

Sustainability Engineering Trends Q2 2022

Author: Pareekh Jain, CEO and Lead Analyst, EIIRTrend






Sustainability is a megatrend and all enterprises are striving to increase their sustainability efforts. Engineering service providers can help to improve the sustainability of enterprises.

This is our quarterly sustainability engineering trends tracker based on our sustainability engineering framework defined in our earlier [PoV](#).

Sustainability services can be classified into five categories: energy, material, pollution, water, and food or forest. These categories are further divided based on changes in usage mix, reduction in wastage, or increase in efficiency. The five categories are applicable across three segments: products, process, and place.

There are many examples of sustainability services and initiatives we found in Q2, 2022 across these five categories and three segments, as summarized in Exhibit 1. Details are discussed in sections to follow.

Exhibit 1: Summary Sustainability Engineering Engagements Q2, 2022 (Enterprises & Service Providers)

		Product	Process	Place
 Energy	Savings	Alliance Airlines, Airbus, LTTS, Fanuc, Eaton, Microsoft,	Siemens, Atos, GE Digital, ABB, Thoughtworks, Nokia, Ericsson	Intellias, Metsa, AFRY, IBM, LEGO, JLL, Accenture, Johnson Controls
	Mix	TotalEnergies, ENEOS Polarium, FEV, Airbus, Faurecia, GE Aviation,	CEMEX, Bloom Energy, Tech Mahindra	Thales, AFRY, Segula, Cipla, Jio, bp
 Material	Savings	Barclays, Bausch + Lomb	Pepsico	TotalEnergies
	Mix	BMW, Baosteel, Volvo Trucks, Continental	LG Chem, Tetra Pak	Elomatic
 Pollution	Reduction	AFRY	Citec, Wartsila, Exxonmobil, Chevron, BSM	ZF, MG Motor, Siemens
 Water	Savings			Itron, Yokogawa
	Mix	Italy, Israel	HCL	
 Food/Forest	Wastage	Unilever		
	Mix	Tnuva		
Overall		Accenture, AFRY, Etteplan, Cisco, Barclays, BNP Paribas, Salesforce		

Source: EIIRTrend, Media Reports

Energy

Energy, especially that produced from fossil fuels, is a major concern for sustainability. There are two ways in which energy can be leveraged for sustainability: by changing the energy mix and by generating savings in energy usage.

- **Energy Mix:** Many enterprises are reducing the use of fossil fuels by changing the mix of their energy usage. Some examples in Q2, 2022.
 - CEMEX to turn CO2 into sustainable aviation fuel.
 - Thales to deploy the first ATC radar station in the world to be powered 100% by sustainable solar energy. A revolutionary innovation using green technology and 330 solar panels, taking advantage of the high rate of solar incidence in Chile.
 - Japan: TotalEnergies and ENEOS to Study Sustainable Aviation Fuel production at ENEOS Negishi Refinery
 - TotalEnergies and ENEOS join forces to Develop B2B Solar Distributed Generation across Asia
 - Sustainable energy storage solution company Polarium raises €91.84M. The company provides energy storage solutions to the telecom, commercial, and industrial segments. Its headquarters and R&D centre is situated in Sweden, with manufacturing in Mexico, Vietnam and South Africa.
 - FEV partners with ORECA to develop hydrogen engine for Dakar Rally
 - Bloom Energy to Power India's First Green Hydrogen Microgrid
 - Bloom Energy Delivers Renewable Power from Dairy Farm Waste
 - Faurecia is accelerating its strategy to become CO2 neutral by purchasing renewable electricity on site
 - GE to launch new Renewable Energy Digital suite
 - GE Aviation Completes Testing of Passport Engine using 100% Sustainable Aviation Fuel
 - Airbus to set up UK hydrogen technology center for zero-emission aircraft
 - AFRY is involved in connecting the offshore wind farm Krieger's flak to the electricity grid on behalf of Vattenfall
 - As part of a framework contract with the energy operator EDPR, a world leader in renewable energies, SEGULA Technologies has participated in the construction and commissioning of two wind farms in Spain: Piedrahita and El Castillo,
 - Targeting hydrogen: IAV and Sonplas develop measuring system for hydrogen injectors
 - TotalEnergies and Adani Join Forces to Create a World-Class Green Hydrogen Company in India
 - Jio-bp to power Zomato's EV journey
 - Cipla has added capacity to its solar farm to run manufacturing units in Maharashtra.
 - Tech Mahindra establishes an Engineering Center of Excellence in product cost management for a large French Renewable Energy company.

- **Energy Savings:** The efficiency of energy usage can be increased by reducing energy wastage and losses across products, processes, and places. Some examples in Q2, 2022.
 - Alliance Airlines Focuses on Fuel Efficiency with Expanded Relationship with GE Digital Aviation Software
 - LTTS and Airbus have signed a partnership agreement for Skywise App Editor Programme. This partnership enables LTTS to build and deploy applications for 140+ airlines across the globe. LTTS is creating applications for fuel optimization, component analysis, cabin health, MRO spares, and many others.
 - Intellias and CREE Buildings Partnership Drives Construction Industry Innovation. Intellias is working on building digital platform for sustainable buildings
 - Mendix and Atos expand global partnership to drive efficient, digital decarbonization across every industry with enterprise low-code
 - Petroleum Development Oman Builds Sustainability with GE Digital's Advanced Energy Management System
 - Metsä Board, part of Metsä Group, has awarded AFRY an assignment to deliver a Industry 4.0 solution, based on AFRY's digital system platform, integrated with internal product logistics systems for its Husum mill in Sweden. Husum mill is now increasing its capacity and upgrading to a higher level of energy efficiency
 - ABB New digital appraisal service will use the power of data to reveal industrial energy saving opportunities
 - Nokia announces new SaaS services targeting network energy efficiency and home device management
 - Nokia and Taiwan Mobile strengthen partnership with energy-efficient 5G coverage expansion deal
 - SL Green Adopts IBM Technology to Operationalize Sustainability Initiatives Across Extensive NYC Real Estate Portfolio
 - ABB Ability digital solutions to help CERN boost energy efficiency of critical cooling systems
 - With the price of electricity on a steep upward climb due to a number of external market influences, FANUC is witnessing more enquiries for its latest energy-saving series of ROBOSHOT ALPHA-SiB CNC injection moulding machines. These all-electric machines consume up to 70% less energy than a conventional hydraulic powered alternative,
 - The LEGO Group plans to invest over \$1 billion to build a carbon-neutral factory in the U.S. It will have 100% of its energy needs matched by renewable energy, and will also be designed to minimize energy consumption.
 - Eaton to expand collaboration with Microsoft on grid-interactive UPS technology

- Engineers at the NCC, the U.K.'s R&D center for advanced composites, are working with Airbus on its "eXtra Performance Wing" demonstrator program designed to accelerate technologies in wing aerodynamics that improve performance and reduce environmental impact. The eXtra Performance Wing program is reported to be developing and validating breakthrough active control technologies that can adapt the wing shape and area to the particular weight, speed and altitude of the aircraft to suit flight conditions
- JLL launches the Centre of Excellence for Sustainability in Commercial Real Estate in Montréal.
- Accenture and Johnson Controls are collaborating to deliver and operate two new OpenBlue Innovation Centers. The centers will drive Johnson Controls' rollout of building control system products and services using technologies such as artificial intelligence (AI), digital twins, internet of things (IoT), 5G and the cloud. The goal is to accelerate advanced automation in building operations to achieve greater sustainability, safety, security and user experiences.
- Holaluz Measures and Monitors Progress towards Sustainable Cloud Journey with Thoughtworks
- Chunghwa Telecom cuts energy use by an average of 33 percent using Ericsson 5G solutions
- Thoughtworks launched its sustainability consulting services with its Cloud Carbon Footprint tool, a free and open source tool, converts cloud use into estimated energy consumption and carbon emissions.



Materials

Materials are made from a combination of different metals and elements. Most metals are non-replenishable resources and their proper and environment-friendly use and reuse is essential. There are two ways materials can be leveraged for sustainability: by changing the materials we use and by savings in material usage.

- **Material Mix:** Swapping the materials we use with more environment-friendly options across products, processes, and places. Some examples in Q2, 2022
 - Baosteel Shipped the First Bulk Order of "Carbon Neutral" Steel Products
 - 100-percent green power: BMW Group to use sustainably produced aluminium wheels from 2024
 - Volvo Trucks: First in the world to use fossil-free steel in its trucks
 - LG Chem develops advanced plastic materials that prevent battery's thermal runaway

- Elomatic to design a factory for Greenful Group that makes sustainable construction materials
 - Tetra Pak tests an industry-first: a fibre-based barrier to replace the aluminium layer.
 - Volvo CE first in the world to deliver construction machine built using fossil-free steel to customer
 - Continental Tires with Polyester Made from Recycled PET Bottles Now Available throughout Europe
- **Material Savings:** Increased savings in material usage across products, processes, and places. Some examples in Q2, 2022.
 - Barclays leads a \$6.6M Seed Round in RESPONSIBLE, a company driving circularity in the fashion industry
 - Bausch + Lomb Reports More Than 41 Million Units Of Contact Lens, Eye And Lens Care Materials Recycled Through ONE By ONE and Biotrue Eye Care Recycling Programs
 - Plastic Recycling: TotalEnergies and New Hope Energy partner on U.S. Advanced Recycling Project
 - PepsiCo Saves 96% by 3D Printing Bottle Molds. 4 weeks to 48 hours, \$10,000 to \$350.



Pollution

Pollution is one of the major concerns for sustainability, and it is imperative to reduce pollution. Many enterprises aspire to be net-zero emissions enterprises. Some examples in Q2, 2022

- ZF's Global Remanufacturing Supports Sustainability by Reducing CO2 Emissions, Saving Energy
- Wärtsilä invests in Marindows to support shipping decarbonisation efforts in Japan
- Citec and COWI selected as engineering partners for Fortum Oslo Varme's carbon capture project in Oslo, Norway
- BSM Germany uses behavioural science to reduce carbon emissions
- Wärtsilä introduces Decarbonisation Services business model to support customers aiming at net zero CO2 emissions
- ExxonMobil and Indonesia's Pertamina to advance cooperation in carbon capture and storage
- Chevron and Pertamina announce partnership on lower carbon opportunities
- Chevron launches carbon capture and storage project in San Joaquin Valley
- AFRY Management Consulting advises HKScan on their Zero Carbon Roadmap

- MG Motor India has partnered with Siemens to leverage cutting-edge digital technologies (including IoT, data analytics, Plant Simulation, and MindSphere) to increase productivity, save energy & cost, and reduce emissions & carbon footprint in its operations. MG becomes the world's first auto OEM to use MindSphere and Plant Simulation as a closed-loop digital twin.



Water

Water is one of our fundamental needs. We require it directly and as an input for many processes and maintenance of places. Its efficient use is essential for sustainability. There are two ways water can be leveraged for sustainability: by changing the water mix and by savings in water usage.

- **Water Mix:** Many enterprises are changing their water mix by treating and reusing water, which was not possible earlier either due to technology, cost, or convenience. Some examples in Q2, 2022.
 - HCL Commits \$15 million to address global freshwater insecurity
 - Italy scouts for Israeli water tech as it is facing worst drought in 70 years. There are some 250 companies developing water technologies and equipment in Israel and it exports some \$2.4 billion annually in water technologies and equipment.
- **Water Savings:** The efficiency of water usage can be increased by reducing water wastage. Some examples in Q2, 2022
 - Itron and Yokogawa Electric Corporation Reduce Water Loss in India. Utility Takes Advantage of Itron's Water Operations Management Solution to Decrease Non-Revenue Water Losses in the City of Satna



Food/Forest

There are two ways food or forest can contribute to sustainability. The first way is by changing the food or forest mix and the other is by reducing waste in food/forest.

- **Food/Forest Mix:** There are sustainable alternatives for food. Some examples in Q2, 2022
 - The Tnuva Group, Israel's largest food conglomerate, has announced it will establish a new research and development center at Rehovot dedicated to alt protein development based on plant sources.

- **Food/Forest Wastage Reduction:** Food wastage can be reduced with proper planning. Some examples in Q2 2022.
 - Unilever and Geno launch \$120m venture to scale alternative ingredients. The venture aims to commercialise and scale plant-based alternatives to feedstocks like palm oil, or fossil fuels
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Overall Sustainability Ecosystem

There are some activities in the overall sustainability ecosystem where enterprises and engineering service providers are involved. Some examples in Q2, 2022

- Accenture Agrees to Acquire Avieco to Expand Sustainability Capabilities in the U.K. Acquisition will bolster Accenture's ESG measurement and analytics capabilities as converging standards and increased regulation drive client need for accurate data in decision-making
- Accenture Announces Intent to Acquire Greenfish, an Independent, Belgium-Based Sustainability Engineering and Advisory Company
- Accenture Strengthens Sustainability Capabilities with Acquisition of akzente
- AFRY strengthens service offering and welcomes new colleagues from Cognit in Spain. Cognit offers digital engineering solutions to optimise the process industries' production processes and provide continuous improvement solutions related to energy, water, and productivity.
- Etteplan significantly expands its sustainability services and acquires LCA Consulting
- Cisco launches circular IT payment solution to support customer sustainability goals
- Barclays launches Green Home Mortgages for Buy-to-Let
- BNP Paribas will execute a green repo with EDF, a first for a corporate
- Salesforce announced a new commitment to invest \$100 million through the purchase of carbon credits in technologies that remove carbon from the atmosphere at scale.

Bottom line: Sustainability is picking up across industries and sectors.

In Q2 2022, we see

- Sustainability programs and announcements are declining compared to the last quarter
- The focus is more on energy, materials and pollution areas.
- Enterprises are more active than service providers.

- Service providers have started declaring sustainability related deals and solutions.
- Green Finance is picking up.
- Service providers are acquiring sustainability engineering firms

We will keep you updated on sustainability trends in future quarters. Keep watching this space.

About the Author

Pareekh Jain



Pareekh Jain is CEO and Lead Analyst of EIIRTrend and Pareekh Consulting.

EIIRTrend is an information platform for discovering engineering, IoT, Industry 4.0 and R&D (EIIR) trends, information, insights, best practices, across 12 industry segments, 24 service segments, 75+ countries and 2500+ providers and buyers. Pareekh Consulting is a focused analyst and advisory firm for EIIR.

A seasoned EIIR professional, Pareekh has seen the EIIR industry from four perspectives: service provider, sourcing advisor, enterprise buyer, and industry analyst.

He is regularly quoted in media on EIIR trends. He has provided more than 500 media quotes to various global and India media outlets. Some of the media publications he is quoted in include Harvard Business Review (HBR), NDTV, ZEE TV, Forbes, Times of India, Economic Times, Business Standard, Hindu, Business Line, Livemint, Indian Express, Financial Express, Deccan Herald, Business Today, Telegraph, Hans India, Bizzbuzz, Informist, Voice and Data, Rediff, Voice of America, Moneycontrol, Quartz, Trak, NHA Asia, NZZ, The Ken, Techcircle, Nearshore Americas, Siasat Daily, Firstpost, and Business Insider.

Pareekh is a thought leader, having authored more than 200 publications on topics related to EIIR outsourcing. He loves business fiction writing in his free time, and has authored a novel, Who Is That Lady?

Pareekh received his MBA from the Indian Institute of Management (IIM), Bangalore and his Bachelor of Technology degree from the Indian Institute of Technology (IIT) Delhi.

Pareekh can be reached at pareekh@pareekh.com. Follow him on twitter [@pareekhjain](https://twitter.com/pareekhjain).