



Ministry of Energy and Water Resources  
of Republic of Tajikistan



# Green Diplomacy Week – a global just energy transition EU-Central Asia Sustainable Energy Days

International Conference

Energy Efficiency in Tajikistan: prospects and challenges

Dushanbe Serena Hotel, 25-26 October 2023

## Quality assurance of energy audits and energy performance certificates of buildings – importance, key elements and EU best practices

Karolis Janusevicius, Expert in energy audits, SECCA



# THE OUTLINE OF PRESENTATION

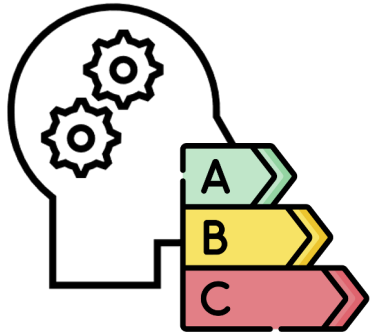


- How do we understand quality control?
- What is the purpose of quality control?
- What may happen if EPC or EA systems were established without quality control?
- What are the key elements of an effective quality control system?
- When could quality control be performed?
- What are the ways to perform quality control?
- What is the depth of different quality control procedures?
- What to do with quality control results?

# HOW TO UNDERSTAND QUALITY CONTROL?



The product or service is created



Quality control



Satisfied customer



Not satisfied customer



**In simple terms – quality control should prevent or at least reduce the number of unsatisfied clients due to poor quality product or service**

# PURPOSE OF QUALITY CONTROL



*The purpose of Quality Control processes is to ensure the following elements:*

## **Accuracy & Reliability:**

Ensures that services helps to understand and/or improve energy efficiency



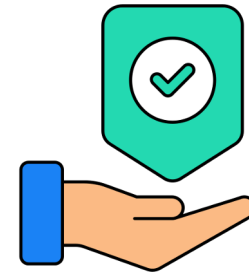
## **Consumer Protection:**

Shields from misleading information, aiding in informed decisions



## **Reinforces Credibility:**

By upholding local standards, the process boosts its trustworthiness among stakeholders.



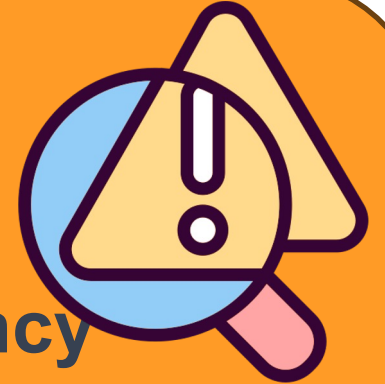
**Through rigorous Quality Control processes, we not only validate the energy efficiency evaluation of buildings but also safeguard consumer interests and reinforce the credibility of the certification system.**

# POSSIBLE ISSUES FOR THE CONDITION WITHOUT QUALITY CONTROL FOR EPC OR EA



**NO  
QUALITY  
CONTROL**

1. Lack of Trust and Credibility
2. Inconsistent Results
3. Potential for Misrepresentation
4. Reduced Incentive for Energy Efficiency
5. Economic Implications due to misguided investments
6. Regulatory Challenges due to quality variation
7. Reputation Risk of the EPC or EA system
8. Barriers to International Collaboration
9. Missed Environmental Goals
10. Increased Long-Term Costs



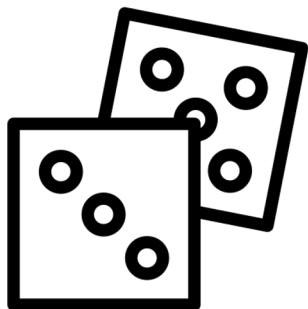
# THE QUALITY CONTROL SHOULD HAVE AT LEAST SELECTION, REVIEW AND SANCTION PROCEDURES



An **independent control system (ICS)** is a system that is designed to ensure the quality of energy performance certificates (EPCs). The ICS is independent of the experts who issue EPCs, and it is responsible for randomly selecting and reviewing EPCs to ensure that they are accurate and reliable. As the same principles apply for energy audits (EA), the key elements of an ICS include:

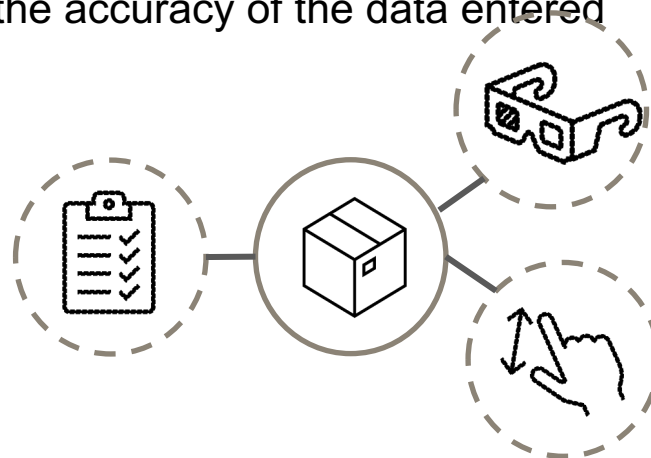
## Random selection of reports for review:

The ICS should randomly select reports for review and ensure that all of them may be reviewed, regardless of who issued them.

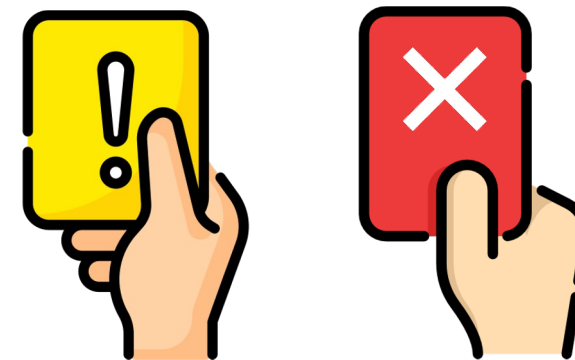


## Review of reports (VERIFICATION):

The ICS should thoroughly review reports to ensure they are accurate and reliable. This includes checking the methodology used to calculate and the accuracy of the data entered.



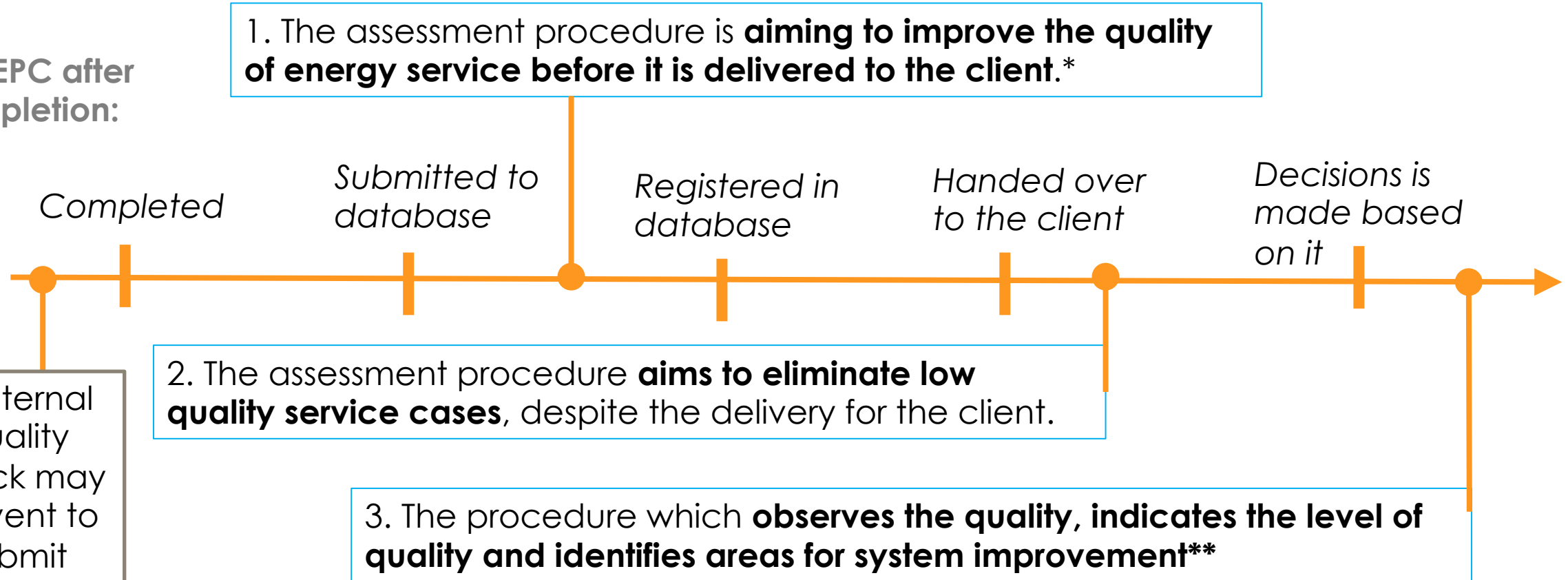
**Effective sanctions:** The ICS should have the power to take effective sanctions against experts who issue certificates that are unsatisfactory. This could include fines, the expert's license suspension, or legal sanctions.



# THERE MAY BE DIFERENT TIMES OF QC ACTIONS APPLIED DUE TO DIFFERENT AIMS



The EPC after completion:



\* Provides feedback for energy professional and reduces possibilities to deliver low quality product

\*\*Identify the gaps in process, legislation and/or professional knowledge & Skill

# AUTOMATED VALIDATION, EXPERT GRADE AND SITE VISIT CHECKS ARE 3 MAIN TYPES OF QUALITY CONTROL PROCEDURES



**According to EU best practices, described in EPBD:**

(a) **validity check of the input data** of the building used to issue the energy performance certificate and the results stated in the certificate;

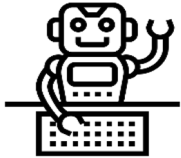
(b) **check the input data and verification the results** of the energy performance certificate, including the recommendations made;

(c) **full check of the input data** of the building used to issue the energy performance certificate, full verification of the results stated in the certificate, including the recommendations made, and **on-site visit of the building**, if possible, to check the **correspondence between specifications given in the energy performance certificate and the building certified**.

Based on assumption that information collected by assessor is valid

Rejecting the assumption and re-collecting site information

1<sup>st</sup> level check



**Automated Validation (by software)**

2<sup>nd</sup> level check



**Expert check**

3<sup>rd</sup> level check



**Site visit**

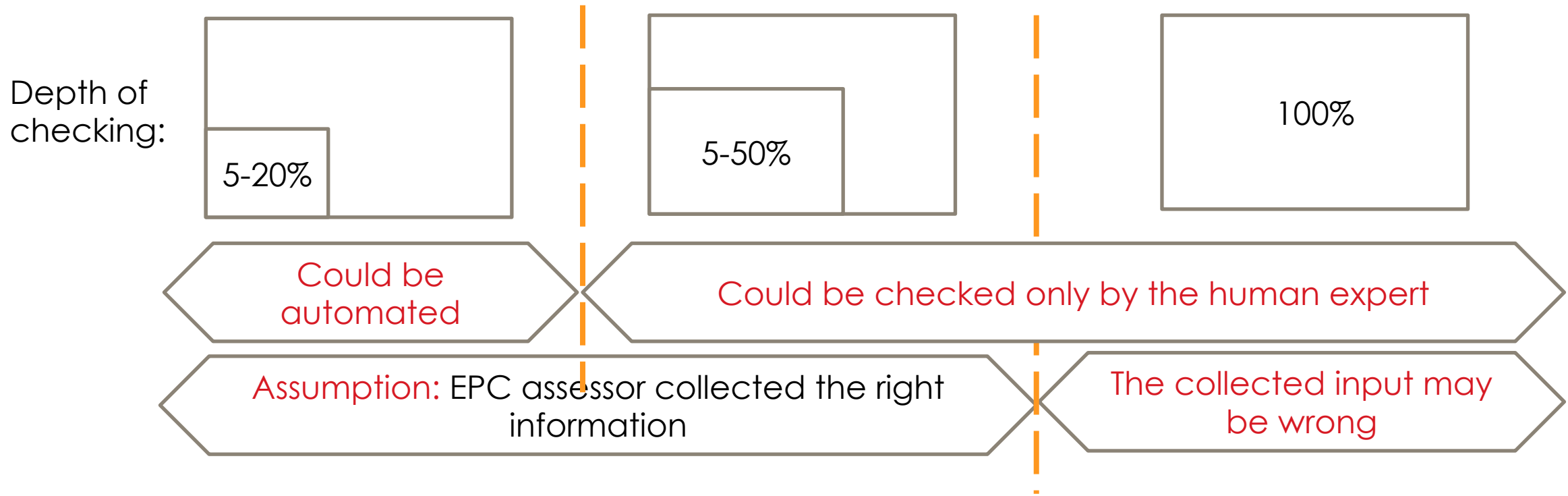


# COST OF QUALITY CONTROL PROCEDURES DEPENDS ON THE DEPTH OF CHECKING



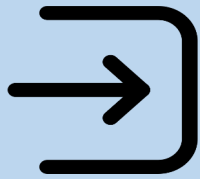
The cost of running a quality control system depends on the following aspects:

- **Depth of checking**
- **Digitalization level of checking procedure**
- **Number of checking procedures**



**There has to be a reasonable amount of checking procedures to ensure that the acceptable quality level is maintained and the resources are well utilized**

# BEFORE SUBMITTING THE REPORT, IT COULD BE AUTOMATICALLY VALIDATED, AND OTHER CONTROL PROCEDURES FOLLOW



Certificates or Audit reports must be submitted and registered in public list



EPC or EA reviewed for compliance, completeness, and data accuracy

*Different levels of verification are going to be applied:*



**AUTOMATED CHECKS**



Expert review



On-site Verification



The purpose of quality supervision is to help EPC experts or Auditors to improve the quality of their service and identify those, who refuse to follow the requirements by choice.

# 1<sup>ST</sup> LEVEL CHECK: AUTOMATED VALIDATION – QUICK IDENTIFICATION OF ISSUES AND ERRORS



- May be done automatically in the software that issues the report
- Rule-based checking could be done between assessor software and database
- Using a centralised database to cross-reference and validate new data inputs against a vast set of existing data points
- Automatically flagging values that deviate significantly from the norm or that contradict known data points from similar buildings
- Analyze the extreme cases that fall from the statistical sample

Pre-requisites:

Software tool

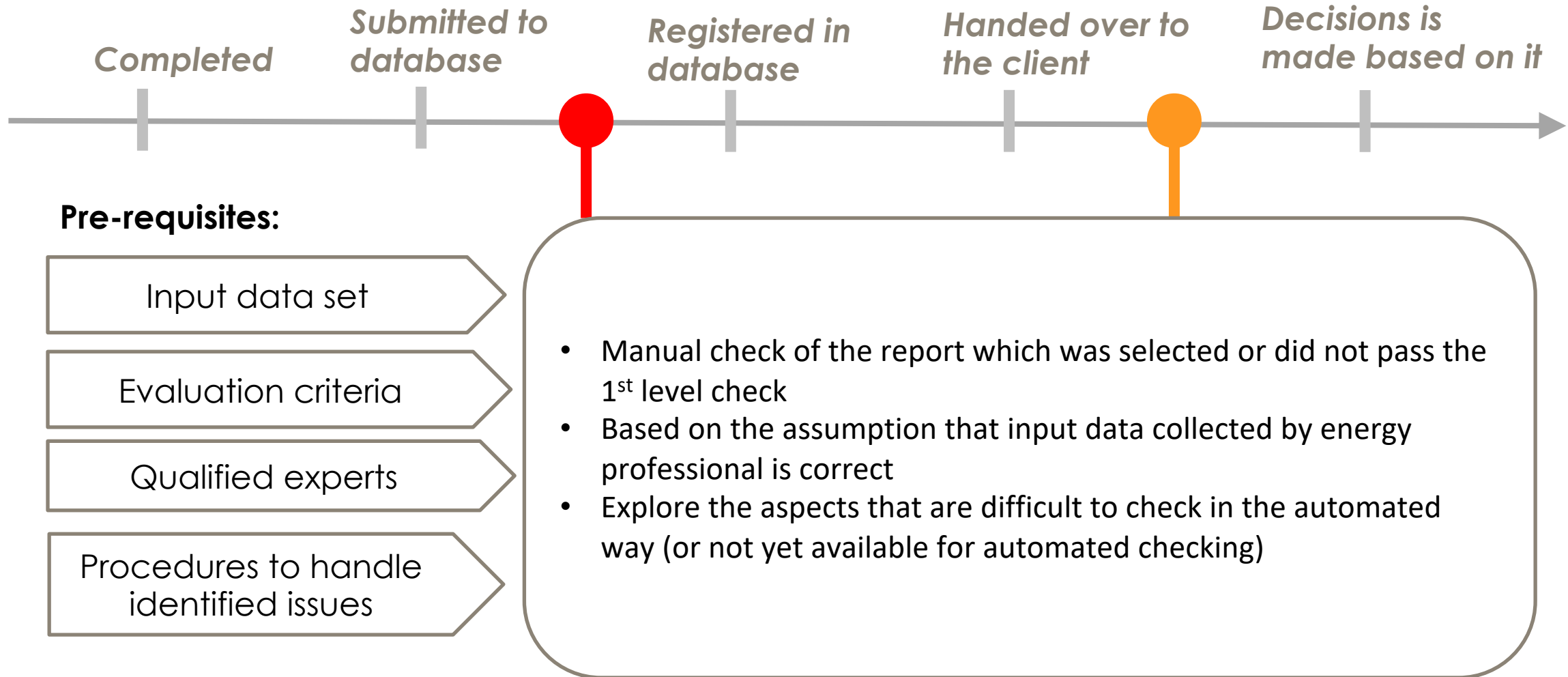
List of validation rules

Benchmark values

Validated dataset

Procedures to handle identified issues

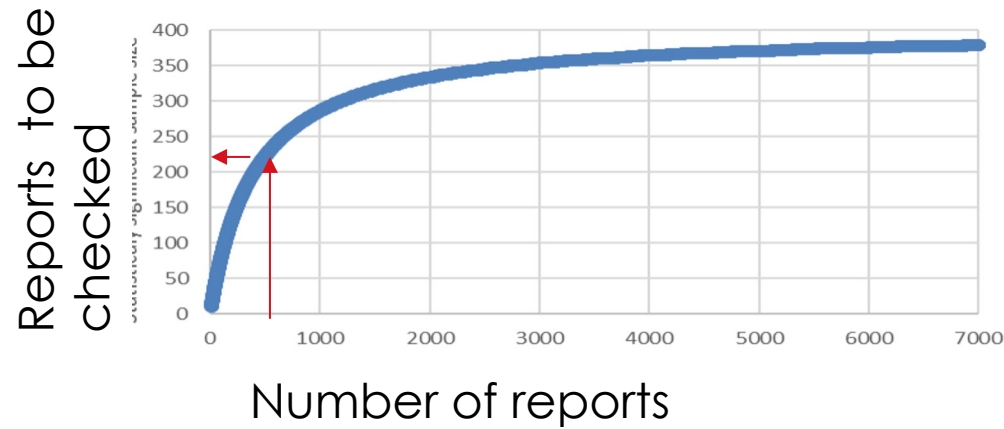
# 2<sup>ND</sup> LEVEL CHECK: EXPERT CHECK – FOR THE ASPECTS WHICH COULD NOT BE CHECKED BY THE SOFTWARE



# TO MANAGE THE RESOURCES, RANDOM SELECTION COULD BE USED INSTEAD OF CHECKING ALL THE REPORTS

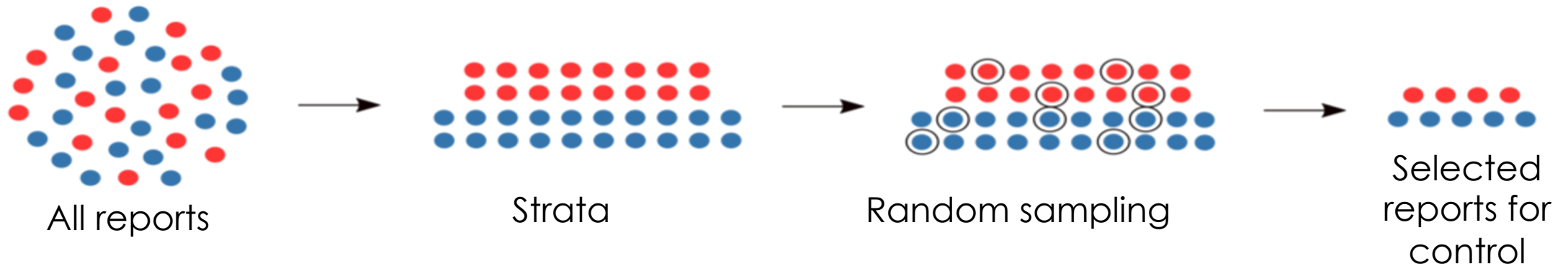


**1<sup>st</sup> Step:** determine the number of EPC or EA to be checked



**The Principle:** to ensure rational use of resources dedicated for quality control and ensure that obtained results are statistically representative

**2<sup>nd</sup> Step:** Selection



# THE EVALUATION CRITERIA SHOULD BE BASED ON REQUIREMENTS STATED IN METHODOLOGY



## Requirements stated in the methodology:

- WHAT specifically must be done
- HOW should it be reflected in the report



## Quality control checklist

- Are the specific actions done?
- Is the specific information provided in the documentation
- Is it accurate
- Are the assumptions are backed by...

In principle, it is difficult to ask energy professionals to follow specific requests if it is not stated in a legal document.

# 3<sup>RD</sup> LEVEL CHECK: SITE VISIT – TO CHECK IF INPUT INFORMATION WHERE CORRECTLY COLLECTED



## Pre-requisites:

- Input data set
- Site visit plan
- Evaluation criteria
- Qualified experts
- Procedures to handle identified issues

- Rejecting the assumption that input data collected by energy professional is correct and collecting the input data by another expert
- Workload equals or exceeds creating and issuing the report without any initial effort.
- The results of the submitted and newly created reports are compared, and differences are explored on greater detail

# THE ENERGY PROFESSIONALS COULD BE TREATED BASED ON THEIR PERFORMANCE EVALUATED BY QUALITY CONTROL



## GENERAL PRINCIPLES:

BEST PERFORMERS

**Recognition:** Celebrate their accomplishments and dedication.  
**Showcase:** Highlight their best practices and achievements.  
**Role Models:** Use them as examples for others to emulate.

AVERAGE PERFORMERS

**Consistency:** Encourage them to maintain their current quality.  
**Growth:** Motivate them to seek improvement and aim for excellence continuously.

POOR PERFORMERS

**Guidance:** Provide feedback, resources, and training to elevate their performance.  
**Accountability:** Monitor progress and ensure they meet the required standards.  
**Action:** If performance doesn't improve, consider reevaluation or removal to uphold certification quality.



# SUMMARY: KEY TAKE AWAYS



- QUALITY CONTROL SHOULD PREVENT OR AT LEAST REDUCE THE NUMBER OF UNSATISFIED CLIENTS DUE TO POOR QUALITY PRODUCT OR SERVICE
- THE QUALITY CONTROL SHOULD HAVE AT LEAST SELECTION, REVIEW AND SANCTION PROCEDURES
- AUTOMATED VALIDATION, EXPERT GRADE, AND SITE VISIT CHECKS ARE 3 MAIN TYPES OF QUALITY CONTROL PROCEDURES
- COST OF QUALITY CONTROL PROCEDURES DEPENDS ON THE DEPTH OF CHECKING
- BEFORE SUBMITTING THE REPORT, IT COULD BE AUTOMATICALLY VALIDATED, AND OTHER CONTROL PROCEDURES FOLLOW
- 1<sup>ST</sup> LEVEL CHECK: AUTOMATED VALIDATION – QUICK IDENTIFICATION OF ISSUES AND ERRORS
- 2<sup>ND</sup> LEVEL CHECK: EXPERT CHECK – FOR THE ASPECTS WHICH COULD NOT BE CHECKED BY THE SOFTWARE
- 3<sup>RD</sup> LEVEL CHECK: SITE VISIT – TO CHECK IF INPUT INFORMATION WERE CORRECTLY COLLECTED
- TO MANAGE THE RESOURCES, RANDOM SELECTION COULD BE USED INSTEAD OF CHECKING ALL THE REPORTS
- THE EVALUATION CRITERIA SHOULD BE BASED ON REQUIREMENTS STATED IN METHODOLOGY
- THE ENERGY PROFESSIONALS COULD BE TREATED BASED ON THEIR PERFORMANCE EVALUATED BY QUALITY CONTROL

# QUALITY ASSURANCE OF ENERGY AUDITS AND ENERGY PERFORMANCE CERTIFICATES OF BUILDINGS – IMPORTANCE, KEY ELEMENTS AND EU BEST PRACTICES



***THANK YOU FOR  
YOUR ATTENTION  
!***



**Karolis Januševičius, PhD** ⚡

Energy consultant | Energy efficiency professional

*„Helping to Unlock the Value of Energy Efficiency and Sustainability for a More Resilient Future “*



Karolis  
Januševičius



karolis.janusevicius@gmail.com



<http://karolis.janusevicius.lt>