European Carbon Dioxide
Capture and StoragE Laboratory Infrastructure

Transnational Access to the ECCSEL RI

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HORIZON 2020

European Strategy Forum on Research Infrastructures ESFRI

H2020 Infradev-3 implementation project (2015 - 2017) providing trans-national access to 43 research facilities across Europe

14 partners are part of this project:

- **NTNU** (Norway) – Project Leader
- **BGS** (United Kingdom)
- **BRGM** (France)
- **CERTH** (Greece)
- **CIUDEN** (Spain)
- **ETH Zurich** (Switzerland)
- **GIG** (Poland)
- **OGS** (Italy)
- **PGI-NRI** (Poland)
- **SINTEF Energy** (Norway)
- **SINTEF** Materials and Chemistry (Norway)
- **SINTEF Petroleum** (Norway)
- **SOTACARBO** (Italy)
- **TNO** (The Netherlands)

Implementation and Transnational Access

Sorted by category/science area

Capture Labs

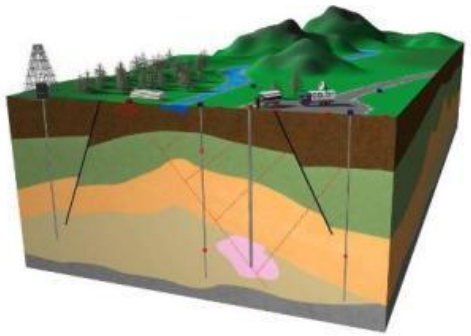
- Absorption Labs
- Membrane Labs
- Solid Sorbent Labs
- Cryogenics Labs
- Combustion Labs

Transport Labs

- CO_2 characterization Labs
- Material integrity Labs

Storage Labs

- Rock characterization Labs
- Field Labs



43 facilities are included in the Transnational Access program

Access is offered to 43 outstanding laboratories especially designed for the study of technologies and processes in all areas of CCS

NTNU (Norway):
- Fabricate polymer-based membranes
- Test membrane gas permeation performance
- Absorption kinetic studies
- Solvent degradation laboratory
- Thermodynamic studies package

TNO (The Netherlands):
- Mini Plant for solvent preparation & testing
- QSCAN (quick scan) solvent test street
- CLC fixed bed facility
- High pressure absorption & desorption pilot

BGS (United Kingdom):
- Transport properties research lab: Multi-phase flow in natural and engineered, low and ultra-low permeability geomaterials
- Rock Mechanics laboratory
- Hydrothermal Laboratory
- Near surface gas monitoring facility

SINTEF (Norway):
- Sorbent laboratories for CCS
- In situ characterization of solid materials for CCS
- Powder processing laboratories for CCS
- Membrane laboratories for CCS
- Solvent degradation Rig
- Tiller Pilot Plant (380 kW) designed to be as similar as possible to a full scale post combustion plant (with CO2 absorption and solvent regeneration).

43 Facilities are included in the Transnational Access program

CIUDEN (Spain):

- Pilot for CO2 injection in soils
- Transport test rig at CO2 technology Development centre for CO2 capture
- CO2 storage technology development plant

PGI-NRI (Poland):

- Micro Analysis Laboratory (isotopic, mineralogical and petrographical investigations, environmental protection studies, microbiology and archaeology
- Geophysical lab with tools for monitoring of shallow subsurface as well as groundwater-soil system with the use of a suite of geophysical methods

OGS (Italy):

- DeepLab sea floor landers for meteooceanographic physical and geochemical data collection
- Research aircraft equipped with high-tech remote sensing instruments
- Ecological laboratory for mesocosm experiments
- Panarea Natural Laboratory to study the impact of CO2 on benthic organisms and marine ecosystems

43 Facilities are included in the Transnational Access program

SINTEF Energy (Norway):
- Chemical Looping Combustion rig
- High pressure Oxy-Fuel combustion facility
- Facility for accurate phase equilibrium measurements of CO2-rich mixtures

CERTH (Greece):
- Chemical Looping Combustion facility
- CO2 storage facilities

SOTACARBO (Italy):
- Coal to Hydrogen Generation pilot plant

BRGM (France):
- Monitoring of microbiological and geochemical processes in high pressure and dynamic conditions

ETH Zurich (Switzerland):
- Adsorption equilibrium measurement balance
- Two column lab PSA setup
- Mineral carbonation: Flue gas mineralization unit
- High pressure hydrostatic flow cell

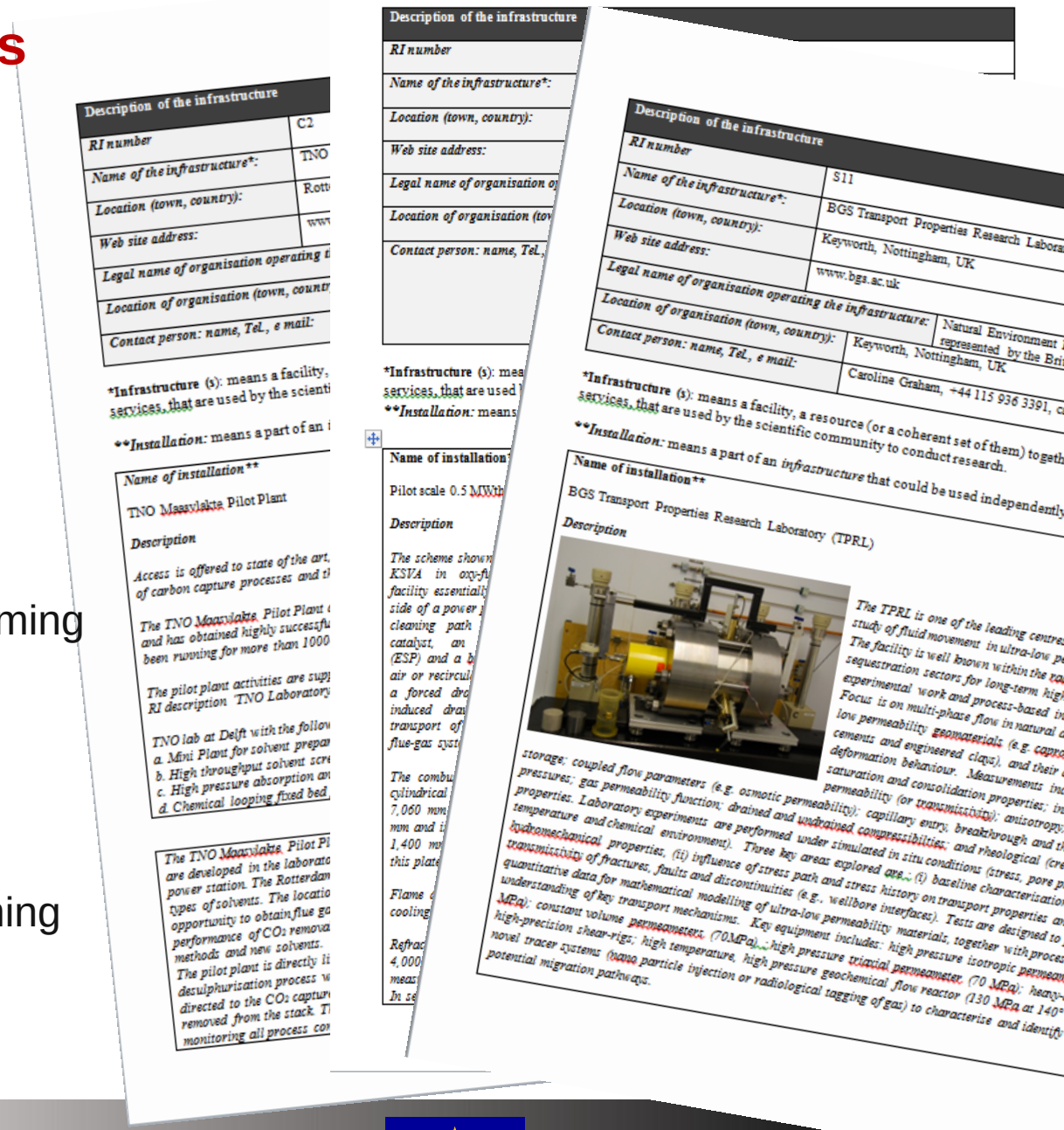
GIG (Poland):
- High pressure thermogravimetric analyser
- Fixed bed reactor
- Pilot-scale moving bed reactor

SINTEF Petroleum (Norway):
- Core Flood (SCAL) laboratory
- Fluid (pVT) laboratory

Transnational Access

Fact sheets (web) for all 43 TA facilities

- Organisation name
- Installation name
- Location (Google map coming soon)
- Category, Science area
- Short description
- Pictures
- Calendar (availability coming soon)



EU financed Transnational Access (TA) definition

'Free of charge' provision of **access to a research infrastructure to *selected* researchers or research teams (*including from industry)* usually working in a country other than the country where the RI is located.**

TA can be:

- **In person ('hands-on')**: users visiting the infrastructure, e.g. access to a research vessel or facility
- R**emote scientific services**: No visit needed, e.g. performance of sample analysis

*The **selection** of researchers or research teams shall be carried out through an **independent peer-review evaluation** of their research projects.*"

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Independent Selection Panel: Peer Review Committee

Tasks:

- Selection of the proposal
- Allocation of the facility to prospective users
- Assessment reports will be made public via the web-site
- For rejected application, reasons and feedback will be given to applicant

Composition (experts nominated by the General Assembly):

- The Project Coordinator
- Internal Scientific Group from relevant partners (2-3 members)
- External Advisors from Industry, Academia and Research Institutions (3 members)

Principles:

- Transparency
- Fairness
- Impartiality

Independent Selection Panel: Peer Review Committee

Evaluation of the Transnational Access project proposals will be made in accordance with the **ECCSEL principles** (**scientific quality, relevance, and uniqueness**) and **selection criteria** developed during the preparatory phase.

Selection criteria:

- **Technology Readiness Level** (reviewed through Task 1.5 Innovation Management Tool)
- Level of Research and the extent the proposal will **produce new knowledge**
- **Scientific Merit** (Originality, Innovation, Methodology, State of the art)
- **Feasibility, Relevance**
- **Dissemination of results**
- **Ethical** Perspective
- **Environmental** Impact

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Transnational Access - User obligations

The user of Transnational Access (TA) to the ECCSEL RI must:

- Use the ECCSEL **electronic application form** to apply for access under this TA program.
- Complete an ECCSEL **pre-research questionnaire** if their project has been selected before commencing research.
- Complete an ECCSEL **post-research questionnaire** after the visit of the research facility.
- Users must provide **a written report**, conforming to the rules specified by the European Commission, at the end of their visit (**1 page summary report and description of highlights of project results**). These reports will be submitted by ECCSEL to the Commission as **annual or final research project reports**, and **may be published** by the Commission.
- Users must also complete the **EU on-line survey** at https://ec.europa.eu/eusurvey/runner/RIsurveyUSERS.
- Complete the **travel and subsistence costs claim form** and submit the signed form together with the related receipts. **Payment** of travel and subsistence costs will only be completed after receipt of these and **after completion of the above listed documents**.

Access Costs for transnational access

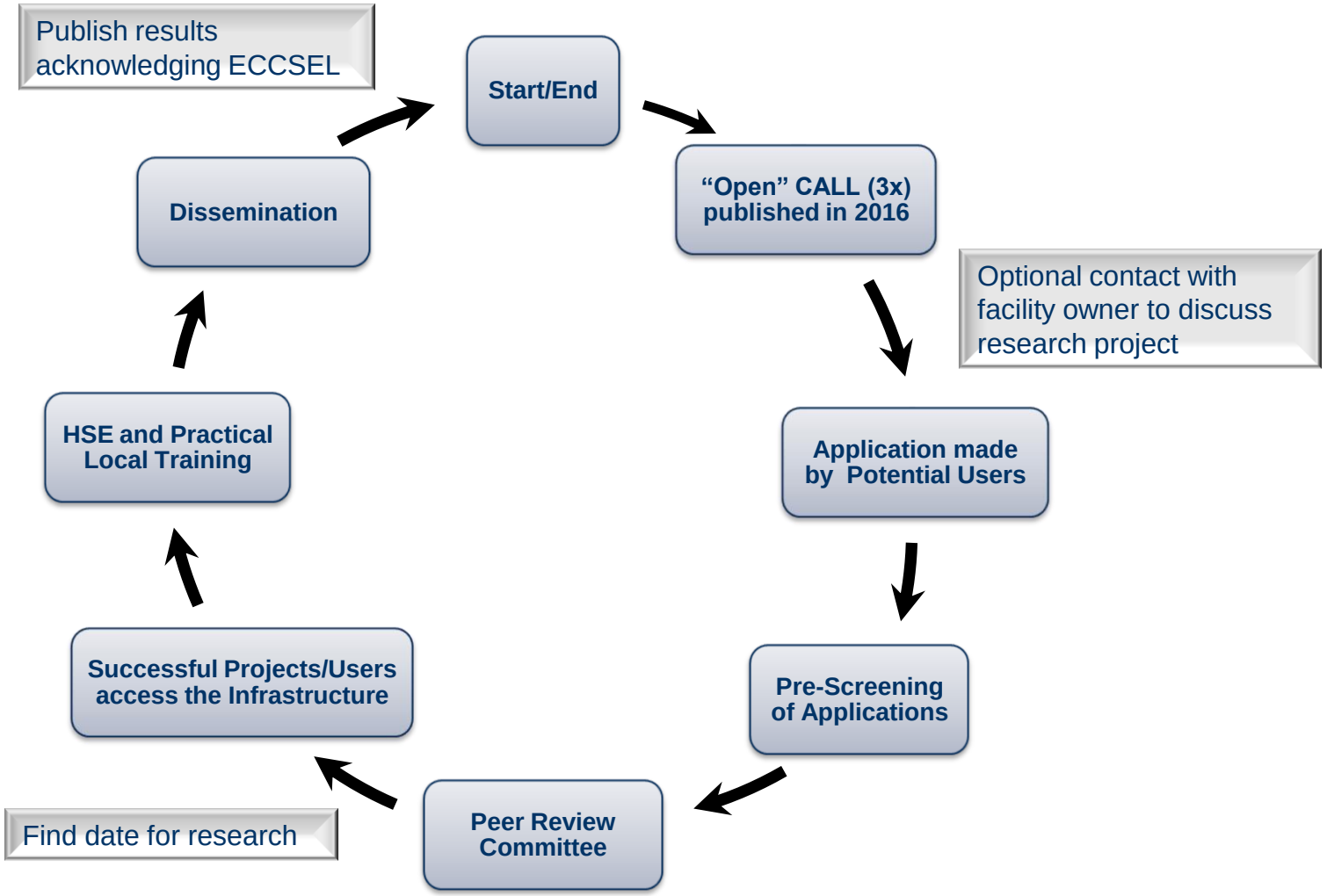
Access costs: Costs incurred by the access provider for the provision of access.

They cover:

- *The **running costs** of the installation*
- *Costs for **logistical, technological** and **scientific support** to users' access, including **ad-hoc training** and **preparatory and closing activities** necessary to carry out user's work*

Researcher expenditure:
Covers travel, subsistence

Transnational Access (funded by the H2020 Infradev3 Project)



Thank you for the attention!

www.eccsel.org

How much access is available ?

At least one EU funded access to each of the included facilities

- Typical time for a research project is listed on fact sheet
- Reasonable Travel and Subsidence funding for one researcher
  - Up to € 500 for travel
  - Up to € 100 for each day at the facility
  - Travel claim with receipts must be submitted

- Access is also available to all those facilities and some additional which will be listed soon to researchers paying the access costs

Transnational Access - Access provider obligations

- **Publicise** widely the **access offered** under the grant agreement and the modalities to apply
- Take into account the **gender dimension** in advertising the access and defining the support provided to users
- Set up an **independent selection panel** to select the users to be supported
- Maintain & **provide to EC appropriate documentation** to support and justify the amount of access reported (name, nationality and affiliation of users; nature and quantity of access provided to user teams, selection panel members & selection procedure)
- *A measurable unit of access for each installation must be identified and clearly defined in Annex I to the GA*

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Independent Selection Panel: Peer Review Committee

Other Selection Criteria:

- Users (groups) need to be entitled to disseminate results they have generated under the project
- Priority should be given to user groups:
  - Who have not previously used the infrastructure
  - Who are working in countries where no such infrastructures exist

Transnational Access - User obligations II

The user of Transnational Access (TA) to the ECCSEL RI must:

- Declare the **composition of any chemicals** they might want to bring with them to an ECCSEL research facility to use in their research project.
- **Acknowledge in their publications** that their work was financially supported by the **European Union's Horizon 2020** Research and Innovation Programme by displaying the **EU emblem** and including the following **text**: "This [insert type of research/result] has been done (achieved) using the ECCSEL RI and is part of a project that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 675206"
- Shall **abide by the normal working practices**, working hours, and health and safety regulations of the visited facility while present at the site.
- The Infrastructure or facility shall incur no liability in respect of any claim that may arise from the use of its facility under this contract. **The presence of Users in the facility occurs at their own risk**. Neither the personnel of the facility nor the facility or Research Infrastructure itself accept liability for the damage or loss of any instruments, apparatus and test equipment of the Users whether or not such damage or loss was caused directly or indirectly by their negligence. **Each visiting user will ensure he/she has appropriate insurance**, including personal health, accident cover and personal liability. The Reasearch Infrastructure may conclude an access contract with the leader of a user group.