

# Implementation of Energy Audits in Republic of Macedonia: what works and what doesn't?

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# Energy audits

## Key Facts

10.02.2011 – Energy Law (from 2011-2017 there have been 8 changes/amendments)

2013 – Rulebook on energy audit (1 change) and Rulebook on energy performance of buildings (2 changes)

24.01.2014 – Accredited **5** companies to train energy auditors

**285 certified energy auditors** in the 1<sup>st</sup> year

**2017 – 425 certified energy auditors**



# Energy audits

## Legislation facts

**10.02.2011 – 31.05.2013 Energy Agency is responsible for monitoring the trainings, exams and the Ministry of Economy certifies energy auditors**

**31.05.2013 – 27.11.2013 Energy Agency is responsible for monitoring the trainings, exams and certifies energy auditors**

**From 27.11.2013 Energy Agency is responsible for monitoring the trainings, but the ME is conducting exams and certifies energy auditors (amazing changes for the exams)**



# Energy audits

## Legislation facts

Certificate for energy performance of buildings is required for new buildings, substantially renovated buildings, buildings/apartments that are rented or sold.

**After 05.10.2015** – only new buildings are required to be certified. (buildings that are rented/sold after EU accession)



# Energy audits trainings

## Pricing

300 € - Energy audit training per person (accredited training center)

300/100 € - Exam and certification per person (Ministry of Economy)

100 € - certification for energy auditing company (Ministry of Economy)

1,3 € - paperwork taxes (Energy Agency)

Certification requirements for Energy Audit Company – **2 permanently employed energy auditors**



# Energy audits

## Pricing

**0,5** €/m<sup>2</sup> for basic energy audit (certification)

**0,8** €/m<sup>2</sup> for detailed energy audit



# Energy audits trainings

## Geographical distribution

### Legend

🎯 4 training centers

● 1 training center

Skopje

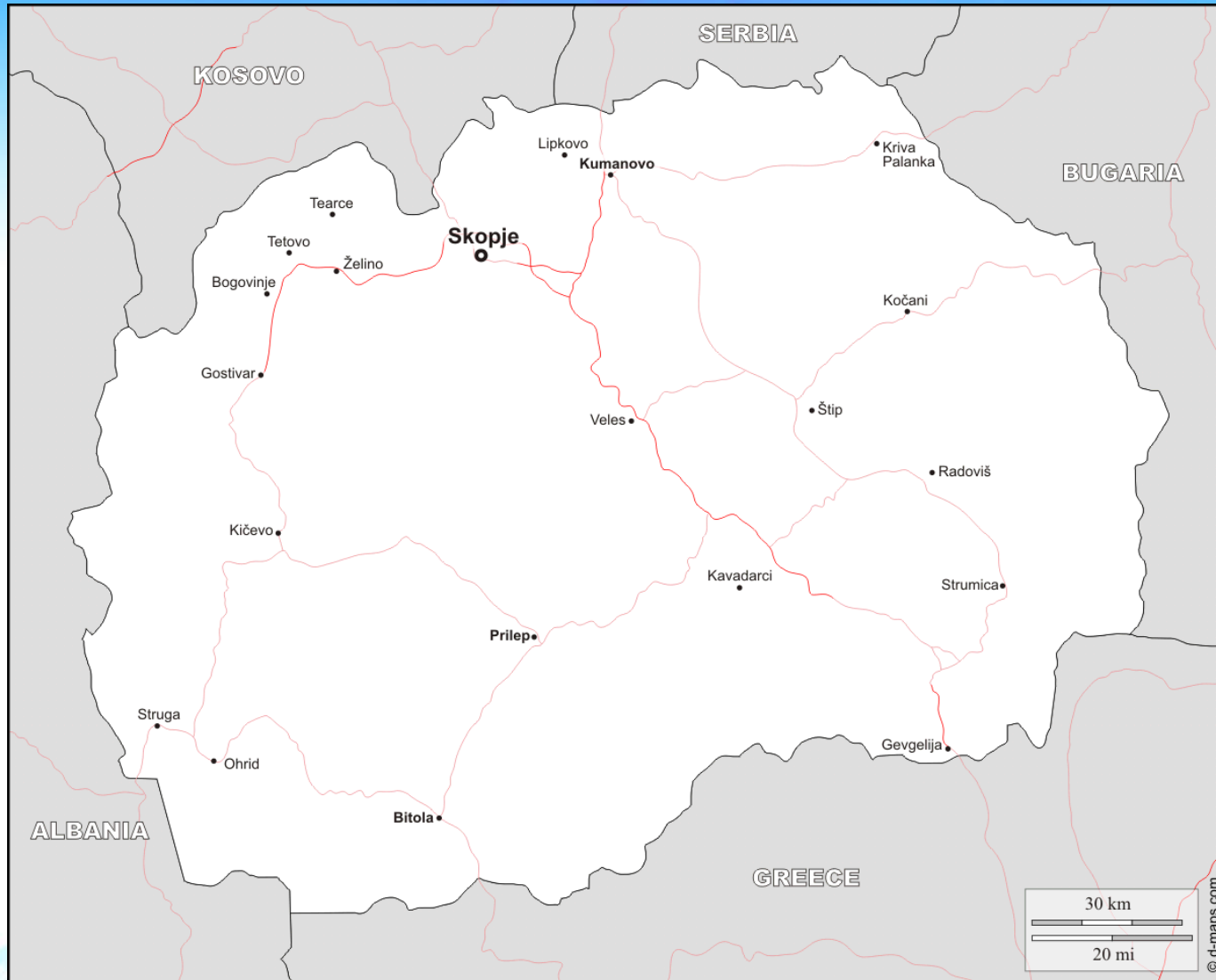
Bitola





# Energy audits trainings

## Geographical distribution





# Test case

## Assumptions

### Energy audit in a average house in Kocani

- Average house size 150m<sup>2</sup>
- 2 energy auditors (1 company)(no taxes)
- vehicle/car consumption 7 l/100km (no maintenance)
- Average day rate for employee 16€ (net)



# Test case

## Assumptions



# Energy audit as a business

## Assumptions

### Energy

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6000 €





Energy agency is responsible for monitoring the energy audits – **at least one random check up in 3 years**

- No access to the centralized system for building permits (no information on new/reconstructed buildings)
- The software provided does not have a server component
- Every energy audit and certification is provided in paper
- Gaps in the rulebook on energy performance of buildings and the rulebook on energy audit
  
- Quality of the audits and certification is questionable (almost all certificates are class A energy efficient buildings) !?!



Energy agency received less than **80 energy audits and certifications in 3 years**

According to the State Statistical Office:

- 2016 – **2076** new building permits are issued
- 2015 – **1938** new building permits are issued
- 2014 – **1830** new building permits are issued



# Recommendations

- **Clear and transparent energy audit legislation – stability is the key (lessons learned is knowledge retained)**
- **Clearly defined obligations and responsibilities**
- **Access to information (energy efficiency is multidisciplinary subject – it should be treated as such)**
- **Interconnection of systems – paper is not an option**



# Recommendations

- **The pricing has to have basic economic sense (napkin test)**
- **Social component of the price is easily mitigated**
- **Monitoring is key element – it builds trust**
- **Budget for monitoring and verification**
- **Internal human capacity or outsource**





# Thank you for your attention!

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