The increasing energy request of our society combined with the environmental cost of the extensive use of coal and hydrocarbons requires an integrated and balanced management of energy resources. A wide range of solutions already exist. Some of those directly produce low carbon power, such as solar, wind, marine energies, hydrogen, hydraulic energy, biogas, geothermal and nuclear. While others, like CCUS, may help to sequester the greenhouse gas emissions from heavy industry. These different energy sources have distinct technical characteristics associated with advantages and disadvantages that must be gauged, compared and in some case combined. The development of the potential of each of these solutions requires a fundamental contribution from the geoscience disciplines. This summer school proposes a panorama of various geosciences. The training will alternate presentations with case studies that will be in the multidisciplinary team and the number of participants will be limited to 25. The fee is 300,00 € and includes enrolment and participation at the seminars and lectures, supporting teaching material, accommodation, one meal/day. Other expenses will be paid by participants. Please send your application before July 31st, 2021 to the following email address: ssenergy@unicam.it. After your application will be validated, bank details will be sent by mail for the pre-registration fee of 150,00 €.

### Monday 20
- 09.00 Opening of Summer School and welcome address by Authorities and Organizing Committee
- 10.00 Open Webinar Present-day energy mix scenarios Isabelle Moretti UPPA
- 12.00 - 13.00 Open Webinar Ricerca per la Ripresa e la Resilienza Carlo Doglioni President of INGV
- 15.00 - 18.00 GEO Technologies/Practical: Subsurface structural modelling, cross-section balancing and restoration Stefano Mazzoli UNICAM Matteo Basili UNICAM Luca Mattioni Freelance

### Tuesday 21
- 09.00 Open Webinar Circular & Energy transition Luca Meini Head of Circular Economy, Enel Holding
- 10.00 Decarbonized source of energy: geothermal Roberto Gambini RE&E
- 11.30 - 13.00 Decarbonized source of energy: CCS Sabina Bigi Sapienza, Università di Roma
- 15.00 - 18.00 GEO Technologies/Practical: Thermodynamics of a geothermal system Roberto Gambini and Alessandro Lenzi RE&E CCS exercises Sabina Bigi Sapienza, Università di Roma

### Wednesday 22
- 09.00 Open Webinar The energy transition: developments in markets and politics Lucia van Geuns Strategic Advisor Energy - The Hague - HCSS
- 10.00 - 13.00 Natural Hydrogen Isabelle Moretti UPPA
- 15.00-18.00 GEO Technologies/Practical: Natural reservoirs of geofluids: from fracture to flow Emanuele Tondi UNICAM
- 15.00 - 18.00 Energy storage (Heat, gas, etc.) Isabelle Moretti UPPA

### Thursday 23
- 09.00 Open Webinar Monitoring natural and industrially generated deformation processes Davide Piccinini and Lauro Chiaraluce INGV
- 10.00 Biogas Isabelle Moretti UPPA
- 11.30 - 13.00 Energy storage (Heat, gas, etc.) Isabelle Moretti UPPA
- 15.00 - 18.00 GEO Technologies/Practical: Imaging of fluid in the subsurface: case studies David Iacopini Unina

### Friday 24
- 09.00 Open Webinar Fossil Fuel and the Decarbonization Massimo Nicolazzi Docente di Economia delle fonti energetiche UNITO
- 10.00 Waves Power and coastal dynamics Chiara Invernizzi UNICAM
- 11.00 Wind and Solar Franco Sansone RE&E
- 12.00 - 13.00 Natural resource assessment Roberto Gambini RE&E
- 15.00 - 17.00 Summer school closure Organizing Committee

**THE ROLE OF THE GEOcientist IN THE ENERGY TRANSITION**

**Camerino, Italy 20 - 24 September 2021**

Although the jobs are sometimes presented as antagonistic, the competencies required to manage the new energy sources are somewhat like those needed for any natural resources. Understanding resources, reserves, uncertainties, and risk management are a vital competence that geoscientists may use on many occasions. Those topics will be presented and discussed during the week of the summer school.

### Location
University of Camerino, Italy

**Join the open webinars here:** https://unicam.webex.com/meet/emanuele.tondi

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**Organizing Committee**
- Sabina Bigi (Sapienza University of Rome)
- Roberto Gambini (RE&E)
- Isabelle Moretti (UPPA)
- Emanuele Tondi (Camerino University)

**Registration & Fees**
The school is dedicated to PhD and PostDoc student in geosciences. The training will alternate presentations with case studies that will be in the multidisciplinary team and the number of participants will be limited to 25. The fee is 300,00 € and includes enrolment and participation at the seminars and lectures, supporting teaching material, accommodation, one meal/day. Other expenses will be paid by participants. Please send your application before July 31st, 2021 to the following email address: ssenergy@unicam.it. After your application will be validated, bank details will be sent by mail for the pre-registration fee of 150,00 €.