

SHALLOW GEOTHERMY
A GEOLOGICAL POTENTIAL IN BELGIUM ?
Brussels, February 10th, 2010



Geo-Education
for a sustainable geothermal
heating and cooling market

“Geo-Education for a sustainable
geothermal heating and cooling market”

GEOTRAINET

Project: IEE/07/581/S12.499061

Duration: 30 months from 1 September 2008 to 28 February 2011

Isabel Fernández Fuentes
Geotrainet Coodinator

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GEOTRAINET project aim:



GEOTRAINET objective is to have a GSHP sustainable market by training professionals

- To develop European Education programme to get towards the certification of geothermal heating and cooling installations.
- Target groups:
 - Designers (feasibility study including geology)
 - Drillers (who make the boreholes and insert the tubes)

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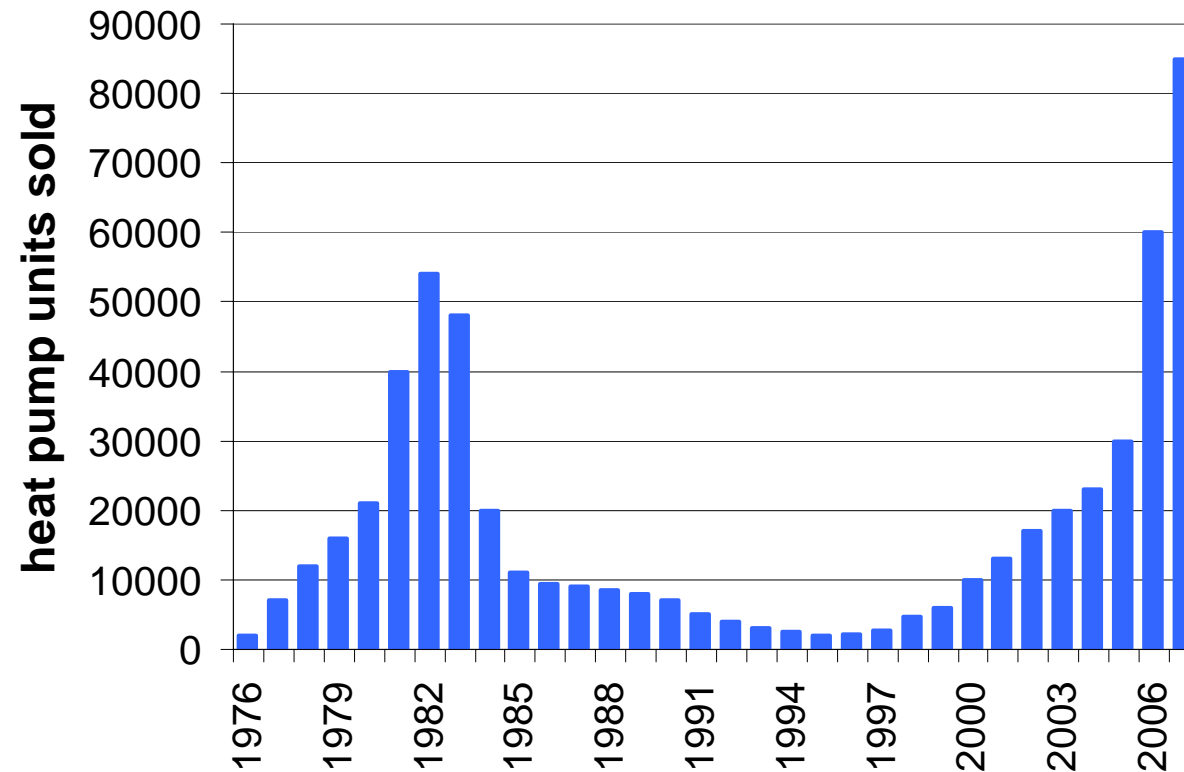
Intelligent Energy  Europe

Why Geotrainet



Geo-Education
for a sustainable geothermal
heating and cooling market

Heat pump units sold in France



Research in Europe shows that one of the barriers to a sustainable and growing geothermal market is the lack of appropriate skilled personal, and quality of design and works are not always satisfactory.

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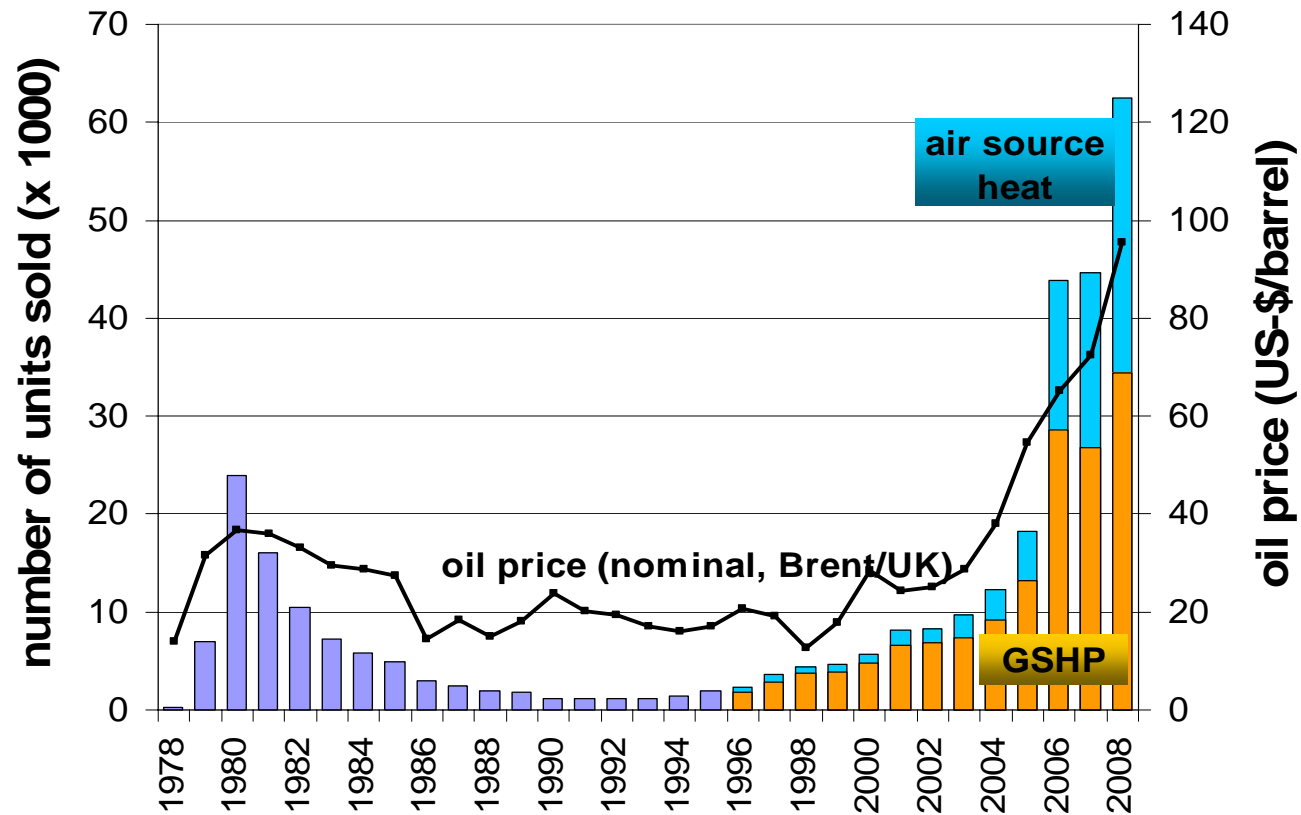


Why Geotrainer



Geo-Education
for a sustainable geothermal
heating and cooling market

Heat pump units sold in Germany



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Project partners:

- **European organizations:**
 - European Federation of Geologists
 - European Geothermal Energy Council
- **Research centers:**
 - Arsenal Research, Austria
 - BRGM, France
- **Private sector:**
 - GT Skills, Ireland
 - Geoexchange Society, Romania
- **Universities:**
 - Universidad Politécnica de Valencia, Spain
 - University of Lund, Sweden
 - Newcastle University, UK



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GT SKILLS

ROMANIA
GEOEXCHANGE

 **brgm**
Géosciences pour une Terre durable

GEOTRAINET objective is to have a GSHP sustainable market by training professionals .



Main steps:

- Research into data currently useful for GSHP installers.
- Evaluation of skills required to design, drill and install GSHP
- Create curricula for GSHP designers and drillers
- Create training tools. Test and optimization of the materials.
- Suggest standards and codes to create a European market
- Propose a European certification framework
- Launch training courses

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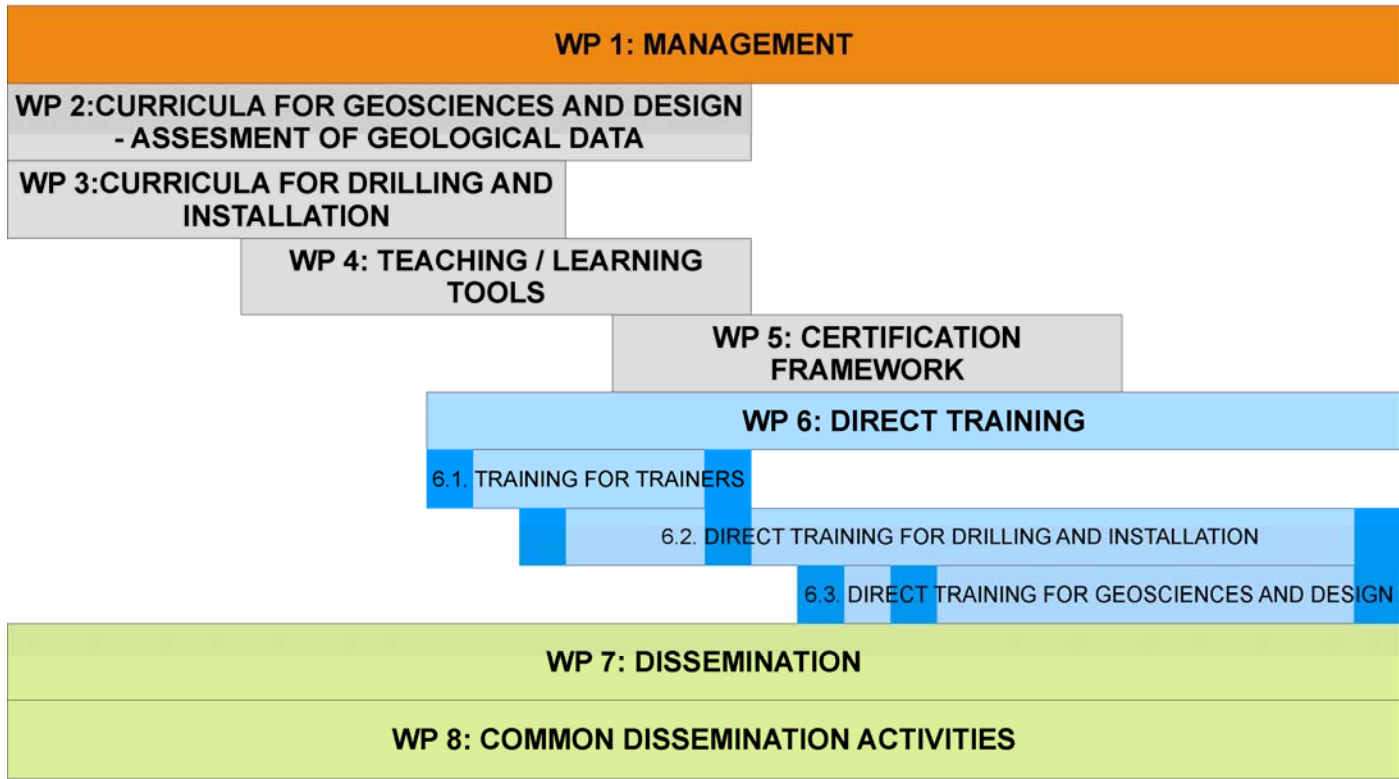
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Geo-Education
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heating and cooling market

Months

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
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Months

WP: Work Package

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Contents and programmes for training courses for Geothermal Drillers



Geo-Education
for a sustainable geothermal
heating and cooling market

The training courses are made for drillers already working in the geothermal sector:

- Professionals with 3 years of experience
- Students with background in mechanics

The training courses for drillers have 3 days:

- 1-day theoretical course
- 2-days practical training course

General topics

- Shallow geothermal configurations and applications
- Boundary conditions: energy sources, geology, hydrogeology, climate, environmental issues, costs, regulations
- Drilling methods
- Test drilling
- Environmental concerns

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Contents and programmes for training courses for Geothermal Drillers



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level of skills achieved

- familiarity with different drilling and digging technologies, choice of the optimum drilling method, ensuring protection of the environment (in particular groundwater) while drilling,
- ability to install borehole heat exchangers, to grout, backfill or otherwise complete the ground source system, and to perform pressure tests; skills for welding of plastic pipes and other connection methods,
- ability to construct groundwater wells, to install the relevant pipes, pumps and control systems
- ability to perform the relevant documentation incl. identification and drawing of drilling locations

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Contents and programmes for training courses for Geothermal Designers



Geo-Education
for a sustainable geothermal
heating and cooling market

The levels of existing skills and knowledge expected of the people who are to be trained are:

- Students: post graduate, more than 3 years in geology, engineering, hydrogeology, etc
- Professionals: engineers, geologists, technicians with 5 year of experience. Professional with the level 8th of education in the system EQF (European Qualification Framework)

The training courses for designers has 3 days course:

- 2-days theoretical course
- 1-day practical training course

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Contents and programmes for training courses for Geothermal Designers



Geo-Education
for a sustainable geothermal
heating and cooling market

General topics

- Limiting conditions: Energy sources; Geology; Hydrogeology; Climate; Environmental issues; Costs; Regulations
- System alternatives: Small systems (heating/cooling only); Small hybrid systems, Large systems (heating/cooling only); Large systems (heating and cooling), Large hybrid systems, system control
- Design fundamentals: concept study, feasibility study, site investigation, detailed design and optimization (energy load, available ground, design alternative, design criteria, ground loop sizing)
- Regulations: European legal framework, European norms, energy-efficiency building codes, environmental issues, water quality protection, hydraulic influence, thermal influence, incentives, sources of information and support

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Direct training on GSHP



Title of the course	Target group	Venue	New Date	Course language	Number of Trained people	Duration (hours)
1. Training for trainers	GSHP professionals: Designers and Drillers	Swedish Geological Survey Uppsala, Sweden	10-11-12 June 2009	English	40	24
2. Training for drillers	Drillers professional	Geological Survey of Ireland Dublin, Ireland	28-29 September 2009	English	40-60	12
3. Training for trainers	GSHP professionals: Designers and Drillers	GWE-Group, Peine, Germany	17-19 March 2010	English	40	24
4. Training for drillers	Drillers professional	BRGM Orleans, France	30-31 March 2010	French	40-60	24
5. Training for designers	GSHP designers	Newcastle University UK	14-16 April 2010	English	40-60	24
6. Training for designers	GSHP designers	University Polytechnic Valencia, Spain	5-6 July 2010	Spanish	40-60	24
7. Training for designers & drillers	GSHP designers & Drillers	Bucharest (Snagov) Romania	4-6 October 2010	Romanian	40-60	16 Designers 16 Drillers
8. Training for designers & drillers	GSHP designers & Drillers	Belgium	December 2010	English	40-60	16 Designers 16 Drillers

Training for trainers



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Courses of interest to those with experience in the design and installation of shallow geothermal systems AND in the delivery of training and dissemination of these subjects to practitioners:

- trainers of designers
- trainers of drillers

1st Course Training for trainers:
Geological Survey of Uppsala,
Sweden, 10-12 June 2009



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Training for drillers



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This course responds to the demand from the GSHP market.

The Drillers normally have a background in mechanics and work for drilling companies in water, foundation engineering, etc.; only a few are SMEs fully dedicated to geothermal energy.

2nd Course Training for drillers:
Geological Survey of Ireland,
Dublin, 28-29 September 2009



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GEOTRAINET E-learning platform



A screenshot of a Windows Internet Explorer browser window displaying the Geotrainet Moodle website. The browser's address bar shows "http://geotrainet.eu/moodle/". The website header includes the GEOTRAINET logo, the tagline "Geo-Education for a sustainable geothermal heating and cooling market", and a banner for "Supported by Intelligent Energy Europe" with the European Union flag. A "Sustainable Energy Europe" logo is also present, along with a "You are not logged in. (Login)" notification. The main content area features a central article titled "Geo-Education for a sustainable geothermal heating and cooling market" with text about Ground Source Heat Pumps (GSHP) and project objectives. To the left is a "Main Menu" with a "Login" form (Username, Password, Login button, and "Lost password?" link) and a "Courses" section listing "Dublin Course" and "Uppsala Course". To the right is a "Partners" section listing the "Coordinator" (European Federation of Geologists) and "Other partners" including the European Geothermal Energy Council, Arsenal Research, BRGM, GT Skills, Romanian Geoexchange Society, Universidad Politécnică de Valencia, University of Lund, and Newcastle University. A "News" section is partially visible at the bottom. The browser's taskbar at the bottom shows several open applications, including Outlook Express, PowerPoint, Google Translator, and the Geotrainet browser window itself. The system clock shows 4:58 PM.



GEOTRAINET E-learning platform



Course: Uppsala Course - Windows Internet Explorer

http://www.geotrainet.eu/moodle/course/view.php?id=17

File Edit View Favorites Tools Help

Course: Uppsala Course

People

- Participants

Activities

- Forums
- Resources

Search Forums

Go

Advanced search ?

Administration

- Profile

My courses

- Dublin Course
- Uppsala Course

Topic outline

- News forum

1 1st COURSE TRAINING THE TRAINERS: Programme of Designers

- Programme Designers
- List of Participants Designers
- Section A: Introduction**
 - Overview Shallow Geothermal Systems - Burkhard Sanner
 - Limiting conditions - Olof Andersson
 - Design fundamentals Part 1- Göran Hellström
 - Design fundamentals Part 2- Göran Hellström
- Section B: Elements**
 - Geology - Iñigo Arrizabalaga
 - Drilling (methods, costs, limitations, risks) - Iñigo Arrizabalaga
 - Borehole heat exchanger - Göran Hellström
 - Installation and grouting - Walter J Eugster
 - Ground loops Part 1- Göran Hellström
 - Ground loops Part 2- Göran Hellström
 - Heat pump technology - Paul Sikora, Javier Urchueguia
 - Functional and quality control - Walter J Eugster
- Section C: GSHP System Alternatives**
 - GSHP System Alternatives Part1- Göran Hellström
 - GSHP System Alternatives Part 2- Göran Hellström
- Section D: Regulations**
 - European legal framework - Burkhard Sanner and David Norbury
 - Energy-efficiency building codes- Radu Polizu
 - Environmental issues - Burkhard Sanner

Latest News

Add a new topic...

(No news has been posted yet)

Upcoming Events

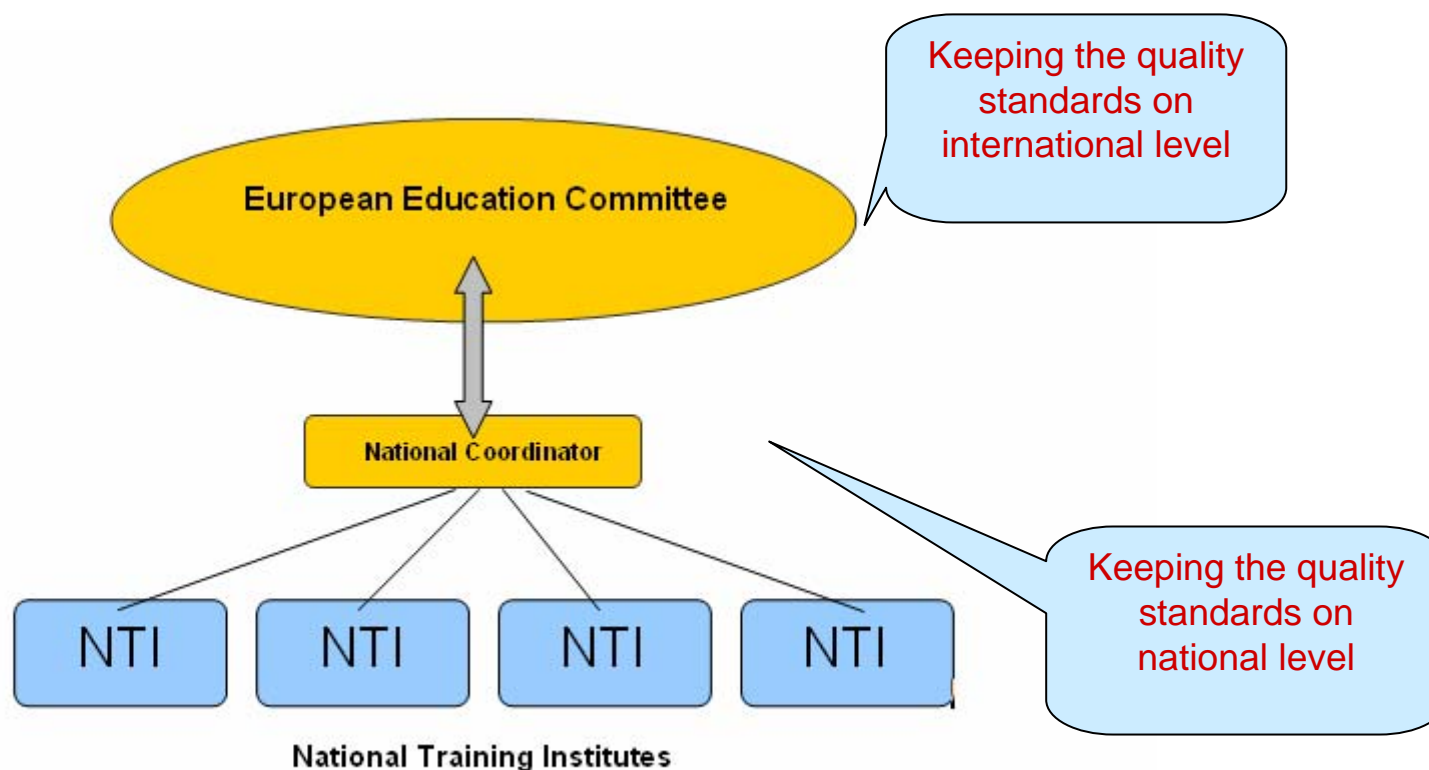
- International Conference: Geothermal Energy and CO2 Storage: Synergy or Competition?
Tomorrow, 09:00
» Thursday, 11 February, 17:00
- Study Day: Shallow Geothermics
Tomorrow
- GeoPower Americas 2010
Monday, 15 February, 09:00
» Wednesday, 17 February, 17:00
- First Annual Conference of the European Technology

Start | Internet | 100% | 5:11 PM

European Education Committee



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<http://www.geotraining.eu>

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