

Economics of Spectrum Management including Spectrum Pricing



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**Regional Seminar for
Europe and CIS**

ALBANIA

experience

Institutional developments

- ❖ The electronic communication sector in Albania is fully liberalized and is regulated by Law No 9918 dated 19.5.2008 “On the electronic communications in the Republic of Albania” (amended). This law is full in line with EU directives of 2002 and 2009 package on electronic communications.
- ❖ Over the last years the alignment of the national regulatory framework for electronic communications has undergone rapid growth. Competition in electronic communications market has increased as a result of the government's policies and regulatory measures through regulating termination tariffs, implementation of mobile and fixed number portability, granting rights to use free frequencies from 900/1800/2100/2600 MHz bands, removing technology restriction etc.
- ❖ AKEP is the regulator body for electronic communication market. For broadcasting it is another authority responsible for.

Radio Frequency

- ❖ NRF Plan Approved by Government on March 2017
 - In line with ECA TABLE of June 2016
 - Update implemented WRC-15
- ❖ Usage Plan approved by the Authority
 - Update foreseen till December 2017

(no spectrum trading)

Frequencies usage rights

- ❖ Granting Authorizations on “first come first serve” bases when the frequencies are not limited,

else
- ❖ Based on a tender procedure defined by the law for Electronic Communications and government decisions.
- ❖ Renewal procedures defined by EC Law and Gov. decisions

Spectrum payments acts

- ❖ Law on electronic communications.
- ❖ Gov. decision on payments for allocation (administrative cost) and usage of frequencies
- ❖ Gov. decisions for public tender procedure on granting usage rights.
- ❖ Gov. decisions for payment by installments.
- ❖ Gov. decisions for procedure of renewal.
- ❖ The finance ministry's guidance on the radio communication tariff (defined by the law on tariffs in Albania).

Payments

- ❖ Payments for frequencies granted by tender procedure:
 - up to a year before was “one time fee” and instantaneous.
 - From a year before payments for frequencies granted by tender procedure could be done also by installments (after approval by minister) but within a year.
 - This payments goes for the government’s budget.

Payments

- ❖ Payments for AKEP (authority),
and
 - ❖ Radio communication tariff (gov. budget)
- are annual fees.
- ❖ For the frequencies won by the tender, even though the amount value offered was paid, the annual fees will continue for the entire duration of the authorization period for frequencies granted. (ex. 15 years)

Tariff calculation

- ❖ Calculation of Tariff is based on two main parameters:
 - frequency band used
 - type of application (services)

Variables used

B=bandwidth

f= frequency (position on spectrum)

C= transmission capacity

D=link distance

Vt=validity period

Pr=priority in NRF (primary/secondary)

Ntx / Nrx=number of stations

N=population for authorized zone

R=coverage

P=transmission power

n=number of channels

Sc=configuration of system

L=location

Formula

$$P_t = B \cdot f \cdot E \cdot N_{tx} \cdot R \cdot P \cdot V_t \cdot \dots \text{ (points)}$$

K = coefficient (money/points)

$$\text{Value} = P_t \cdot K$$

For high transmission capacities applies a lower coefficient
(encouraging new technologies)

Minimum bid price

❖ Based on:

- Public consultation (euro/MHz/pop).
- European benchmark.
- Value tendered in European countries compared with Albania.
- Our experience in previous tenders.
- Value ratio between different bands.
- Studies from well-known companies on spectrum values.

Tender evaluation

- ❖ Evaluation of offers by points:
 - 90 % of points is price offered per usage rights.
 - 10 % coverage (ex. 35% of geo areas in 6 month, 65 % in a year and 85 % in 18 months, depend by systems GSM,UMTS, LTE etc.)

Bids evaluation

- ❖ By rounds:
 - number of rounds is defined based on the maximum spectrum to be issued by this procedure and the maximum spectrum to be issued for each bidder.
 - bidders could bid for each round or for any certain round they want.
 - for each round is set a maximum usage rights that bidders could bid.
 - each bid should be evaluated only if it matches the requirement for minimum price for usage rights and if any other requirement is applied.
 - for each round bidders are ranked by points.

Factors that affect the value of the spectrum

- ❖ based on our experience the main factors that affect the value of spectrum are:
 - The amount of spectrum to be issued.
 - Characteristics of spectrum (by app.)
 - Competition (number of interest parties).
 - Market share.
 - The time when they will be given.
 - Method of granting selected.
 - Technologies.
 - Coverage conditions.
 - Usage conditions.
 - Annual payments.
 - GDP.
 - Population etc...

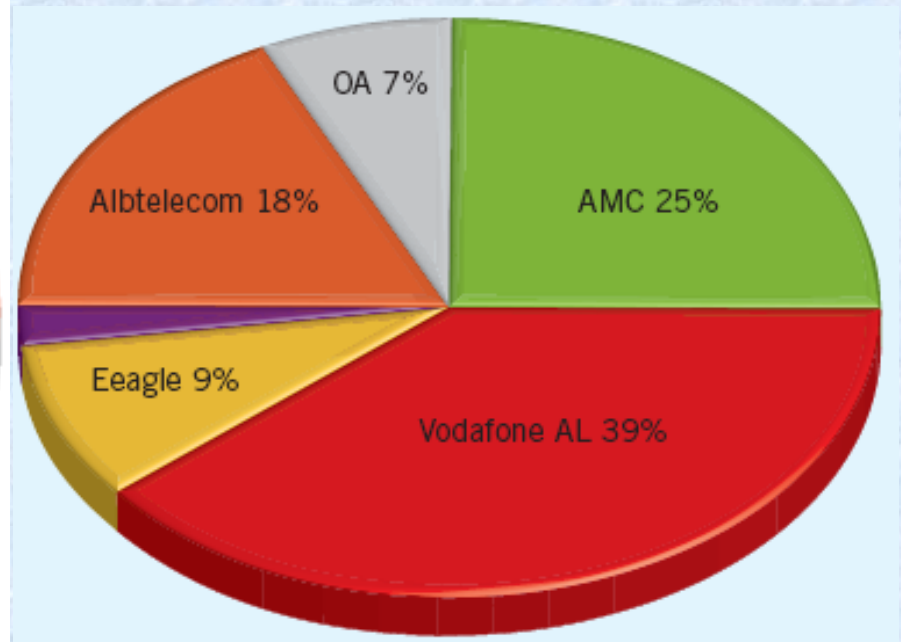
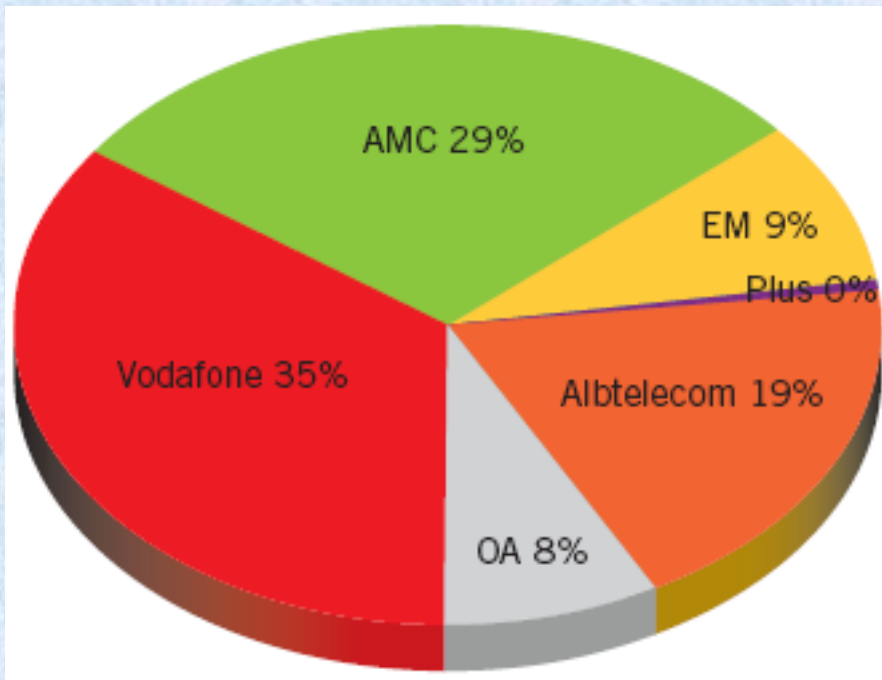
Examples

❖ UMTS albanian experience:

- public consultation for:
 - way of granting usage rights (four at same time or one by one in different times – years)
 - price per usage right.

Granted one license and collected 30 million euros.

Effect in market share



Vodafone grew by 4 %

Effect in value

- ❖ second authorization granted a year later and collected 14 million euro (no any significant effect in market share).
- ❖ third authorization granted two years later and collected 4 million euro.
- ❖ fourth authorization granted four years later and collected 3 million euro.
- ❖ if they were granted at the same time ,would have been collected 40 million euro.

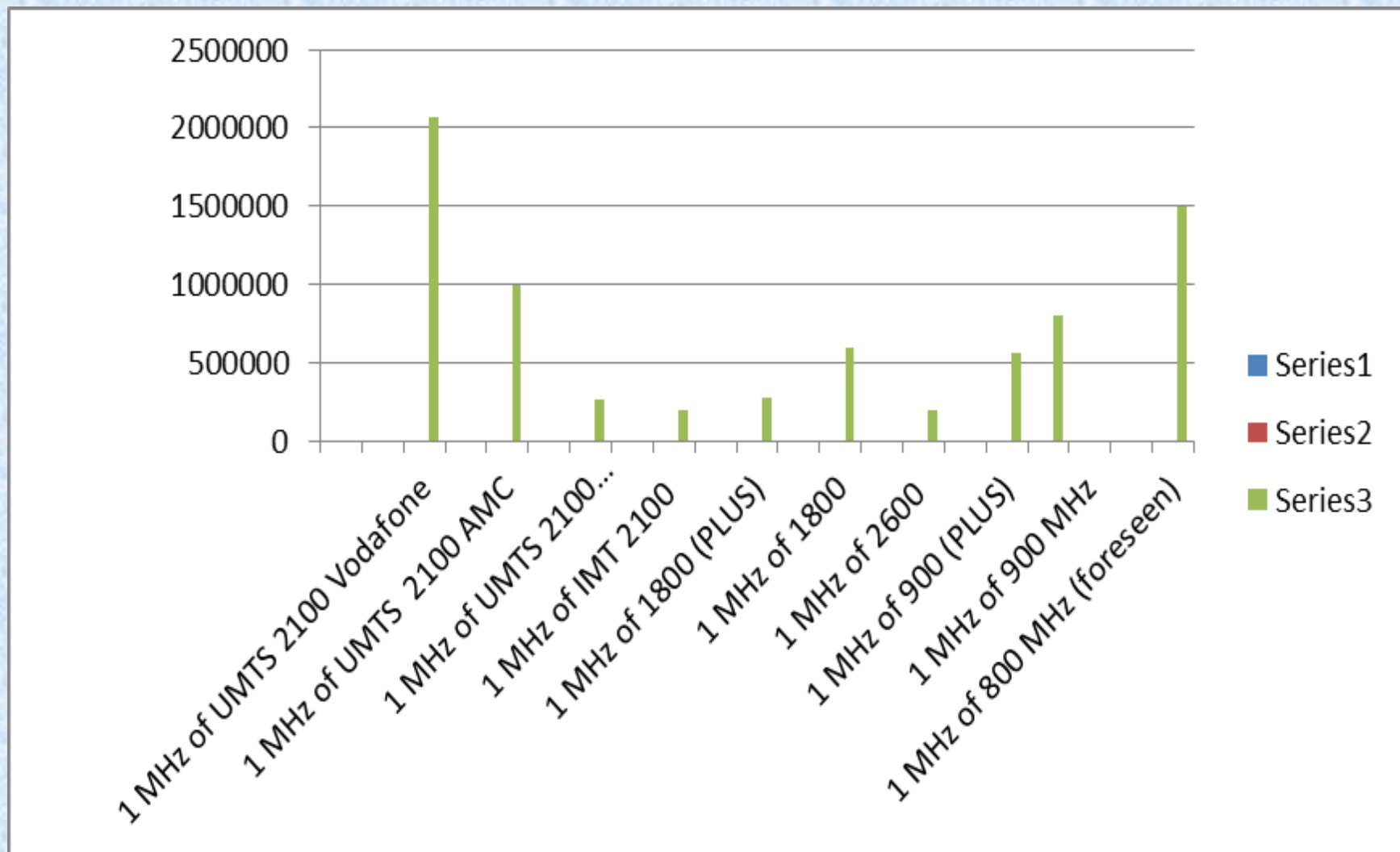
[1800 MHz experience]

- ❖ granting spectrum free in 1800 MHz
- ❖ usage rights granted at same time.
- ❖ collected maximum value compared with other procedures before because of:
 - possibilities for implementing LTE systems (and the risk for influencing market share).
 - applied open procedure
 - limited spectrum owned before the tender (9 MHz - GSM only)

Price per MHz / band

MHz/ Band	Price/MHz
1 MHz of UMTS 2100 Vodafone	2.066.666
1 MHz of UMTS 2100 AMC	1.000.000
1 MHz of UMTS 2100 Albtelecom	266.666
1 MHz of IMT 2100	200.000
1 MHz of 1800 (PLUS)	277.700
1 MHz of 1800	600.000
1 MHz of 2600	200.000
1 MHz of 900 (PLUS)	562.500
1 MHz of 900 MHz	800.000
1 MHz of 800 MHz (foreseen)	1.500.000

Difference between bands



Differences in value

- ❖ difference in value for 900/1800 MHz band, 2100 MHz
 - in case of reserved only for new incomers and
 - in case of open procedure.
 - In case of granting in different times.

Renewal

❖ defined by gov. decision

➤ procedure:

- evaluation report of authority based on the same factors mentioned before.
- same period of validity (15 years).
- negotiations with the owner.
- last GSM license with same spectrum collect 7 million euro while renewal collect 12 million.

Removing restrictions on technologies and services



Gov. decision

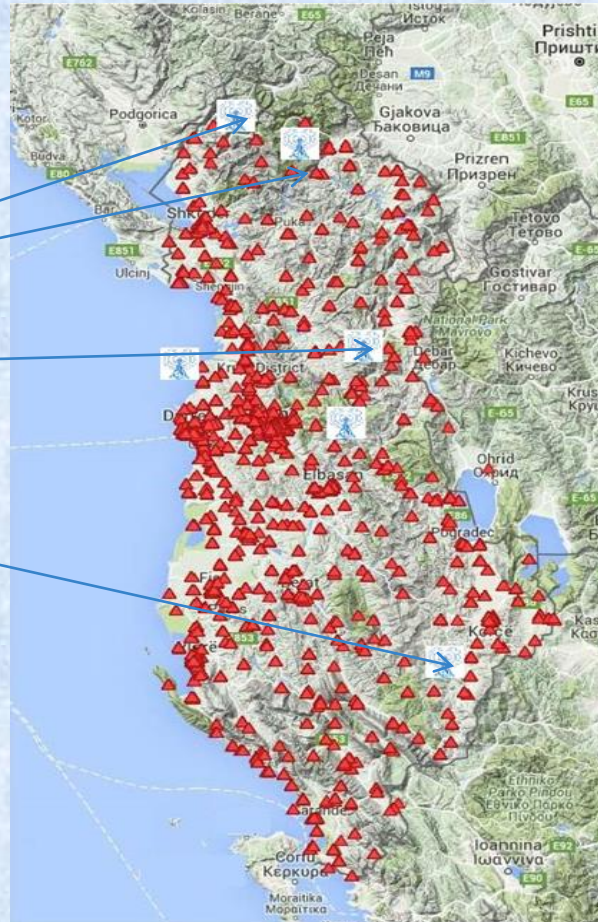
- Removing restriction on technologies without fees.
- Setting conditions to coverage with broadband services rural areas and improving better QoS.
- Reorganizing (reshuffling) of spectrum granted in different times and different parts mainly in 1800 MHz band. More effective, and uniform.

Conditions in authorizations

- ❖ investment in areas like:
 - Touristic
 - Historic
 - Low density of pop.
 - Rural
 - Tunnels
 - National parks
 - Included in strategic developments
- ❖ agreement between operators for co-investment in 6 areas.
- ❖ all investments should be done in two years (approximately 10 million euro).

Co-investment

- Co-investment of **Albtelecom, Telekom and Vodafone** in areas:



Stations with co-investment

Effects to the customer

- ❖ Increased usage of broadband access by 3G / 4G mobile networks.
- ❖ Increased the volume of data transmitted on mobile networks. In 2014, the annual growth of data traffic in mobile networks was 148%, and this trend continues in 2015 and 2016, with annual growth of 103% and 110% respectively.
- ❖ In the period 2013-2016, the volume of Internet access data in mobile networks has increased more than 10 times.

Challenges

- ❖ Making available for broadband mobile services 694-790 MHz band by 2020.
- ❖ Granting the 800 MHz band for broadband mobile services.
- ❖ Preparation of the spectrum management strategy 2020-2030.
- ❖ Planning in the same line with other European countries to implement the services of the next generation, 5G.

Thank you

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