



*ITU Cross Regional Seminar on Broadband  
Access (Fixed, Wireless including Mobile) for  
CIS, ASP and EUR Regions*

## **Session 6**

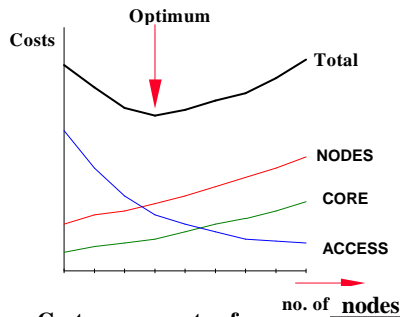
# **Economic Impact of BWA Implementation**

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ITU Consultant, Bulgaria*

### **Content of the presentation :**

- ❖ **Economic impact of BWA implementation**
- ❖ **Problem 1 – Economic Selection of BWA Technology:**
  - **Example I – BA in urban area**
  - **Example II – BA in urban area**
  - **Example III – Segmented by technology BA**
- ❖ **Problem 2 – Economic impact of BWA in Rural areas:**
  - **Bulgaria rural area – WBA network**
  - **Tajikistan rural area – WBA network**
  - **Georgia rural area – BWA network**
  - **Moldova rural area - BB access network**

## Economic impact of telecom network



Cost components of telecom network

Fusibility studies – Profits and Expenses

### CAPEX

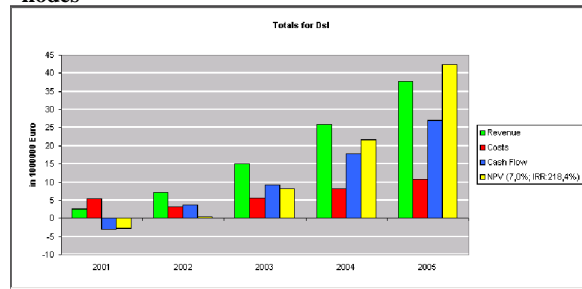
➤ Acquisition

➤ Installation

### OPEX

➤ Maintenance

Overall economic results – Revenues, Cost, Cash-flow and Net Present Value



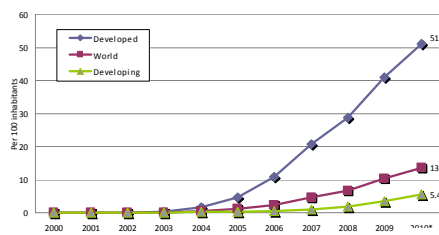
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## BWA implementation – rural areas

Mobile broadband subscriptions per 100 inhabitants, 2000-2010\*

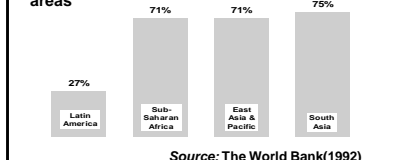


### Rural areas telecom case :

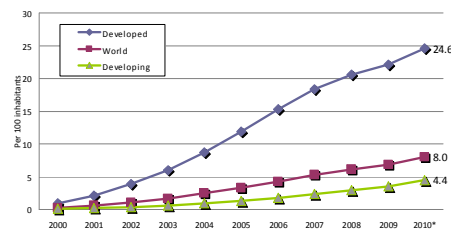
➤ usually not interesting from business point of view

➤ telecom development should be supported by government

Percentage of the population living in rural areas



Fixed broadband subscriptions per 100 inhabitants, 2000-2010\*



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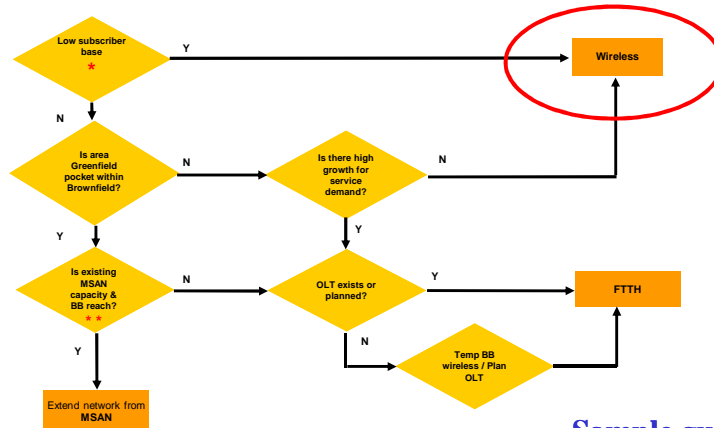
## Problem 1 – Economic Selection of BWA Technology

**Aim is to investigate the techno-economical impact of BWA compared to other broadband access technologies**

**Multiple techno-economical studies are carrier out for the purpose to determine the optimum access technology for the network**

**Selection is done by comparison of the economical parameters for each access technology**

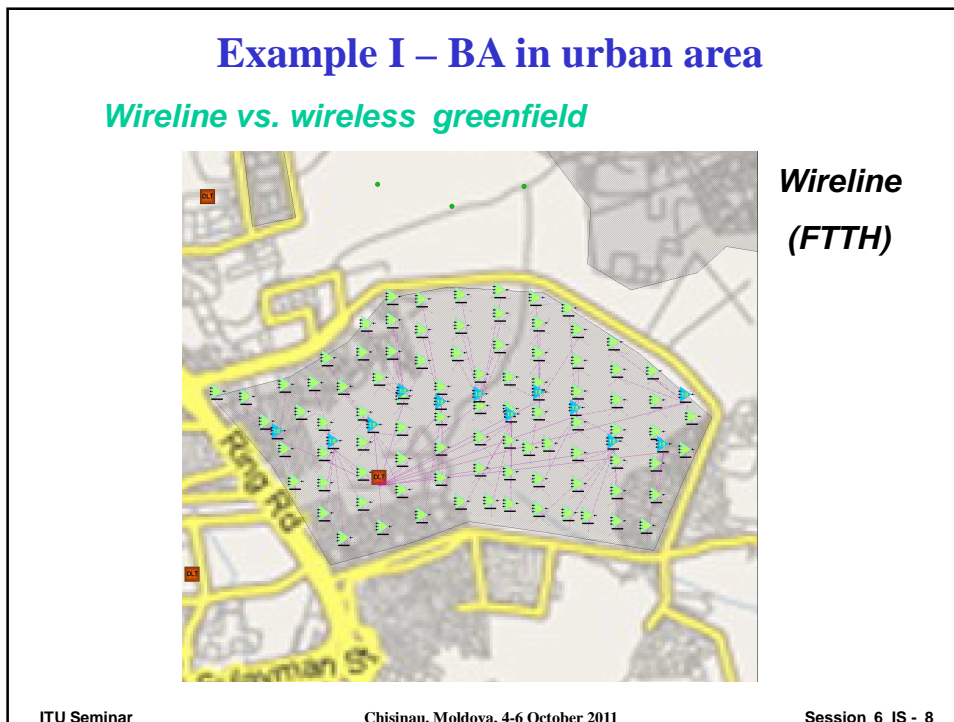
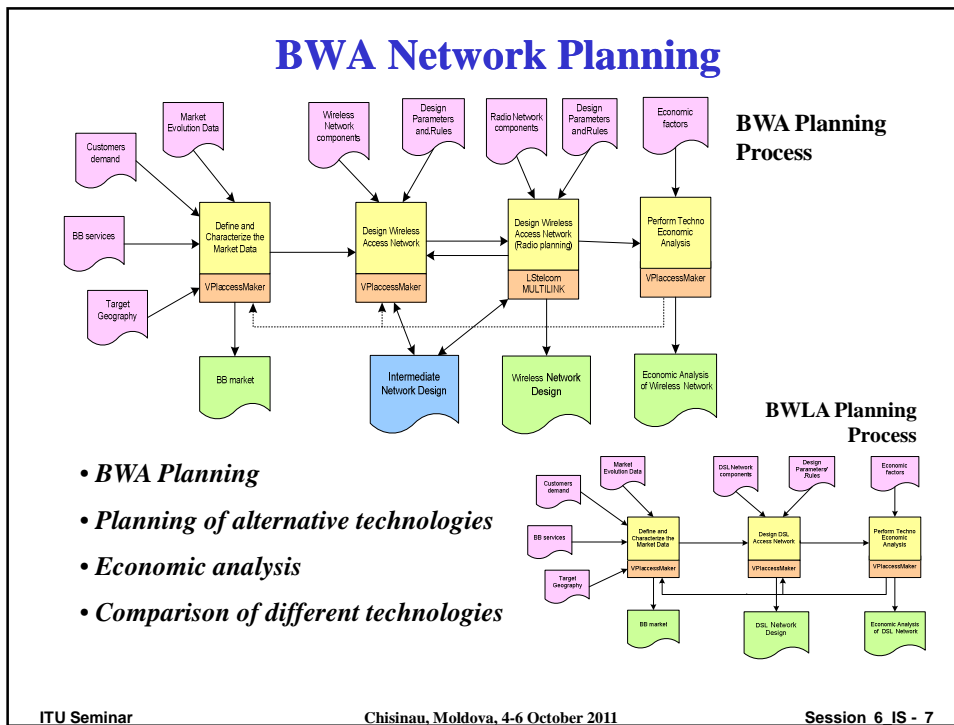
## Planning guidelines for BWA technology



**Sample guidelines**

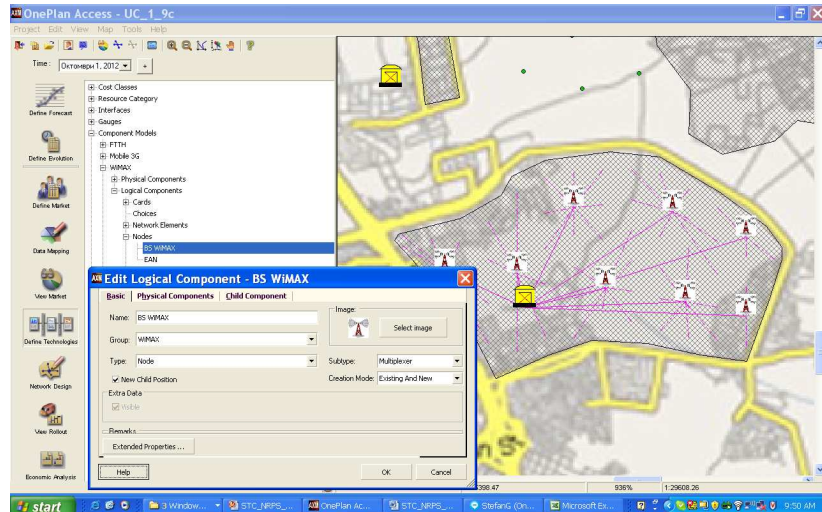
*BB Access Network Planning  
Guidelines*

Source : STC



## Example I – BA in urban area

### Wireless (WiMAX)



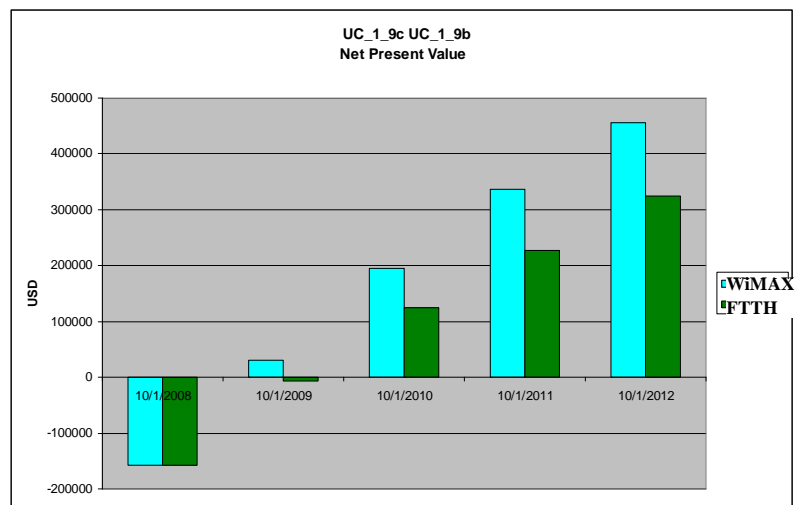
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## Example I – Economic results

### FTTH vs. WiMAX Greenfield

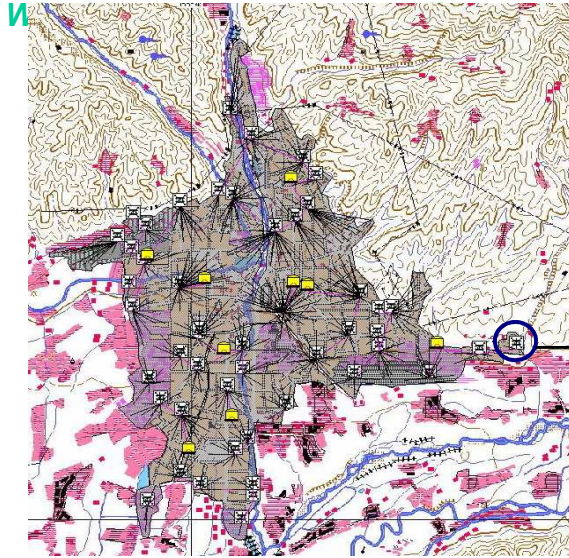


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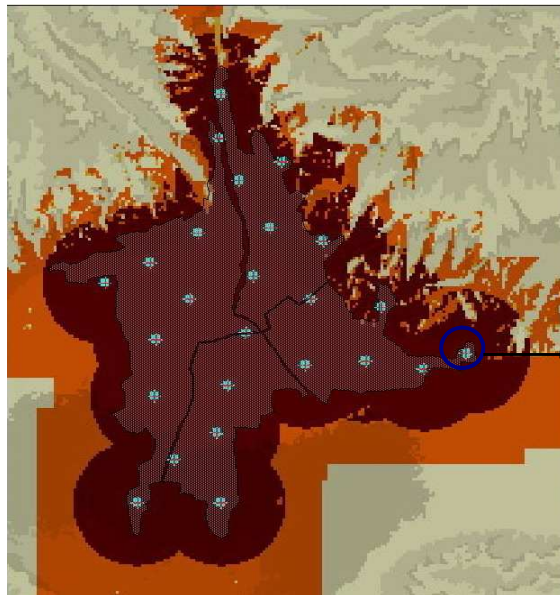
## Example II – BA in big city



**Wireline  
Solution**

MSAN

## Example II – BA in big city

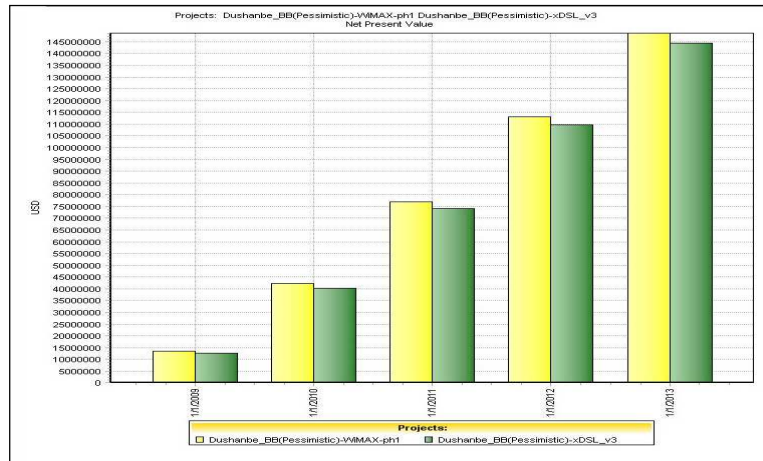


**Wireless  
solution**

BS

## Example II– Economic results

### xDSL vs. WiMAX Brownfield



WiMAX  
FTTH

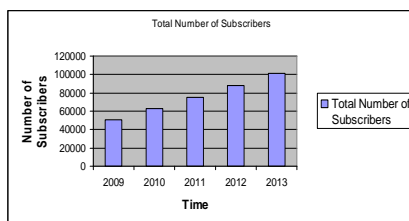
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## Example III – Segmented by technology BA

### ➤ Pessimistic scenario (20%)

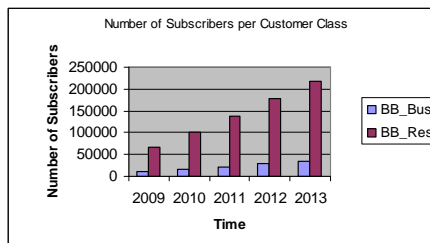


#### Estimated market segment

year	xDSL	WiMAX	FTTB	LAN+CATV
2009	67.4%	0.1%	17.4%	15.1%
2009	50916	76	13144	11407
2013	70%	2%	23%	5%
2013	101238	2893	33264	7231
Difference	50322	2817	20119	-4176

### ➤ Optimistic scenario (35%)

Estimated market segment				
year	xDSL	WiMAX	FTTB	LAN+CATV
2009	67.4%	0.1%	17.4%	15.1%
2009	50916	76	13144	11407
2013	70%	2%	23%	5%
2013	177167	5062	58212	12655
Difference	126251	4986	45064	1248

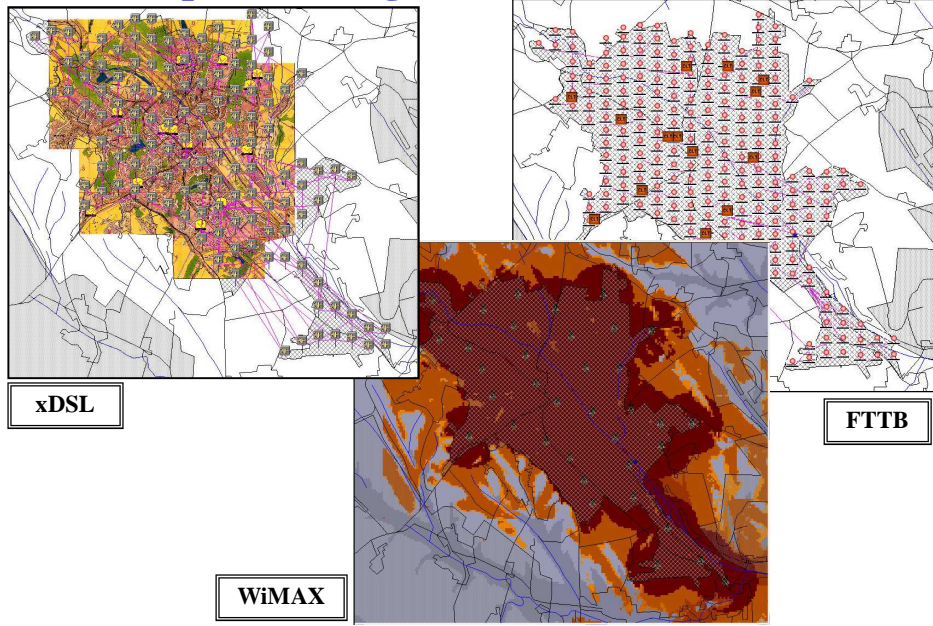


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### Example III – Segmented by technology BA

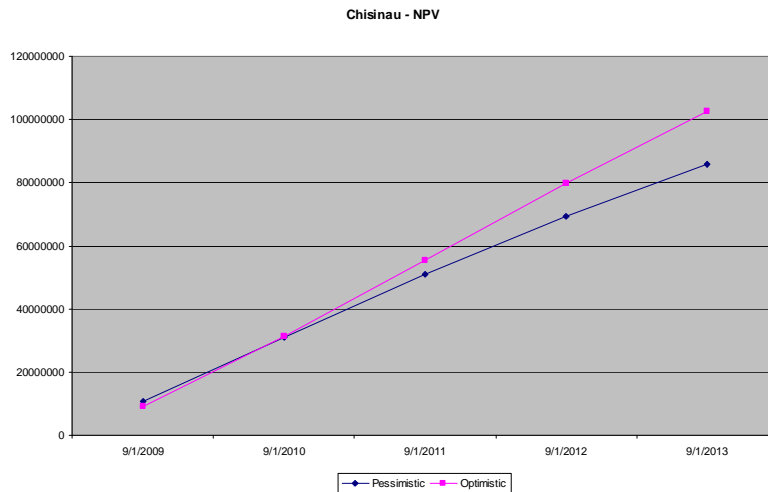


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### Example III – Economic results



Results for NPV : xDSL+ WiMAX + FTTB

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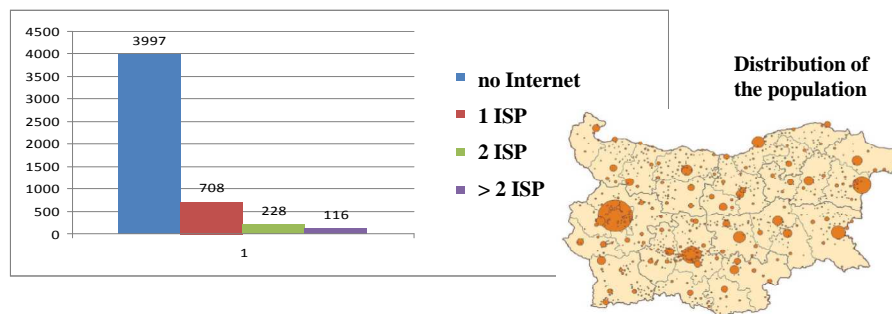
## Problem II – Economic impact of BWA in Rural areas

**Broadband improves standard of live in rural areas with the large number of services offered to the inhabitants**

**Economic analysis based on planning of rural broadband access completed with feasibility studies could facilitate taking of administrative decisions and implementing of regulatory policies even if economically the broadband implementation is not justified**

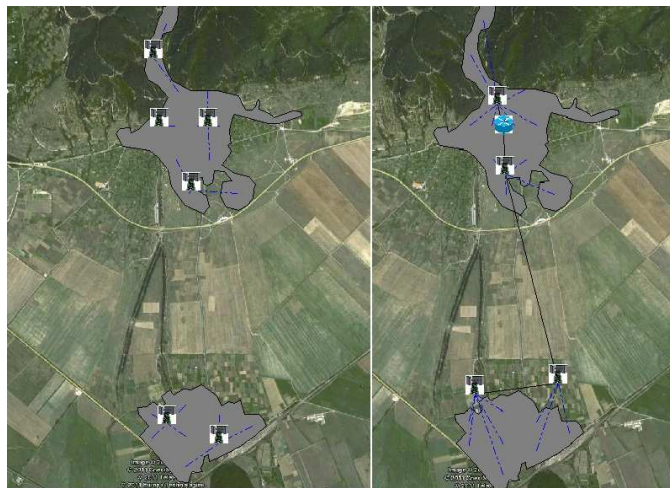
## Broadband in rural areas - Bulgaria

**Number of villages in Bulgaria without Internet service provider, with 1, 2, more than 2 ISP :**



**Usually in the capital and in the big cities broadband penetration is higher than in the rural areas, especially in remote, mountainous and border regions**

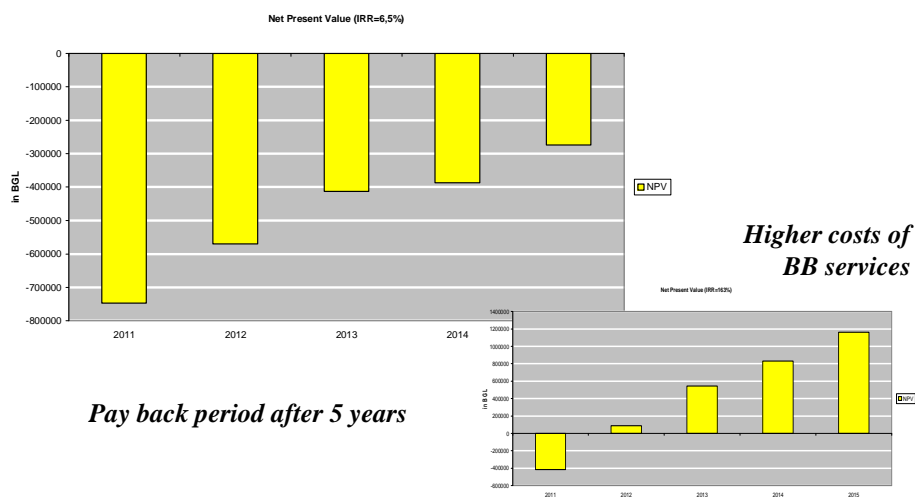
## Bulgaria rural area – WBA network



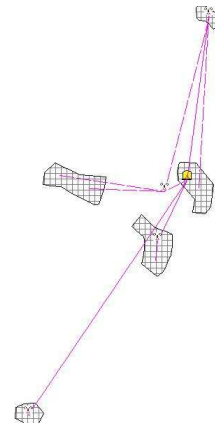
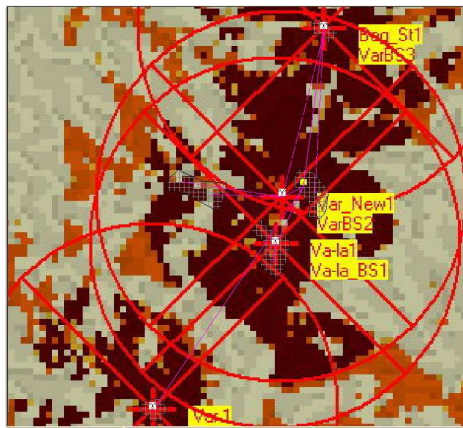
Scenario 1 ( 6 BS)

Scenario 2 ( 4 BS)

## Bulgaria rural area – Feasibility studies

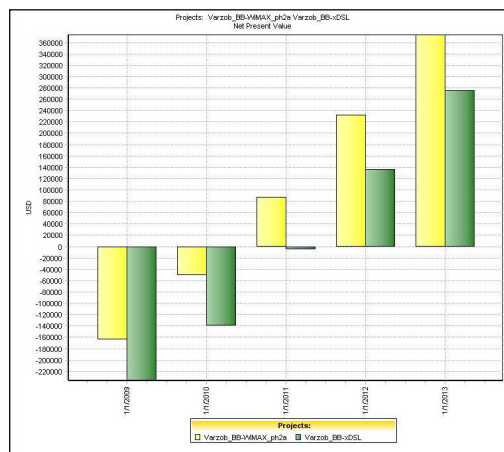


## Tajikistan rural area – WBA network



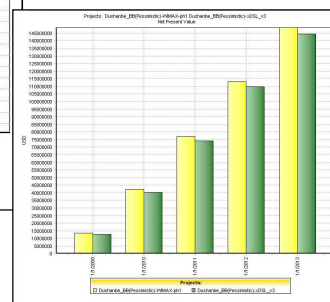
Results for wireless ( 3 BS - WiMAX )

## Tajikistan rural area – Feasibility studies

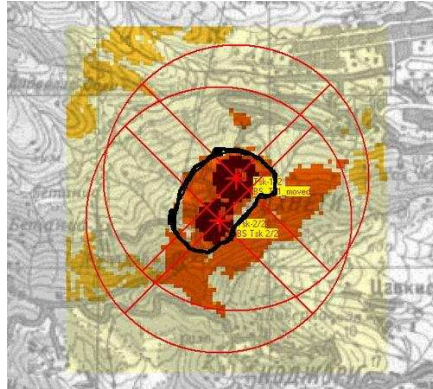


Pay back period 3-4 years

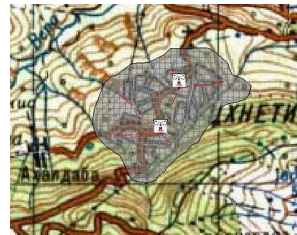
Feasibility study  
for the Capital



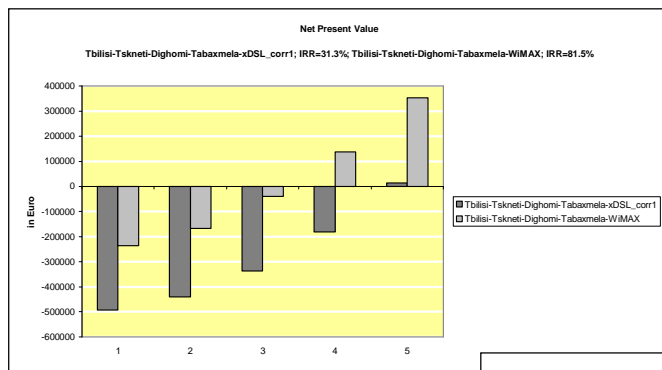
## Georgia rural area – BWA network



WiMAX

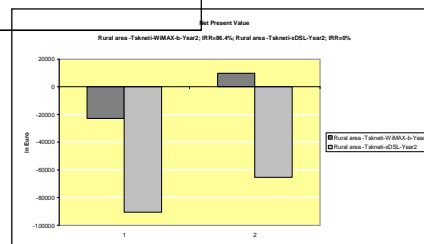


## Georgia rural area – Feasibility study

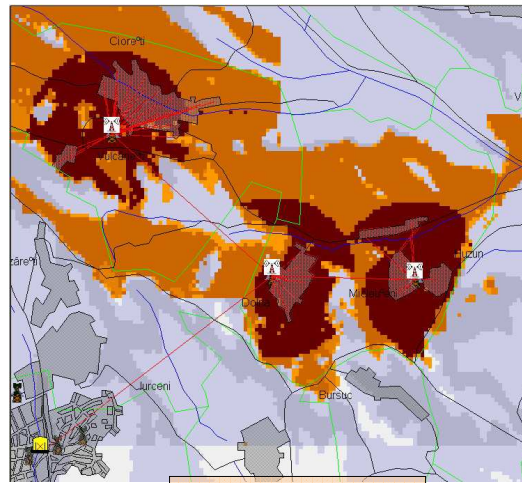


Pay back period 4-5 years

2 year market



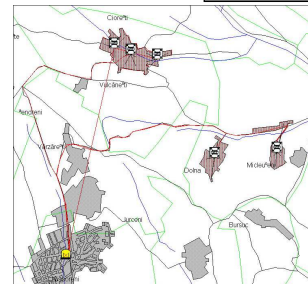
## Moldova rural area - BB access network



WiMAX

Segmented by technology network

xDSL



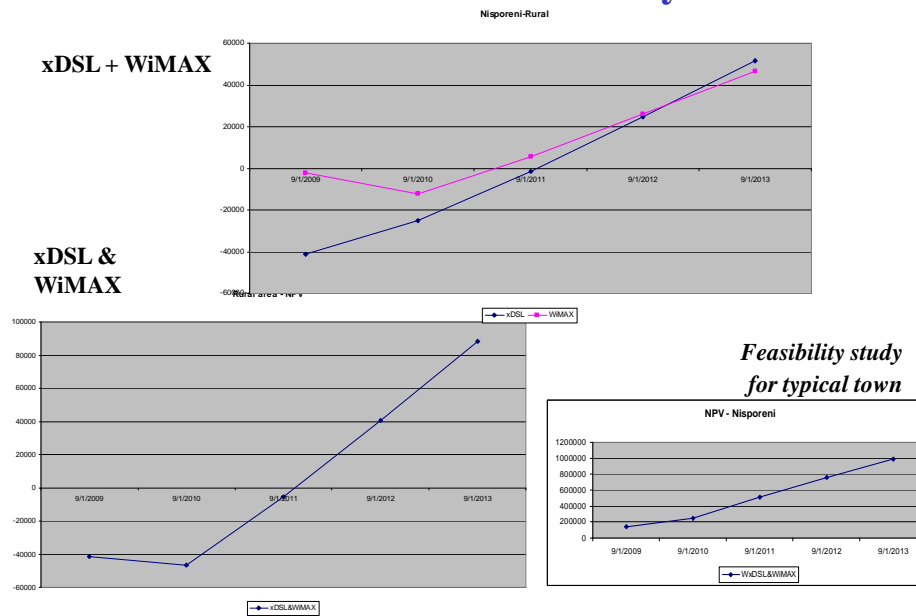
Target access speed:  
> 2 Mbit/s

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## Moldova rural area – Feasibility studies



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