



10<sup>th</sup> UIC World  
Security Congress  
Lisbon 2014



# non-precious metals theft

## furto de metais não preciosos

Analysis in portuguese railway  
Análise na infraestrutura ferroviária portuguesa



INTERNATIONAL UNION  
OF RAILWAYS



COMBOIOS DE PORTUGAL

Rui Costa Fonte



# Portuguese railway

total network: 3619,190 Km

operational lines: 2544,349 Km

electrified lines: 1629 Km

non-operational: 1074,841 Km

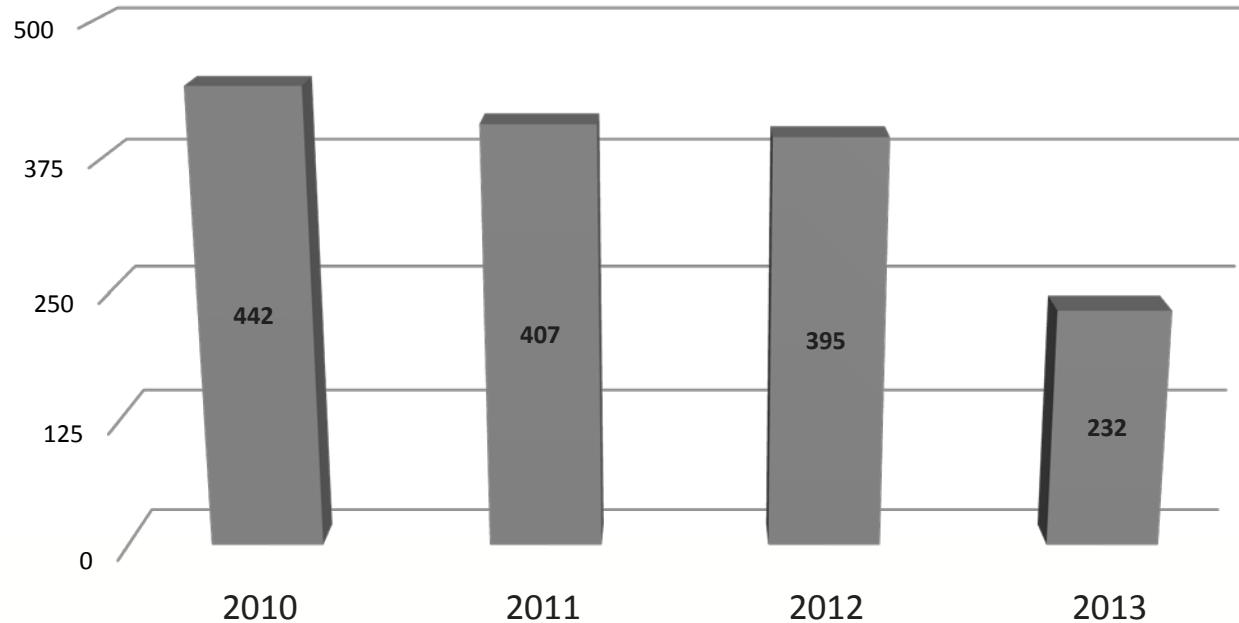
— Rede Principal  
— Rede Complementar  
— Rede Secundária





# non-precious metals theft

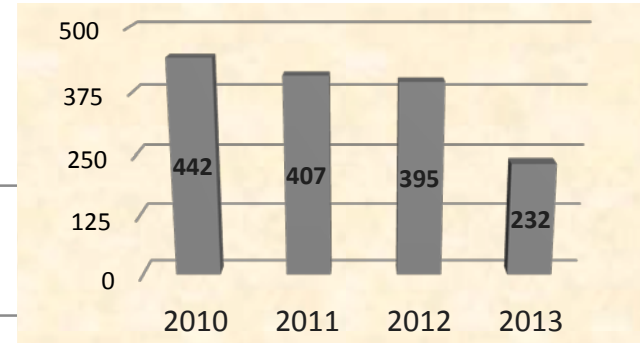
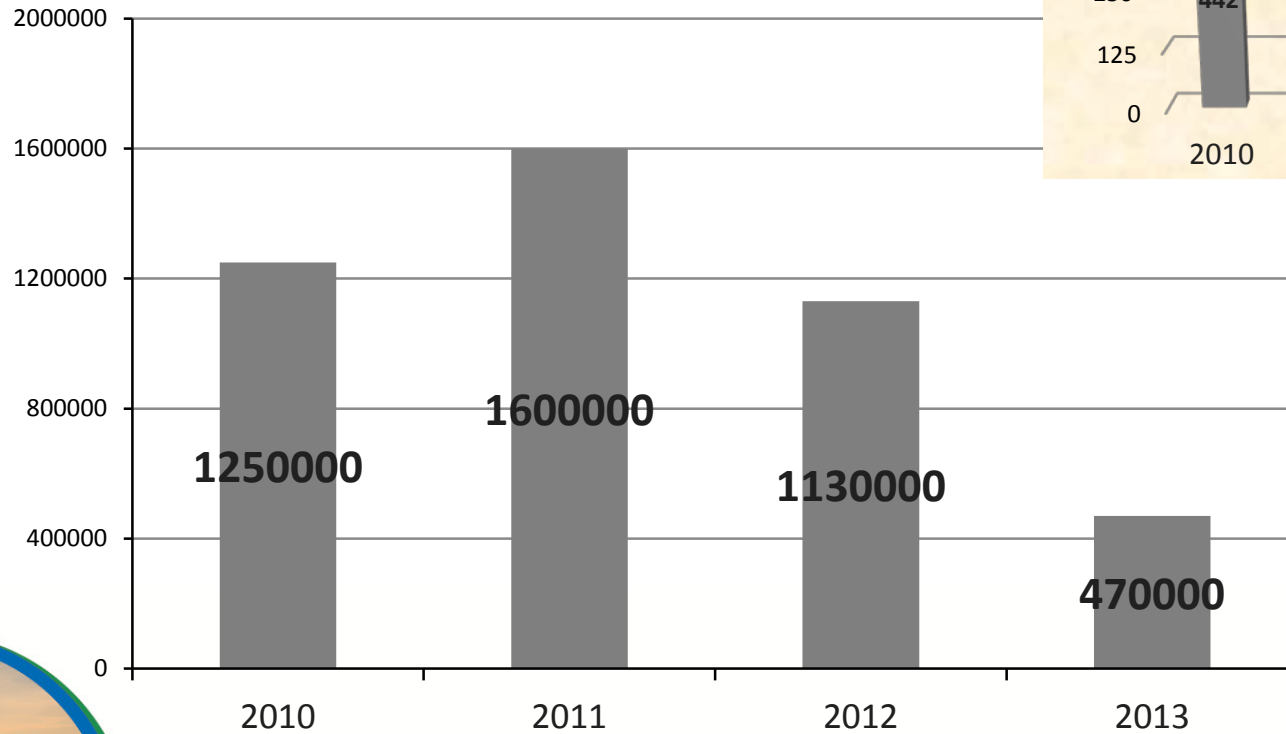
*Evolution 2010 to 2013 - number of thefts*





# non-precious metals theft

*Evolution 2010 to 2013 – replacement costs*





# non-precious metals theft

*How to tackle the problem*

## **SECURITY**

COMBATING CRIME AGAINST PROPERTY

**HAMPER  
ACCESS**

**LOWER  
PROFIT**

**INCREASE THE RISK  
OF DETECTION**



# non-precious metals theft

*How to hinder access and lower the profit*

- Creating barriers, obstacles, that hinder reaching the equipment most likely to be stolen;
- Burying deeper metallic cables and stringing them with groves of cement;
- Reinforce the sealing of cabinets containing equipment most likely to be stolen;
- Coat the cables / equipment with other materials that obstruct the access / separation of more valuable material;







# non-precious metals theft

## *How increase the risk of detection*

- using exclusive materials, that easily identify the origin;
- using (video) surveillance;
- using GPS locators;
- involving the police;
- involving other partners.





# non-precious metals theft

*How to hinder access and lower the profit*



easily accessible  
cables







# non-precious metals theft

*How hinder access and lower profit*



bury the cables at  
greater depth





# non-precious metals theft

*How to hinder access and lower the profit*



placing the cable  
under cement







# non-precious metals theft

*How to hinder access and lower the profit*



Impedance box



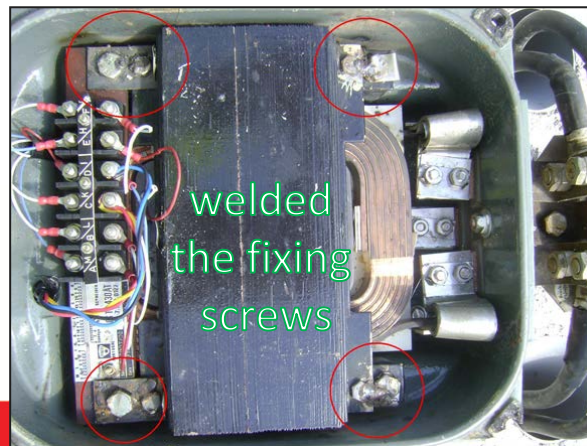
Inner impedance box



Copper coil inside the box



placed a  
welded  
security bar



welded  
the fixing  
screws



welded  
the fixing  
screws





# non-precious metals theft

*How to hinder access and lower the profit and increase the risk of detection*



tested hide copper coil



with a fire resistant resin



put the resin into the box



coil hidden and inseparable from the resin



coil hidden and placed a hidden GPS locator





# non-precious metals theft

## *Real case - June and July 2010 – Lisbon*

2010.06.28 – 16H20 – signaling equipment theft (copper)

2010.06.29 – 16H30 – signaling equipment theft (copper)

2010.07.01 – 17H00 – signaling equipment theft (copper)

2010.07.02 – 15H00 – we began monitoring in place (before, we informed the Police)

2010.07.02 – 18H50 – we detected one suspect to steal and informed the Police

2010.07.02 – 19H00 – Police (PSP) arrested the suspect in the act

2010.08.02 – Police performed a search to a scrap metal, found stolen material, and identified 1 suspect of receiving stolen goods

2013.09.18 – Court condemned two defendants, one for the crimes of theft and violation of the security (3 years and 6 months in prison) and the other for receiving stolen goods (1 year in prison).





# non-precious metals theft

*Real case* – January at September 2012 - Santarém

2012.01.01 to 2012.09.28 – 117 signaling equipment theft (30 Km of railway)

– placing security bars and resin

2012.09.28 – we placed GPS locators, monitored by REFER and Police (GNR)

2012.09.30 – GPS locator detected movement (theft) of equipment

– Police recovered 3 stolen equipment and identified 2 suspects

– thefts ended

2014.11.28 – criminal investigation continues





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# Thank you

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