Eni's HPC5 supercomputer contributes to Coronavirus research

The supercomputing infrastructure will support researchers in virus analysis

San Donato Milanese (MI), 9 April 2020 – Eni has freely made its supercomputing infrastructure and its molecular modelling skills available for Coronavirus research, offering its contribution with its tools and resources of excellence in the fight against this global emergency.

The collaboration is part of the European EXSCALATE4CoV project, led by the biopharmaceutical company Dompé, which brings together institutions and research centres in Italy and other European countries to identify the safest and most promising drugs in the fight against the Coronavirus. Eni contributes to the project in partnership with Cineca, a non-profit research consortium that involves the collaboration of universities, national research centres and the Italian Ministry of Education, University and Research.

The joint team will carry out dynamic molecular simulations of viral proteins relevant to the COVID-19 strain, to identify the most effective pharmaceutical components among the 10,000 present in the databases. Afterwards, an activity will be carried out for the research of new specific anti-viral molecules through the screening of billions of structures.

Eni has already started the activity with Cineca, and is providing the consortium with its technical skills and its HPC5 supercomputing system, the world's most powerful

supercomputer for industrial use. Its hybrid architecture makes the algorithms for molecular simulation particularly efficient.

"During a global emergency such as this, we must mobilize all available resources to overcome the challenges ahead. We are proud to contribute to finding solutions to this challenge facing humanity," said Claudio Descalzi, Eni's CEO.

"We thank Eni for its valuable contribution and we are confident that this collaboration will significantly contribute to achieve a result in the next future as well as providing a model for the recovery" said Sanzio Bassini, Director of Cineca's supercomputing department.

*Notes

Eni's initiatives to support Covid-19 emergency

- As part of its work to stop the spread of coronavirus, Eni has launched a series of initiatives to support those fighting on the frontline the pandemic in Italy, reaching a total contribution of 35 million euros;

- Eni sent ventilators for sub-intensive care to Giovanni XXIII Hospital and a local health facility in Bergamo;

- in Basilicata, Eni continues to supply ventilators, intensive and resuscitation care beds, and mobile units equipped with spirometers, oximeters and ultrasounds, and CPAP (Continuous positive airway pressure) machines;

- Eni has also helped local health units in Ravenna and Ancona, emergency services in Ravenna, and the Italian Red Cross in Pesaro, Ancona and Ortona. Eni is supplying medical equipment including respirators, lung ventilators and defibrillator monitors. All supplies are ongoing;

- In Sicily, Eni has created an engineering plan to set up intensive care wards at "Vittorio Emanuele" hospital in Gela, which would also help the Azienda Sanitaria Provinciale's overall planned activity which involves the entire community of the Province. It is also supplying sterilisers to the hospital in Gela. For local health authorities in Messina and Milazzo, the Milazzo Refinery (Eni 50%) is supporting a project to create intensive care wards at Milazzo hospital;

- In Puglia, Eni has helped local health facilities in Taranto and Brindisi by providing intensive care equipment at specific hospitals chosen by the regional government. The company will soon be sending lung ventilators, ventilators and respirators, and patient monitors. Other equipment is also on its way to regular and intensive care wards in Brindisi;

- Eni will deliver a large number of masks to local health facilities in Lombardy, Veneto, Emilia Romagna, the Marches, Basilicata, Puglia, Sicily and Sardinia;

- Eni has begun a great deal of medical and social work to help those fighting the pandemic in Italy, drawing on its previous experience of global medical projects;

- Eni is the Agostino Gemelli IRCCS University Hospital's sole partner on a project to build a hospital in Rome in the former private Columbus Hospital), which will exclusively treat patients with the coronavirus. The facility has 130 bed spaces, 50 of them in intensive care, and has advanced technologies for diagnosing the disease, including RCX, CAT and transthoracic ultrasound. The same project also set up an emergency department for coronavirus patients at Gemelli Hospital;

- At Luigi Sacco IRCCS Hospital in Milan, the company is also setting up an emergency department for the treatment of infectious diseases;

- In Pavia, at San Matteo IRCCS Hospital, Eni is helping set up a high-level isolation unit in the infectious diseases department;

- Eni has also supplied medical equipment, including resuscitation and personal protection equipment, to the San Donato IRCCS Hospital;

- Eni is also funding public information campaigns alongside the Federazione Italiana dei Medici di Medicina Generale (the Italian GPs' association). These include one on the role of family doctors in helping people fight the coronavirus, and another targeting older people, to inform them about services available to them to help with daily tasks now they are not allowed to leave home;

- Eni has given the Lombardy regional government and Civil Protection a series of charter flights to transport medical equipment, such as ventilators and masks (in collaboration with the China-Italy Philanthropy Forum);

HPC5 – Eni's supercomputer

Eni presented its new supercomputer HPC5 in February 2020. It supports the previous system (HPC4), by tripling its computing power from 18 to 52 PetaFlop/s, equivalent to 52 million billion mathematical operations per second, allowing Eni's supercomputing ecosystem to reach a total peak power of 70 PetaFlop/s. The supercomputer was designed to accelerate the company's transformation and the development of new energy sources. Its excellent computing power is now available for Coronavirus research. Eni's Green Data Center, that houses all of the company's supercomputing systems and data, is the ideal location for the HPC5 presentation: it has been developed to achieve world-leading energy efficiency results also thanks to the nearby photovoltaic plant that is partially powering HPC5

HPC5 – HD video:

HPC5 – HD images:

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Company contacts:

Press Office: Tel. +39.0252031875 – +39.0659822030
Free phone for shareholders (from Italy): 800940924
Free phone for shareholders (from abroad): + 80011223456
Switchboard: +39.0659821

ufficio.stampa@eni.com
segreteriasocietaria.azionisti@eni.com
investor.relations@eni.com

Website: www.eni.com