



EMATEM

European Metrology Association
for Thermal Energy Measurement

Comparing Measurement Canada's Approach to Thermal Energy Meters with European Practices: Insights and Lessons from Field Experience

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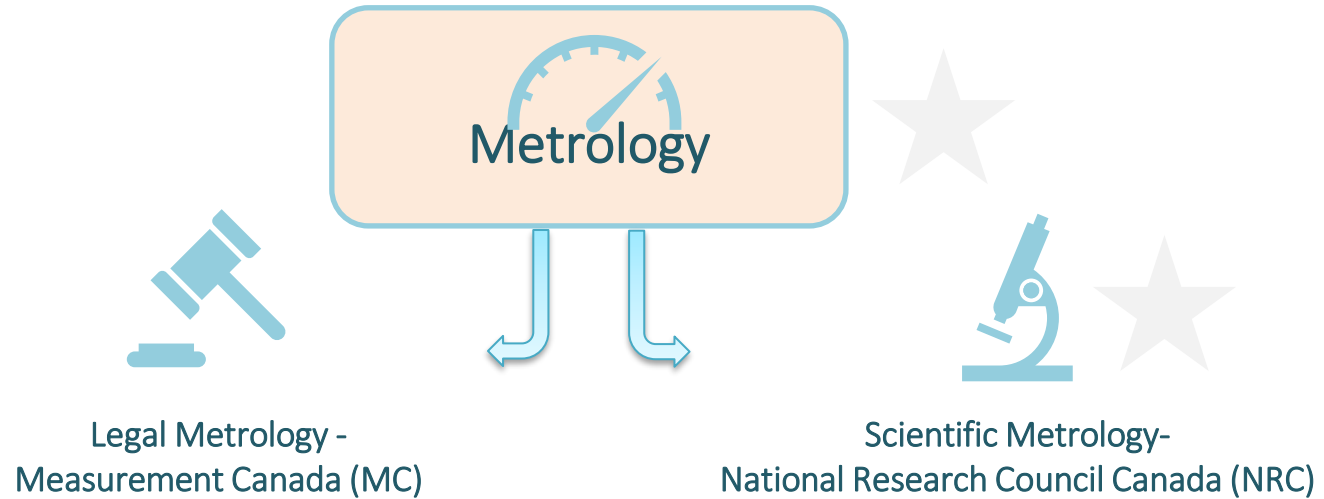
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01

Legal metrology framework in Canada

Legal metrology framework in Canada



- Maintaining regulatory framework
- Type approval
- Examination (inspection/verification)
- Investigation of complaints
- Enforcement

Legal metrology framework in Canada



Legal metrology framework in Canada



MC's goals

- Harmonization and the reduction of trade barriers
- Alignment with international requirements



Applicable standards

- OIML R-75 (utilizer)
- CENEN 1434
- CSA C900



MC's approval

- Conditional
- [Terms and conditions for the approval of thermal energy meters](#)
- MC is not included in the European Union's Measurement Instrument Directive (MID)
- MC does not accept test reports from Manufacturers Test Laboratories (MTLs)
- Facilitating data recognition, in alignment with policy [T-1](#).

Legal metrology framework in Canada

To be legal for trade a device must:

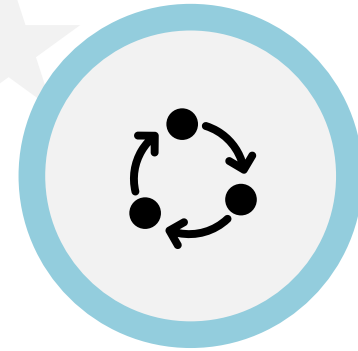


1. Type-approval

+



2. Examination*



2. Re-examination
(if applicable)

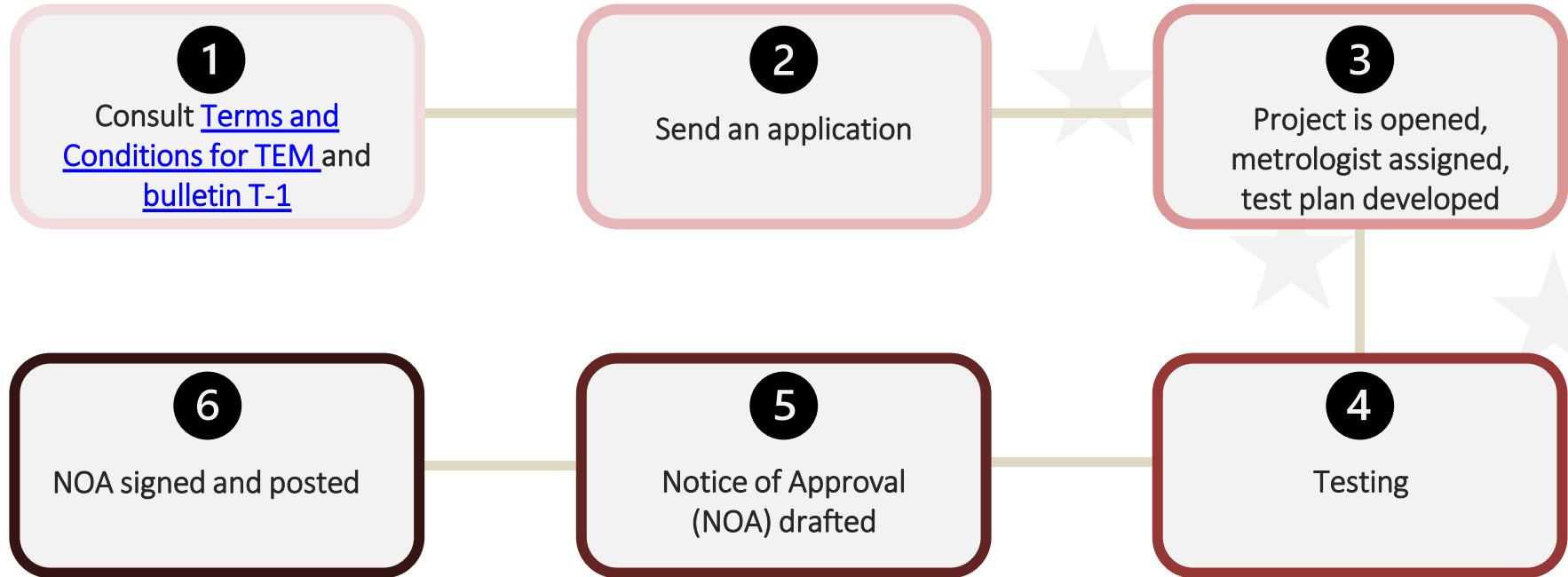


New: [Bill S-3](#) provision would allow the *inspection/verification of a device by any means, including by sampling devices of the same class, type or design

02

Type-approval process

Type-approval process



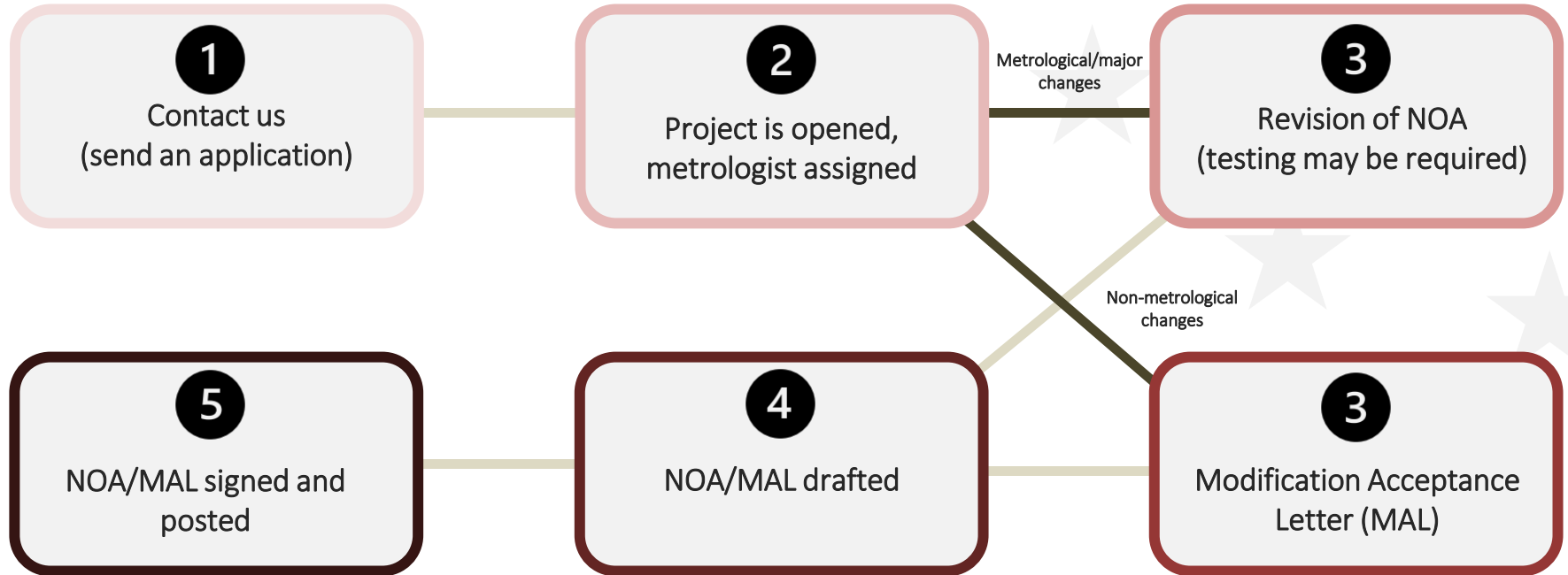
Type-approval process

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Testing

1. Testing at MC facilities (limited C900 sections 7.4-7.7)
2. Testing at a recognised test facility listed in T-1
3. MC witnessed the tests at a test facility chosen by the applicant, including the manufacturer's one.
4. MC does not accept test results from the manufacturer's test facility unless MC witnessed the tests.

Modifications to approved TEM



GEN-46—[Modifications to approved weighing and measuring devices and electricity and gas meters](#)

Type-approval process

Glycol?

- No device approved for glycol
- Glycol or glycol mixes are sometimes required for TEM in Northern Canada
- Bill S-3 provision would allow to grant permission for a device to be used in trade without approval or examination (inspection) on a temporary basis and under specified conditions

03

Examination program

Examination program

Bulletin T-2—[Implementation of thermal energy meter requirements](#)



As of **January 1, 2028**, all non type approved and unexamined thermal energy meters will no longer be allowed to be used in trade. Exemptions are possible.



TEMs installed **before 2019**-MC requires reporting by Jan 2028, no approval or initial examination needed.

An examination consists of:

- Ensuring the installed TEM corresponds to the NoA;
- Verification of the installation as per Manufacturer's and NoA's instructions, and field inspection manual.



MC is expanding the scope of device certification under the alternative service delivery programs to include TEMs.



Sampling would be possible if [Bill S-3](#) is enacted. For now, each TEM must be examined and certified.

Examination program

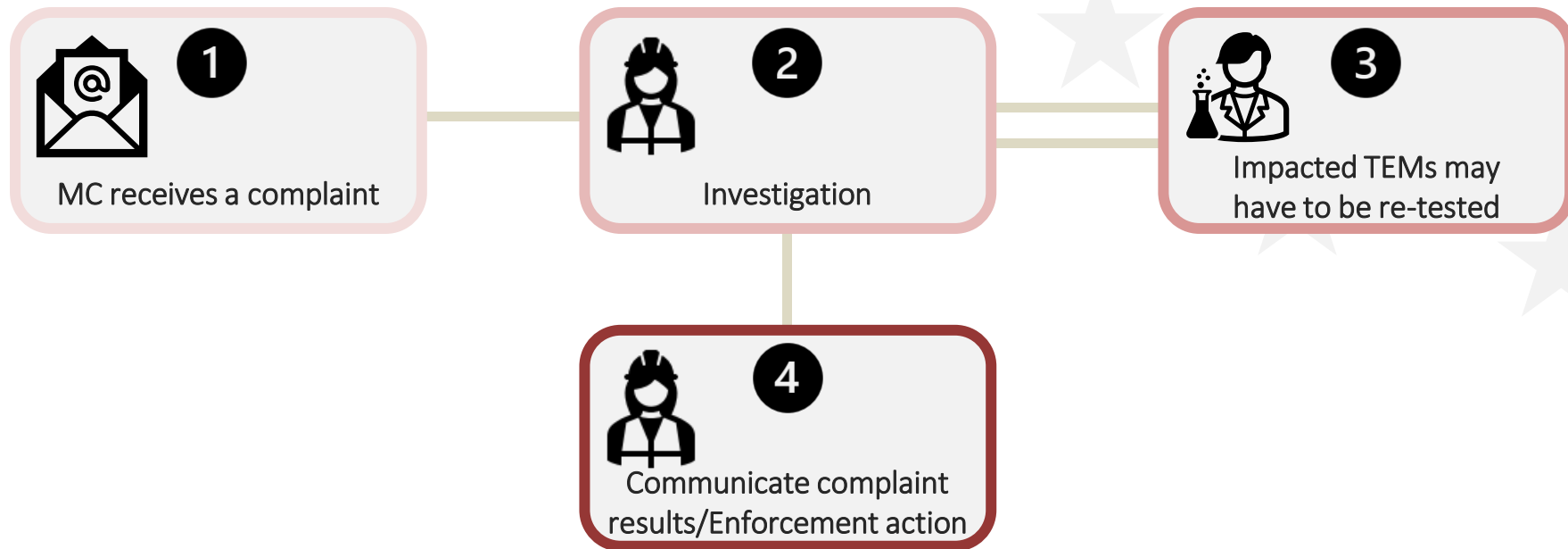
Main challenges:

- Installation-fan coil units and private dwelling
- No standard for installation-manufacturer's instructions
- Working in confined spaces
- Number of devices to inspect (>100 K)



Examination program

Complaints



Examination program

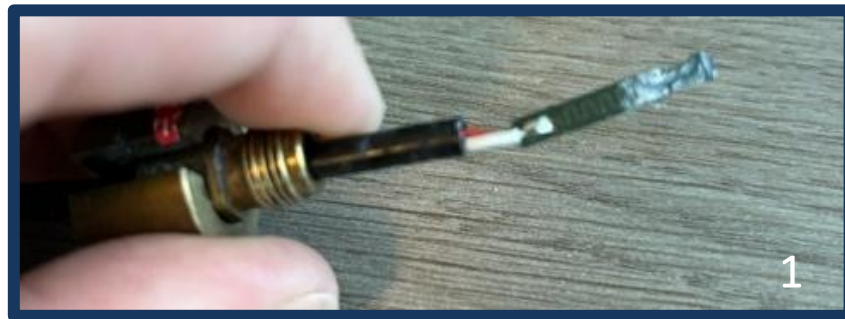
Complaints-Recent case

Complaint: overbilling

TEMs sent to type approval lab for testing

Pre-inspection findings:

1. Damaged probe
2. Internal fouling of meter



Examination program

Complaints-Recent case

- TEMs tested on test rig
- Class 3: $E_f = (3 + 0.05 q_p/q)$, not to exceed 5%

Results:

1. TEMs under registered
2. Repeatability failed in many cases
3. Average error reached $\sim -84\%$



Danke

Thank you