BRINGING INNOVATION TO MARKET | DELFT

GeoERIC

Europe’s geothermal infrastructure, usable as one thing

A proposed European Research Infrastructure Consortium for geothermal energy: where it stands, what it would change for a company, and the part of it that is furthest developed.

Frits van de Sande, VITO
GeoERIC, and the European Geothermal Training Academy
EGEC Geothermal Innovation Days, Delft, 14 October 2026



Image: VITO geothermal research facility, Balmatt, Mol

THE PROBLEM

Europe has the facilities. It cannot use them as one thing.

Four obstacles that no single site, and no three-year project, can remove.

Every one of these is a governance problem rather than a scientific one, which is why they have survived twenty years of excellent projects.

1

You cannot get in

A company or a researcher cannot obtain time at Bedretto, Ullrigg, Rijswijk or Balmatt except by joining a consortium that already includes them. There is no standing, merit-based route in.

2

The data does not compare

Injection histories, well integrity records, scaling and corrosion data and seismic monitoring are held per project and per institution, under different conventions. A threshold agreed at one site cannot be carried to another.

3

No permanent counterpart

Regulators, ministries and insurers have no standing European body to address on protocols, risk governance and standards. Each permit is argued from the beginning.

4

And nobody trains the crews

The workforce that has to execute all of this is shrinking, and no institute can fix that alone. This is the fourth obstacle and the one we have taken furthest.

THE POINT

A seismic threshold agreed in a three-year project expires with the project. Standing access, common protocols and long-term data stewardship need a body with a lifetime longer than a project cycle. That is what the ERIC instrument exists for, and it is the only reason we are using it.

THE INITIATIVE

What GeoERIC is

A permanent distributed research infrastructure under Council Regulation (EC) No 723/2009.

GeoERIC connects Europe’s geothermal test sites, drilling laboratories, monitoring networks and data platforms under one governance and access framework. Assets stay with their owners. Access, standards and stewardship become common.

Integrate

Make geothermal facilities visible and reachable across borders, under harmonised protocols and comparable metadata.

Open access

Transparent, merit-based access for researchers, industry and public authorities, from inside and outside the member countries.

Accelerate

Move from isolated site experiments to coordinated European campaigns across contrasting geological settings.

Train

The European Geothermal Training Academy as the training arm, anchored on an operating deep doublet.

WHAT AN ERIC ACTUALLY IS

A legal form created by the European Union for research infrastructures that several countries own together. It has legal personality, a general assembly of member states, its own statutes and access policy, and exemption from VAT and excise. ECCSEL, EPOS, ICOS and some twenty others already use it. There is no rule of one ERIC per domain.

THE INITIATIVE

Where it stands, and what is still open

Engaged in some nineteen countries. Nothing signed by a government yet.

1

Signed, or a board seat accepted

Expression of interest from EOST and ITI GeoT in France, letter of intent from IZTECH in Türkiye, confirmation from TU Delft, and a letter of support from EGEC. Preparatory board seats accepted by Mines Paris–PSL, Fraunhofer IEG and NORCE.

2

In discussion

TNO, ETH Zürich and Bedretto, CNR-IGG, BRGM, IGME-CSIC, GTK, the Swedish Geoenergy Centre, RINGEN, AGH, LNEG, the Irish department, and new routes into Denmark and Iceland.

3

Drafted, not agreed

Manifest with statutes, technical and scientific description, financial model, facility inventory and two draft MoUs. All of it is working material. Settling the final text is the job of the preparatory board that constitutes in October.

4

Not yet signed by anyone

No ministerial letter in any country, and no Belgian federal host-state decision. That is not a disclaimer: it is the reason input from this room is worth something now and much less in 2028.

WHAT IT WOULD CHANGE FOR A COMPANY IN THIS ROOM

A standing route into facilities you cannot reach today. Operational data from other countries in a form you can place beside your own. One European counterpart on protocols and risk governance instead of a different argument in every jurisdiction. And a trained workforce, which is the subject of the second half of this talk.

The route to a European decision

Target dates, not commitments. The first and the fourth line decide the rest.

October 2026	**Preparatory board**	Board constituted with six workstream leads: legal and governance, scientific scope, facility catalogue, access rules, financial model, and data and interoperability.
Q1 2027	**Consolidation**	Statutes, technical and scientific description and financial model settled. National roadmaps per participating country.
April–May 2027	**Signatures**	Belgian federal host-state decision. Ministerial request letters signed in at least two further member states.
June 2027	**Step-1 filed**	Dossier transmitted to DG Research and Innovation through the Belgian Permanent Representation. Commission assessment runs roughly six months.
2028	**Establishment**	Commission Implementing Decision, first General Assembly, appointment of the Director, first open access call.

The critical path is not scientific and it is not technical. It runs through three ministries, and the only way to shorten it is to have started earlier. Everything a company can usefully influence happens in the first two lines.

THE FOURTH OBSTACLE

Who is going to drill these wells?

Back to the fourth card. This is the part of GeoERIC that is furthest developed.

Europe cannot staff the geothermal projects it has already decided to build. The constraint is not equipment, geology or capital. Rigs stand idle because they cannot be crewed.

1

The generation is leaving

A quarter to a third of senior and supervisory drilling personnel reach retirement within five years. Only five to fifteen per cent of those posts are held by people under thirty.

2

The entry route has closed

European geothermal projects advertise for crews with ten years of experience. Rational for each employer, fatal for the sector: nobody enters, so in ten years nobody has ten years.

3

The apprenticeship has thinned

The teaching on the job that turned a certificate into a competent hand was done by the people who are now retiring. The certificate survives; the hours behind it do not.

4

And at the other end

Graduate engineers write programmes for operations they have never watched. Judgement that used to come from the rig floor now comes from a handbook.

WHAT IT COSTS

Non-productive time, avoidable sidetracks, damaged completions, slipped schedules. Ordinary failures with an ordinary cause, and every one of them lands on a project budget rather than on a training budget.

THE TRAINING ARM

EGTA: a trade school for geothermal wells

A fifty-page programme document exists in draft. It is meant to be marked up.

The centre of gravity is deliberately the execution level: the people on the rig floor, in the cellar, on the cement unit and on the workover crew, and the supervisors above them.

1

Who it trains

Drilling crews, workover and intervention crews, cementing and casing crews, well service personnel, toolpushers and site supervisors. EQF 2 to 5, with bridging modules at 6 and 7 to put graduate engineers on a rig floor.

2

How it is delivered

Thirty modules of two to five days that stack into recognised qualifications and a logged hours record. Short blocks because that is how a contractor can actually release a man.

3

Why it sits inside GeoERIC

A training academy needs facilities in several countries, instructors from several institutes, and a certificate that is recognised across borders. GeoERIC supplies all three; no single institute can.

THE FASTEST AVAILABLE SUPPLY OF HANDS

A sixteen-day bridging programme converts an experienced oil and gas crew to geothermal: temperature and its effect on steel and elastomers, brine chemistry, scaling, large-diameter completions, downhole pumps, induced seismicity, and the very different regulatory and public context of a well inside a town. Short, dense, and a legitimate just-transition instrument.

What we would build, and what you would buy

A dry-run field beside an operating deep doublet, and seven pathways built from the module catalogue.

A rig is not the differentiator. Ullrigg and Rijswijk exist and are better than anything we would build. What Europe lacks is a place where a crew can repeat a full-scale operation until it is right, next to a live hot well.

PATHWAY	BUILT FROM	DAYS	LOGGED HOURS	OUTCOME
Entry to the rig floor	Safety, well basics, rig floor practice, tools	12	400	Certified geothermal field hand
Drilling crew progression	Hydraulics, deviation, bit and BHA, well control	16	800	Certified drilling crew member
Workover and intervention	Pulling and setting pumps, fishing, scale, integrity	18	600	Certified intervention technician
Cementing and casing	Slurry design, casing running, evaluation, remedial	15	500	Certified cementing and casing specialist
Plant and doublet operations	Surface plant, ESP operation, chemistry, monitoring	13	500	Certified geothermal plant operator
Site supervision	Programme reading, cost control, contractor management	16	2 years supervised	Certified geothermal site supervisor
Engineering practice	Rig floor placement for graduates, as a crew member	18	—	EGTA practice endorsement

The dry-run field sits beside the operating doublet at Balmatt in Mol, 3.5 to 4.5 km and 125 to 130 °C. Indicative capital around EUR 5.5 million, a development estimate and not a quotation. Durations are draft, and this is precisely the table on which we would like to be corrected.

THE TRAINING ARM

Not reinventing the wheel, and not issuing worthless paper

A certificate is only worth what an employer in another country thinks it is worth.

1

We map onto what works

IWCF and IADC for well control, taken as an entry requirement rather than reissued. OPITO-style safety as a baseline. DVGW W 120 in Germany and the SIKB schemes in the Netherlands as national anchors. GeoTrainet below the equipment line: closed-loop boreholes to roughly 300 m stay with them.

2

EQF as the common scale

Modules expressed at EQF 2 to 5 for field and supervisory roles, 6 and 7 for the engineering bridge. EQF is a translation instrument, not an accreditation: the formal level comes through a national framework, and that is where we are looking for partners.

3

Accreditation as a goal, honestly stated

Examination separated from delivery, quality system built to EQAVET, and a route sought through a national qualification framework and an established awarding body. We do not have it yet and we are not going to pretend otherwise.

THE LOGBOOK IS THE POINT

Every qualification carries logged practical hours as well as modules passed. A certificate says someone sat a course; a logbook says what they have actually done, how often, and under whose supervision. That is what a hiring toolpusher wants to see, and it is the part of the design we are least willing to compromise on.

GeoTrainet and GeoBOOST sit closest to this work and are part of the EGEC family. We have not yet spoken to either, and we should have. We would rather align with both than overlap with them, and this congress is the obvious place to start.

WHAT WE ASK OF THIS ROOM

Four things, none of them a cheque

GeoERIC is being designed now. It will be a better design if industry corrects it before it is fixed.

1 Tell us which facilities and services you would actually use

The facility and service catalogue is one of the six workstreams, and it is being written in the coming months. If access to a drilling test hall, a hot well or a materials laboratory in another country would change how you work, say so while the catalogue is open.

2 Mark up the training catalogue

Which modules would you buy, at what price, for how many people a year. A marked-up catalogue from a company that employs these crews is worth more to us than a letter of support.

3 Lend us your best people, and take a seat

The scarcest input is not capital, it is instructors. A senior hand for two weeks a year, paid, is the most useful contribution an employer can make. The Industry Council that keeps the catalogue current is being formed now.

4 Correct us in public

If you see the boundary with ECCSEL, with GeoTrainet or with GeoBOOST differently than we do, we would rather hear it here than read it in a Commission assessment.

THE POINT

We are not asking you to fund an infrastructure. We are asking you to tell us what to build.

GeoERIC, and EGTA within it

The infrastructure already exists. What is missing is the framework that lets it be used as one thing, and the people to work it.

Frits van de Sande
Business Development Geothermal, VITO
Boeretang 200, BE-2400 Mol
frits.vandesande@vito.be

Available on request: the GeoERIC manifest and statutes, and the EGTA programme document with the full module descriptors, financial model and accreditation route.

Tell us what to build.