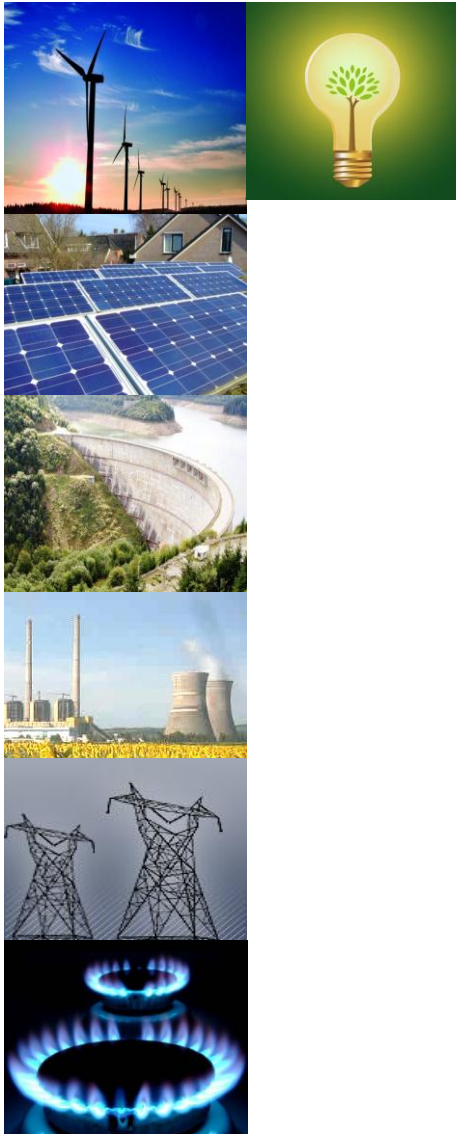




ROMANIAN ENERGY REGULATORY AUTHORITY (ANRE)



Energy Audits Systems

Athens / March 2014



Energy Efficiency Legislative framework

GD 22/2008

regarding energy efficiency and promoting the use of renewable energy sources to end-users

Responsibilities for economic operators that are yearly recording more than 1000 toe
Certification of energy managers
Declaration of the energy consumption, Energy analysis questionnaire,
Energy audit
The program of measures to improve energy efficiency
Monitoring & Targeting

Obligations for energy distributors, distribution system operators and retail power companies

- improving their own energy efficiency
- energy services at competitive prices
- energy audits and measures to improve energy efficiency to end users
- voluntary agreements
- contribution to mechanisms and/or energy efficiency funds

Public administration and local authorities in towns with over 20,000 inhabitants - energy efficiency programs



Energy Efficiency Legislative framework

Order no. 38/2013 regarding the Regulation for energy auditors authorization , energy managers certification and accreditation of companies providing energy services

Activities developed:

- issue of certificates/authorisations- process begun in 2004
- training workshops for energy auditors and energy managers
- surveying activity / monitoring energy efficiency market

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HOW? WHAT?

WHO?

DOCUMENTATION
(documents referring to technical and judicial requirements)

Energy auditor
(applicant)

Evaluate the technical background, professional experience

Energy Auditors
Certification Commission
of ANRE

Energy auditor authorisation

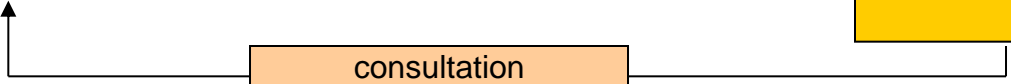
Specialized
Department-
ANRE

ANRE Data base
Register of energy auditors

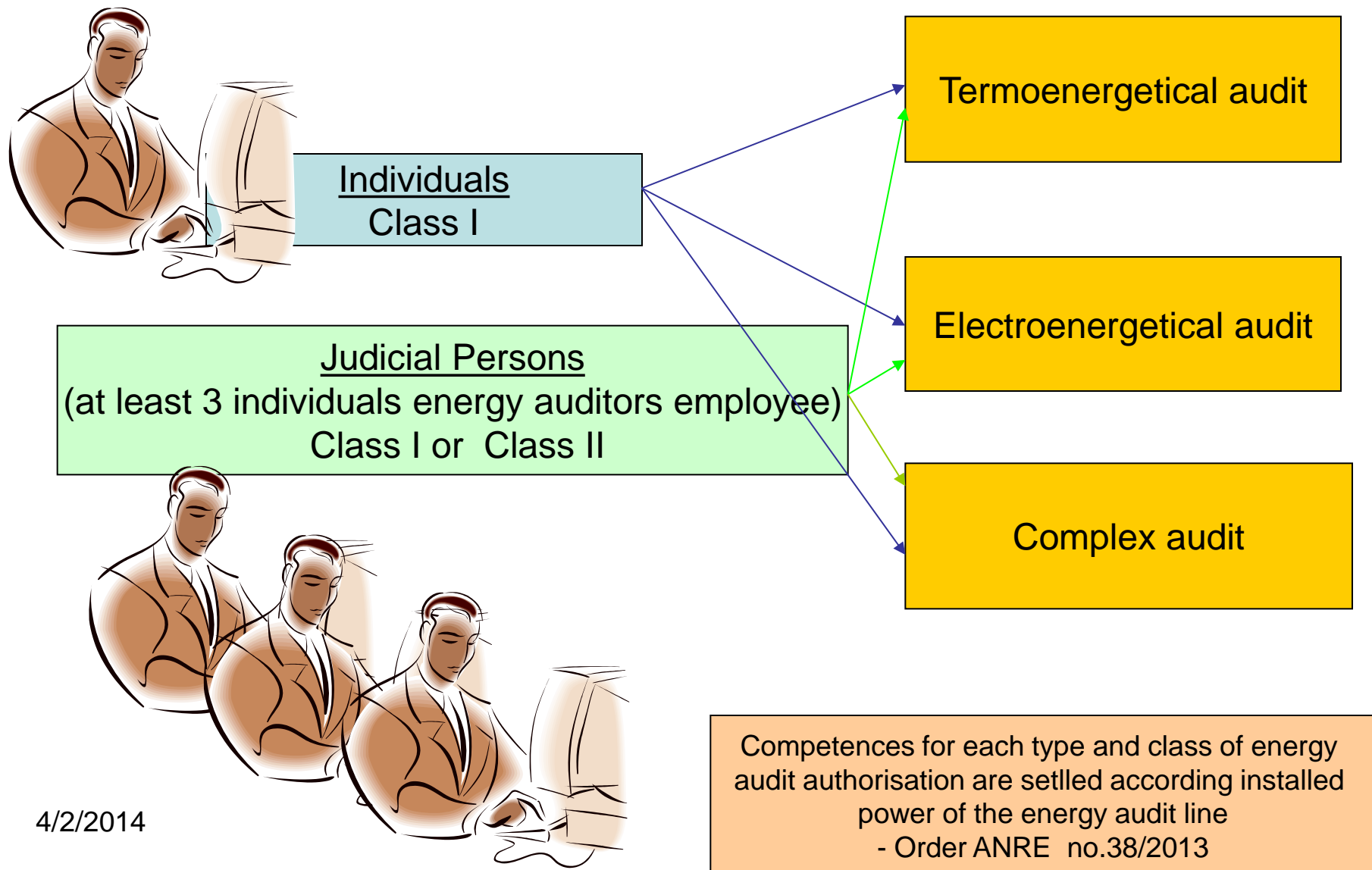
Economic
operators

4/2/2014

consultation



Classes and Types of energy auditors authorisations





Periodicity of energy audits elaboration

Annual energy consumption of economic operator(C)	Periodicity of energy audits elaboration
$C \geq 1000$ toe	annually
$200 \text{ toe} \leq C < 1000 \text{ toe}$	every 2 years



Energy audits

Elaboration steps



- ❑ Establishment of the energy balance line;
- ❑ Selecting of an energy auditor authorized by ANRE , in order to sign an energy services contract

STAGES OF ACHIEVING AN ENERGY BALANCE

Energy audits are done according “Elaboration and Analysis energy audits Guide” - technical document published in Official Journal of Romania no.792/11.11.2003

- Statistical data collection referring on the history of society , consumptions and energy costs , physical production and value of production achieved , lists of production and energy consumption equipments, location and type of construction of buildings etc
- Performing measurements of system operating parameters and energy consumption in various operating modes with fixed and mobile equipment , metrology checked ;
- Inspection of all installations audited ;
- Calculation of input and output energy (useful and losses) ;
- Optimization of real energy balance and highlight technical measures to increase energy efficiency;
- Quantifying energy savings.





Energy audits



Economic evaluation

Economic evaluation of the proposed energy efficiency solutions is a special issue of the energy audit .

Economic performance indicators of investment are:

- **Payback period** - is the time required for recovery of invested capital in a project . It is calculated as the ratio between the initial investment and annual savings . Acceptance condition : Payback period is less than the maximum allowable recovery period .
- **Net present value (NPV)** - The difference between the present value of cash inflows and the present value of cash outflows. NPV is used in capital budgeting to analyze the profitability of an investment or project. If NPV is negative, the project should probably be rejected because cash flows will also be negative.
- **Internal Rate of Return (IRR)** is the interest rate at which the net present value of all the cash flows (both positive and negative) from a project or investment equal zero.
IRR is used to evaluate the attractiveness of a project or investment . If the IRR of a new project exceeds a company's required rate of return, that project is desirable. If IRR falls below the required rate of return, the project should be rejected. A project is particularly attractive as the IRR is greater.
- **Profitability index (Savings to Investment Ratio SIR)** is defined as the ratio of the present value of savings and the present value of the investment. Condition of acceptance of an investment : $SIR > 1$. A project is particularly attractive as the SIR is greater.



Energy audits



Implementing recommendations

After completing the energy audit report, consumptions and energy cost analysis and recommended solutions to streamline their consumption and their economic analysis, the support and the agreement of the management of the economic operator should be obtained in order to implement these measures.

To ensure optimal conditions for achieving implementation of the program will be set the next phases of work :

- management of the economic operator, together with the energy manager will establish and ensure access to various sources of financing schemes of the program;
- will be established working teams and their responsibilities in implementing solutions proposed for each sector;
- will be set the targets of each team;
- implementation of technical solutions proposed ;
- monitoring energy savings.



Energy efficiency measures Program



Preliminary steps:

- the energy audit elaborated by energy auditors authorized by ANRE;
- selecting measures to improve energy efficiency, based on the results and recommendations of experts, taking into account the existence of reliable funding sources;
- preparation of feasibility studies, spread as far as the economic unit's business plan allows the financial effort. These documents will form and content tailored to the requirements of funders.

Content :

- short-term measures , lasting up to 1 year ;
 - medium-term measures with duration between 1 and 3 years;
 - long-term measures , the implementation of investment works for a period exceeding three years
- Must be filed annually, until 30 September



- Additional informations : www.anre.ro

Thank you for your attention!

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