

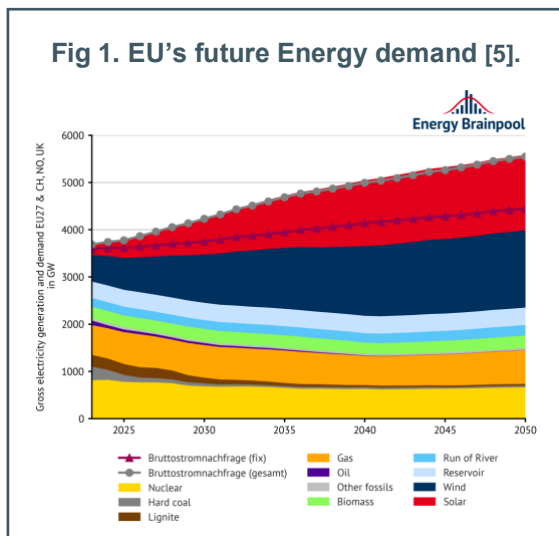
Policy Brief: Energy and Utilities

The PROTECT Project

PROTECT supports urgent action for **climate adaptation, mitigation, and resilience**. It enables public authorities to use state-of-the-art public procurement approaches in order to identify solutions – **Climate Services (CS) based on Earth Observation** – that best fit the specific and systemic needs of the public demand. The focus is on five application domains, namely: Energy & Utilities, Sustainable Urban Communities, Agriculture, Forestry and other Land use, Marine and Coastal Environments and Civil Security and Protection. PROTECT will source and assess existing and high-potential CS solutions and technologies that use Earth Observation data. It will engage with an extensive and varied community of procurers, facilitate the definition and aggregation of their needs and functional requirements for climate services, explaining, fostering and supporting a 'buying with impact' approach. PROTECT will **prepare the operational ground for one or more joint, cross border or coordinated pre-commercial procurement (PCP) processes**. At policy level, it will provide decision-makers for procurement, climate and policy, at EU, national, regional and local levels, with practical recommendations and guidelines to boost the use of innovation procurement for climate action.

Summary

- Climate changes **exposes the Energy and Utilities sector to several challenges**, including droughts, heatwaves, extreme weather events, and water pollution, all of which can affect freshwater and energy supply at the same time as the **demand for those services is rising**.
- To meet rising energy demands [5] in the future, caused by a **move to a net zero economy**, the Energy and Utilities sector must become more resilient and independent.
- Climate Services using Earth Observation data can **support the development of climate-resilient energy infrastructure** and the monitoring of water pollution and extreme events.



Recommendations

- To meet the EU's ambitious zero emission and zero pollution targets for the Energy and Utilities sector, **innovative solutions are required**.
- Climate Services utilising Earth Observation data can support the sector **in optimising energy efficiency** as well as increase its resilience to the multifaceted risks posed by climate change.
- A PCP call enables stakeholders to trigger the development of innovative solutions that can **address the main challenges and opportunities** the Energy and Utilities sector is exposed to.

Box 1: Pre-commercial procurement

Pre-commercial Procurement (PCP) is a specific approach to procure R&D services that involves competitive development in phases, risk-benefit sharing under market conditions, and where there is a clear separation between the PCP and the deployment of commercial volumes of end-products (potential follow-up **Public Procurement of Innovative solutions - PPI**). PCP identifies the best possible solutions the market can develop, by comparing alternative solution approaches from different technology vendors in parallel. By steering the development of innovative solutions towards concrete public sector needs, PCP may trigger industry to initiate R&D that was previously unthought-of. In PCP, procurers are thus demanding customers, who are articulating advanced solution requirements as potential future early adopters of the developed solutions (which will be selected in a separate PPI procurement that follows the completion of the PCP).

Introduction

The risks and challenges posed by climate change for the Energy and Utilities sector are **complex**, including extreme temperatures and heat waves, which can spike energy demand, leading to **potential brown outs or blackouts** [1]. Additionally, extreme rainfall, storms, and flooding can damage energy infrastructure, spiking costs, while droughts, or water pollution can affect freshwater resources [1].

The Energy and Utilities sector is further responsible for **73% of global greenhouse emissions** and these would need to be reduced by 70% by 2050 to meet global climate goals [2]. For effective climate risk management, that protects the vulnerable energy infrastructure and to **achieve a sustainable energy transition** away from fossil fuels, innovative solutions are needed.

Climate Services (Box 2), especially those utilising Earth Observation (EO) data (Box 3), are increasingly used to support climate risk management in the Energy and Utilities sector, as well as for the optimisation of resource management. **Pre-commercial procurement of these services is a key driver** in the development of innovative Climate Services that aim to address the risks and challenges posed by climate change.

Box 2: Climate Services

Climate services describe the transformation of **climate-related data** — together with other relevant information — into customized products such as projections, forecasts, information, trends, economic analysis, assessments (including technology assessment), counselling on best practices, development and evaluation of solutions and any other service in relation to climate that may be of use for the society at large. As such, these services include data, information and knowledge that support adaptation, mitigation, and disaster risk management (DRM) [1].

Policy developments

The EU's Energy Policy calls for a reduction to **net zero greenhouse gas emissions by 2050** and an improvement of 32.5% in energy efficiency by 2030 [3]. In March 2023, it was further agreed that by 2030 to aim for a 45% share of renewable energies in energy consumption as well as an **overall reduction of 11.7% for the EU primary and final energy consumption** [3].

The EU Drinking Water Directive, which came into force in 2022, set strict standards for water quality, access to freshwater, and increase resource efficiency of the sector [4]. The policy further calls for

requirements for **frequent risk assessments and water quality reporting** [4].

Opportunities

The Energy and Utilities sector **faces risks and challenges** from climate change as well as ambitious policy targets, which necessitates **innovative solutions**.

Climate Services procured through a PCP call offer such solutions that **support the efficiency and optimisation** of the Energy and Utilities sector, increase its resilience to climate impacts, and facilitate its transition to zero emission industry, in line with policy targets, all **tailored to specific stakeholder needs**.

Box 3: Earth Observation

Environmental observation involves collecting and monitoring information and data regarding changes and trends in industrial, economic, and global environments. These pieces of data help researchers understand changing environments to inform potential changes in things like climate change policies and disaster relief plans [2]. **Earth Observation (EO)** is defined as the process of acquiring observations of the Earth's surface and atmosphere via remote sensing instruments. The acquired data is usually in the form of digital imagery [3]. EO satellites have been essential to identifying and monitoring climate change and it supports mitigation and adaptation measures by providing vast amount of EO data.

Conclusions

As a current major source of greenhouse emissions, the **Energy and Utilities sector must commit to the transition to a zero emission and pollution industry** at the same time as increasing its resilience to climate change impacts.

Innovative and sustainable Climate Services, procured through a PCP call, can **provide key insights to support this transition** and make the sector resilient to the impacts of climate change and extreme events.

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References:

- [1] [Gerlak et al.](#) (2018)
- [2] [UNDP](#) (2023)
- [3] [European Parliament](#) (2023)
- [4] [European Commission](#) (2023)
- [5] [Energy Collective Group](#) (2022)