As part of this process, the TRC has updated its Hybrid TSLRIC+ models on the grounds of the methodology that was established in September 2009 to recognise the latest technological developments that have taken place in the market (e.g. introduction of IMS-IP networks, massive take-up of 3G and 4G services, growth in fixed and mobile data traffic).

Based on the modelling methodology that was laid out in the Decision, the TRC received data from the following mobile network operators:

- Petra Jordanian Mobile Telecommunication Company ("Orange Mobile");
- Umniah Mobile Company ("Umniah");
- Jordan Mobile Telephone Services Company ("Zain").

TRC engaged in extensive consultation with the operators, each being given the opportunity to comment on its own cost model and on the efficient operator variants and further meetings were conducting for this purpose. These models were accompanied by manuals that described their technical algorithms as well as their overall rationale. In finalising the models and using them to establish interconnection charges, the TRC has carefully considered all of the submissions and notes received from the operators in the construction of the TSLRIC+ models during the two

[1] Telecommunications Regulatory Commission "*Regulatory decision on the principles to be used in the construction of TSLRIC+ models for the costs of interconnection Services",* Board of Commissioners Decision No (17-5/2009) issued on 27 September 2009, amended 18 November 2009.
[2] Telecommunications Regulatory Commission "*Regulatory decision on charges for fixed interconnection services based on TSLRIC+ models",* Board of Commissioners Decision No. (3-16/2011) issued on 16 November 2011.
[3] Telecommunications Regulatory Commission "*Regulatory decision on charges for mobile interconnection services based on TSLRIC+ models",* Board of Commissioners Decision No. (3-6/2011) issued on 16 November 2011.

consultation rounds that took place. At each stage the TRC provided operators with a written response to all the comments received.

This Regulatory Decision is issued pursuant to the Telecommunications Law, which empowers the TRC to regulate interconnection and the relevant rates and charges.

2 The TSLRIC+ Models and Implementation

The TRC has followed the TSLRIC+ modelling methodology described in the Decision 17-5/2009. This is a "hybrid" methodology meaning that the models were created through a process of reconciliation and calibration of bottom-up models with operators' internal data.

The TSLRIC+ models have been constructed using the principles set out in the Decision. At each stage, the TRC has worked closely with the industry in constructing the models. In order to maintain commercial confidentiality, the operator-specific models have only been disclosed to the relevant operator, along with the efficient-operator model.

The initial models have been amended by the TRC in light of comments received, and the resulting models have been used to develop the efficient-operator models.

3 Interconnection charges

Interconnection charges for the following services provided by mobile operators are determined by the TRC in this Decision, based on the results from the efficient mobile TSLRIC+ model:

- Call Termination
- Number Translation Traffic Origination (NTTO) / Prepaid Calling Card Access
- National Call Transit
- Carrier Selection/Pre-selection traffic origination service
- Emergency calls
- Customer sited interconnect link – Microwave
- Customer sited interconnect link – Fibre
- Interconnect link extension – per km
- Operator-sited interconnect link
- Collocation and Infrastructure Sharing (for base station collocation)
- Duct and Dark Fibre Sharing
- Directory Enquiries
- Operator Assistance
- Billing and Collection Service
- Wholesale Trunk Segment Service
- Wholesale Terminating Segment Service.

The full set of interconnection charges for mobile services determined by the TRC in this Decision is shown in Annex A.

The Interconnection charges set out in this Decision shall apply from the 1st of January 2018.

4 Implementing LRIC-based Interconnection Charges

TRC Decision 17-5/2009 established the guidelines on how the TSLRIC+ models would be used by the TRC to set charges for regulated interconnection services. These guidelines were not exhaustive and left open the possibility that the TRC may consider other factors that are relevant at the time of each Regulatory Decision

The TRC has determined that the final mobile interconnection costs calculated by the models for the 2018-2021 period are sufficiently close together, given the uncertainty about future market growth, cost changes and other factors, that one set of charges can be implemented. This set of charges is based on the outcomes of the efficient operator model. That is, the TRC has determined to set symmetric charges on all operators for the 2018-2021 period.

The approach adopted by the TRC when setting the new regulated charges is described below:

1. When the new charges were considered to be close to the previous ones and/or the regulated services under consideration were not material under the current market situation, a fixed charge has been set for the 2018-2021 period, which is extracted as the average of the efficient operator model's results for that period.
2. When the new charges were considered not to be close to the previous ones and the regulated services under consideration were material under the current market situation, a glide path has been defined so as to smooth the impact on the market of this Decision.
3. In the case that the market review situation or the regulation justifies it, TRC may make a revision of rates when needed.

Annex A- Interconnection charges for mobile services

National Call Termination

Rate per minute (fils)	2018	2019	2020	2021
Blended	11.6	8.4	5.2	2.0

Number Translation Traffic Origination (NTTO) / Prepaid Calling Card Access

Rate per minute (fils)	2018	2019	2020	2021
Blended	2.1	2.1	2.1	2.1

National Call Transit

Rate per minute (fils)	2018	2019	2020	2021
Blended	0.4	0.4	0.4	0.4

Carrier Selection / Pre-selection traffic origination service

	2018	2019	2020	2021
Selection rate per minute (fils)	2.1	2.1	2.1	2.1
Pre- Selection rate per minute (fils)	2.3	2.3	2.3	2.3
Installation/ CAC setup (JD)	4.5	4.5	4.5	4.5

Emergency calls

Rate per minute (fils)	2018	2019	2020	2021
Blended	0.9	0.9	0.9	0.9

Customer sited interconnect link – Microwave

JD per E1 per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	4.1	4.1	4.1	4.1

JD per 16E1 per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	6.8	6.8	6.8	6.8

JD per 48E1 per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	29.2	29.2	29.2	29.2

JD per STM-1 per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	49.3	49.3	49.3	49.3

JD per STM-4 per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	65.7	65.7	65.7	65.7

JD per STM-16 per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	87.5	87.5	87.5	87.5

JD per STM-64 per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	143.6	143.6	143.6	143.6

JD per Fast Ethernet link per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	11.4	11.4	11.4	11.4

JD per Gigabit Ethernet link per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	13.3	13.3	13.3	13.3

JD per 10 Giga Ethernet link per hop	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	23.2	23.2	23.2	23.2

The charges for Trunk Segment and Terminating Segment Services will be applicable for the links installation and rental charges.

Customer sited interconnect link – Fibre

JD per E1	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	4.1	4.1	4.1	4.1

JD per E3	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	6.8	6.8	6.8	6.8

JD per DS3	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	10.4	10.4	10.4	10.4

JD per STM-1	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	49.3	49.3	49.3	49.3

JD per STM-4	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	65.7	65.7	65.7	65.7

JD per STM-16	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	87.5	87.5	87.5	87.5

JD per STM-64	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	143.6	143.6	143.6	143.6

JD per Fast Ethernet link	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	11.4	11.4	11.4	11.4

JD per Gigabit Ethernet link	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	13.3	13.3	13.3	13.3

JD per 10 Giga Ethernet link	2018	2019	2020	2021
Port installation	6.8	6.8	6.8	6.8
Monthly rental (port)	23.2	23.2	23.2	23.2

The charges for Trunk Segment and Terminating Segment Services will be applicable for the links installation and rental charges.

Interconnect link extension - per km

The charges for Trunk Segment and Terminating Segment Services will be applicable for the installation and rental charges.

Operator-sited interconnect link

The charges for Trunk Segment and Terminating Segment Services will be applicable for the installation and rental charges.

Collocation and Infrastructure Sharing

JD per month	2018	2019	2020	2021
Outdoor space (Average space of 5 m²)/ Rental per 3 antennas of the tower per m2	397.2	397.2	397.2	397.2
Power supply/ 1 Amp	49.7	49.7	49.7	49.7
Indoor space (Average space of 3 m²)/ Rental per m2	307.4	307.4	307.4	307.4
Sharing of space in towers	184.2	184.2	184.2	184.2

Duct and Dark Fibre sharing

JD/metre	2018	2019	2020	2021
Installation	0.6	0.6	0.6	0.6
1 pair of dark fibre monthly rental / 1 metre	0.3	0.3	0.3	0.3
Duct monthly rental / 1 metre	0.2	0.2	0.2	0.2

National Directory Enquiries

Rate per minute (fils)	2018	2019	2020	2021
Blended	32.3	32.3	32.3	32.3

Operator Assistance (including Call Connection Services)

Rate per minute (fils)	2018	2019	2020	2021
Blended	32.3	32.3	32.3	32.3

Billing and Collection Service

Billing (JD/bill)	2018	2019	2020	2021
Billing and collection	0.9	0.9	0.9	0.9

Wholesale Trunk Segment Service

	2018	2019	2020	2021
Installation charges (JD)				
Trunk Segment of Leased Line	394.8	394.8	394.8	394.8
Rental charges (JD/month)				
Z0 (from 0 up to 16 km) - 64kbps	0.6	0.6	0.6	0.6
Z0 (from 0 up to 16 km) - 128kbps	0.9	0.9	0.9	0.9
Z0 (from 0 up to 16 km) - 256kbps	1.7	1.7	1.7	1.7
Z0 (from 0 up to 16 km) - 512kbps	3.1	3.1	3.1	3.1
Z0 (from 0 up to 16 km) - 1024kbps	6.0	6.0	6.0	6.0
Z0 (from 0 up to 16 km) - E1	11.8	11.8	11.8	11.8
Z0 (from 0 up to 16 km) - E3	91.7	91.7	91.7	91.7
Z0 (from 0 up to 16 km) - DS3	118.6	118.6	118.6	118.6
Z0 (from 0 up to 16 km) - STM1	439.0	439.0	439.0	439.0
Z0 (from 0 up to 16 km) - STM4	1,508.6	1,508.6	1,508.6	1,508.6
Z0 (from 0 up to 16 km) - STM16	5,682.9	5,682.9	5,682.9	5,682.9
Z0 (from 0 up to 16 km) - Fast Ethernet	259.8	259.8	259.8	259.8
Z0 (from 0 up to 16 km) - Gigabit Ethernet	2,440.4	2,440.4	2,440.4	2,440.4
Z0 (from 0 up to 16 km) – 10 Giga Ethernet	24,390.3	24,390.3	24,390.3	24,390.3
Z1 (from 16 up to 40 km) - 64kbps	1.5	1.5	1.5	1.5
Z1 (from 16 up to 40 km) - 128kbps	2.5	2.5	2.5	2.5
Z1 (from 16 up to 40 km) - 256kbps	4.4	4.4	4.4	4.4
Z1 (from 16 up to 40 km) - 512kbps	8.2	8.2	8.2	8.2
Z1 (from 16 up to 40 km) - 1024kbps	15.8	15.8	15.8	15.8

	2018	2019	2020	2021
Z1 (from 16 up to 40 km) - E1	31.0	31.0	31.0	31.0
Z1 (from 16 up to 40 km) - E3	240.5	240.5	240.5	240.5
Z1 (from 16 up to 40 km) - DS3	311.1	311.1	311.1	311.1
Z1 (from 16 up to 40 km) - STM1	1,151.8	1,151.8	1,151.8	1,151.8
Z1 (from 16 up to 40 km) - STM4	3,958.3	3,958.3	3,958.3	3,958.3
Z1 (from 16 up to 40 km) - STM16	14,910.9	14,910.9	14,910.9	14,910.9
Z1 (from 16 up to 40 km) - Fast Ethernet	681.8	681.8	681.8	681.8
Z1 (from 16 up to 40 km) – Gigabit Ethernet	6,403.2	6,403.2	6,403.2	6,403.2
Z1 (from 16 up to 40 km) – 10 Giga Ethernet	63,995.5	63,995.5	63,995.5	63,995.5
Z2 (from 40 up to 80 km) - 64kbps	4.0	4.0	4.0	4.0
Z2 (from 40 up to 80 km) - 128kbps	6.5	6.5	6.5	6.5
Z2 (from 40 up to 80 km) - 256kbps	11.6	11.6	11.6	11.6
Z2 (from 40 up to 80 km) - 512kbps	21.7	21.7	21.7	21.7
Z2 (from 40 up to 80 km) - 1024kbps	41.9	41.9	41.9	41.9
Z2 (from 40 up to 80 km) - E1	82.3	82.3	82.3	82.3
Z2 (from 40 up to 80 km) - E3	637.5	637.5	637.5	637.5
Z2 (from 40 up to 80 km) - DS3	824.5	824.5	824.5	824.5
Z2 (from 40 up to 80 km) - STM1	3,052.6	3,052.6	3,052.6	3,052.6
Z2 (from 40 up to 80 km) - STM4	10,490.8	10,490.8	10,490.8	10,490.8
Z2 (from 40 up to 80 km) - STM16	39,518.8	39,518.8	39,518.8	39,518.8
Z2 (from 40 up to 80 km) - Fast Ethernet	1,806.9	1,806.9	1,806.9	1,806.9
Z2 (from 40 up to 80 km) – Gigabit Ethernet	16,970.6	16,970.6	16,970.6	16,970.6
Z2 (from 40 up to 80 km) – 10 Giga Ethernet	169,609.7	169,609.7	169,609.7	169,609.7
Z3 (from 80 up to 150 km) - 64kbps	8.3	8.3	8.3	8.3
Z3 (from 80 up to 150 km) - 128kbps	13.5	13.5	13.5	13.5
Z3 (from 80 up to 150 km) - 256kbps	24.0	24.0	24.0	24.0
Z3 (from 80 up to 150 km) - 512kbps	44.9	44.9	44.9	44.9
Z3 (from 80 up to 150 km) - 1024kbps	86.7	86.7	86.7	86.7
Z3 (from 80 up to 150 km) - E1	170.4	170.4	170.4	170.4
Z3 (from 80 up to 150 km) - E3	1,319.7	1,319.7	1,319.7	1,319.7
Z3 (from 80 up to 150 km) - DS3	1,707.0	1,707.0	1,707.0	1,707.0
Z3 (from 80 up to 150 km) - STM1	6,319.5	6,319.5	6,319.5	6,319.5
Z3 (from 80 up to 150 km) - STM4	21,718.5	21,718.5	21,718.5	21,718.5
Z3 (from 80 up to 150 km) - STM16	81,813.6	81,813.6	81,813.6	81,813.6
Z3 (from 80 up to 150 km) - Fast Ethernet	3,740.7	3,740.7	3,740.7	3,740.7
Z3 (from 80 up to 150 km) - Gigabit Ethernet	35,133.3	35,133.3	35,133.3	35,133.3
Z3 (from 80 up to 150 km) – 10 Giga Ethernet	351,133.9	351,133.9	351,133.9	351,133.9
Z4 (more than 150 km) - 64kbps	14.9	14.9	14.9	14.9
Z4 (more than 150 km) - 128kbps	24.3	24.3	24.3	24.3
Z4 (more than 150 km) - 256kbps	43.1	43.1	43.1	43.1
Z4 (more than 150 km) - 512kbps	80.8	80.8	80.8	80.8
Z4 (more than 150 km) - 1024kbps	156.0	156.0	156.0	156.0
Z4 (more than 150 km) - E1	306.5	306.5	306.5	306.5
Z4 (more than 150 km) - E3	2,374.1	2,374.1	2,374.1	2,374.1
Z4 (more than 150 km) - DS3	3,070.8	3,070.8	3,070.8	3,070.8
Z4 (more than 150 km) - STM1	11,368.5	11,368.5	11,368.5	11,368.5
Z4 (more than 150 km) - STM4	39,070.5	39,070.5	39,070.5	39,070.5
Z4 (more than 150 km) - STM16	147,178.4	147,178.4	147,178.4	147,178.4
Z4 (more than 150 km) - Fast Ethernet	6,729.4	6,729.4	6,729.4	6,729.4
Z4 (more than 150 km) - Gigabit Ethernet	63,203.0	63,203.0	63,203.0	63,203.0
Z4 (more than 150 km) – 10 Giga Ethernet	631,671.4	631,671.4	631,671.4	631,671.4

Wholesale Terminating Segment Service

	2018	2019	2020	2021
Installation charges (JD)				
Terminating Segment of Leased Line	43.2	43.2	43.2	43.2

	2018	2019	2020	2021
Rental charges per link (from 0 up to 3 km) (JD/month)				
64kbps	18.7	18.7	18.7	18.7
128kbps	19.6	19.6	19.6	19.6
256kbps	21.2	21.2	21.2	21.2
512kbps	24.5	24.5	24.5	24.5
1024kbps	31.1	31.1	31.1	31.1
E1	44.2	44.2	44.2	44.2
E3	590.1	590.1	590.1	590.1
DS3	627.1	627.1	627.1	627.1
STM1	1,093.2	1,093.2	1,093.2	1,093.2
STM4	2,349.3	2,349.3	2,349.3	2,349.3
STM16	7,106.7	7,106.7	7,106.7	7,106.7
Fast Ethernet	815.6	815.6	815.6	815.6
Gigabit Ethernet	3,156.0	3,156.0	3,156.0	3,156.0
10 Giga Ethernet	26,919.1	26,919.1	26,919.1	26,919.1
Rental charges per km (> 3 km) (JD/month)				
64kbps	6.2	6.2	6.2	6.2
128kbps	6.5	6.5	6.5	6.5
256kbps	7.1	7.1	7.1	7.1
512kbps	8.2	8.2	8.2	8.2
1024kbps	10.4	10.4	10.4	10.4
E1	14.7	14.7	14.7	14.7
E3	196.7	196.7	196.7	196.7
DS3	209.0	209.0	209.0	209.0
STM1	364.4	364.4	364.4	364.4
STM4	783.1	783.1	783.1	783.1
STM16	2,368.9	2,368.9	2,368.9	2,368.9
Fast Ethernet	271.9	271.9	271.9	271.9
Gigabit Ethernet	1,052.0	1,052.0	1,052.0	1,052.0
10 Giga Ethernet	8,973.0	8,973.0	8,973.0	8,973.0