



Introduction to Energy Management

Resource Efficient Management of Energy (REME)



LU1.1 - Framework of international and national obligations on energy

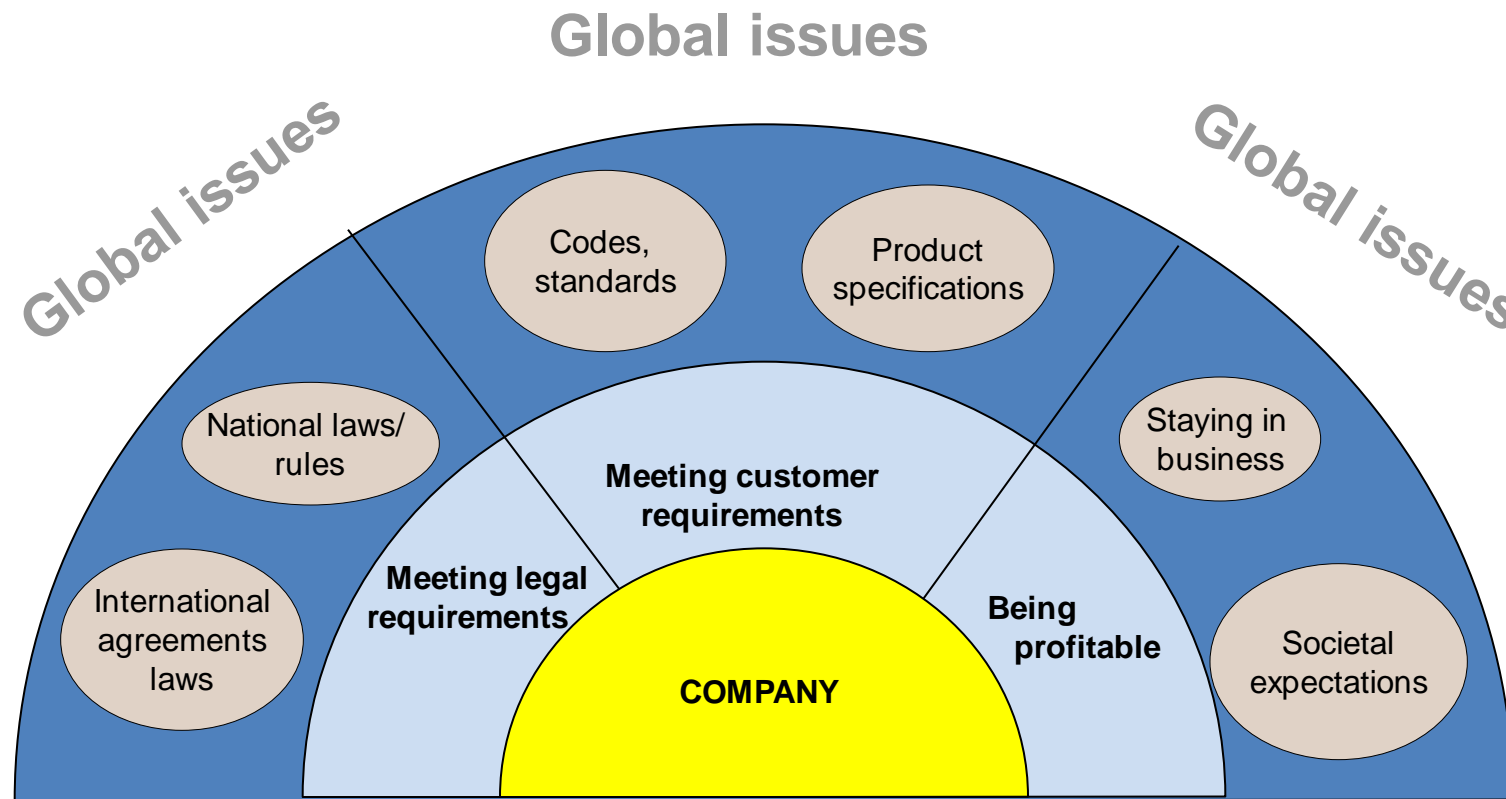
At the end of this module you will be able to...

Refer to elements of energy management system as per international guidelines and standards e.g., ISO50001, Higg Facility Environmental Module (FEM) with special focus on the requirements for textile and garment (T&G)

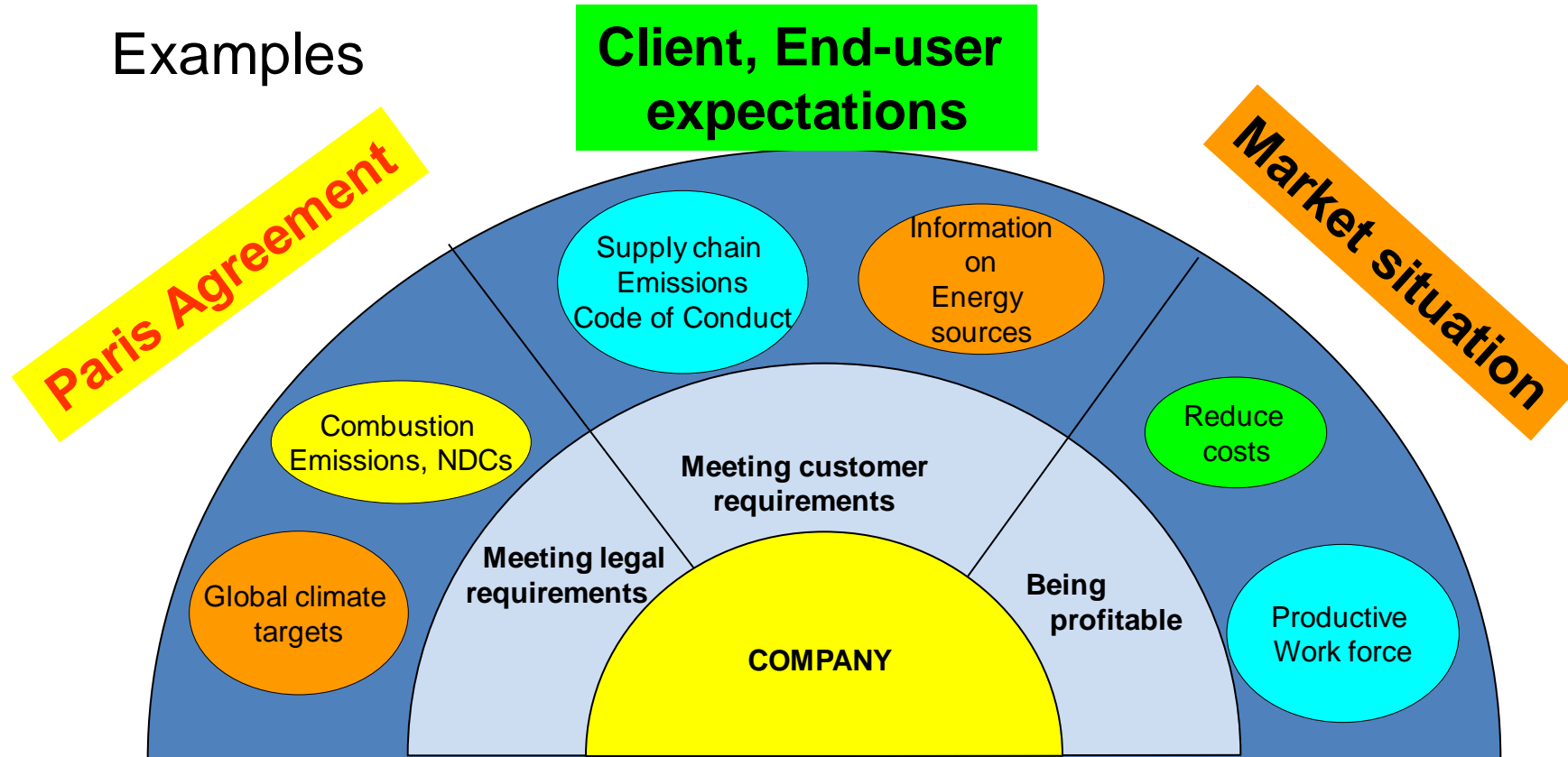
Content

- Business perspective and reference framework of Energy Management
- Key global players and initiatives
- International buyers' requirements
- Integration of Energy Management into the Sustainability Production Framework

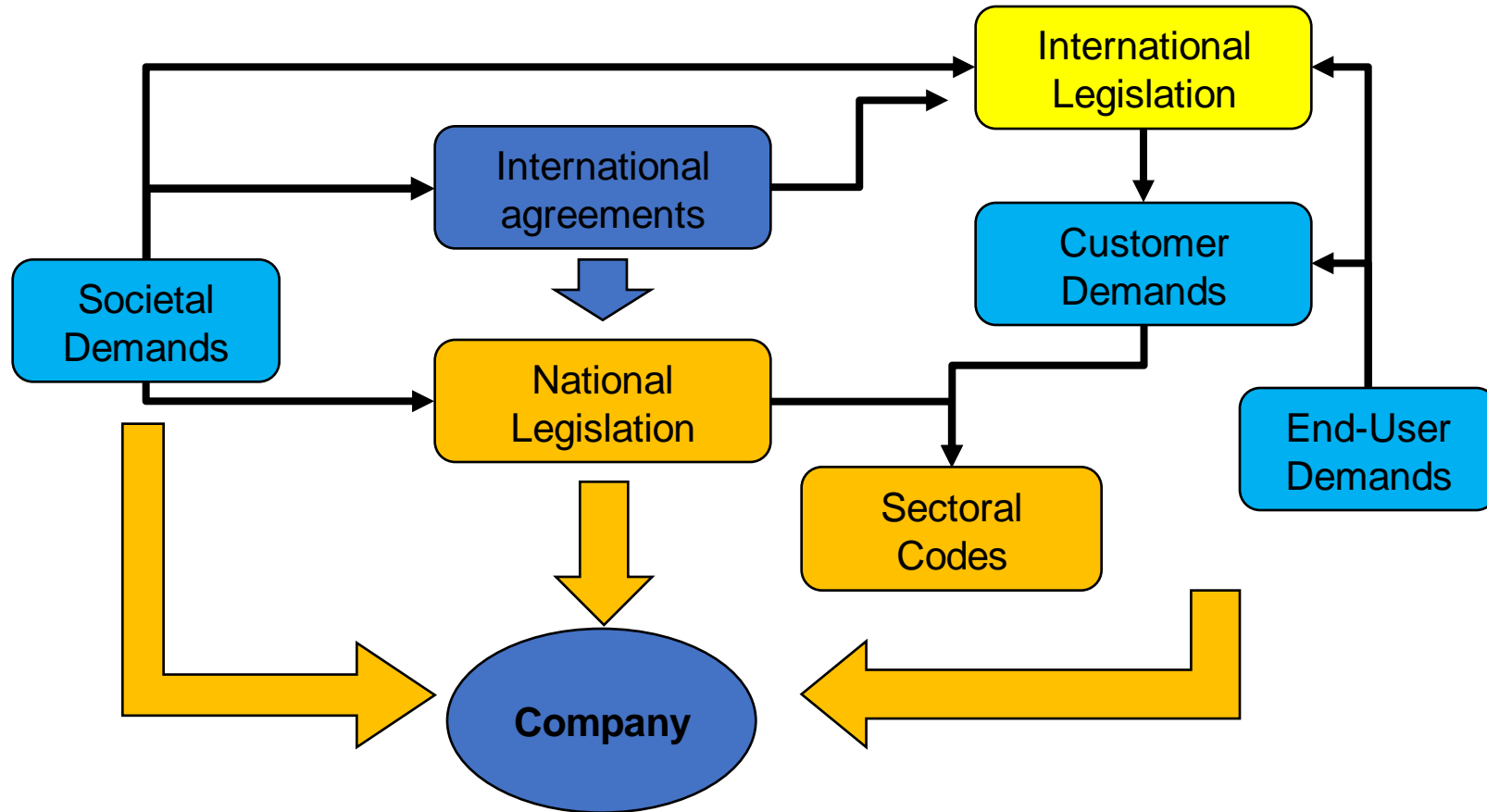
Energy Management – Business perspective



Energy Management – Business perspective



Reference framework for energy management



Climate conventions and agreements

Earth Summit of Rio in 1992

Agenda 21 refers to energy in multiple chapters.

Kyoto Protocol

an international treaty to the United Nations Framework Convention on Climate Change setting binding obligations on industrialized countries to reduce emissions of greenhouse gases, approved 2005

Paris Agreement 2015

The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016.

Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels

Nationally determined contributions (NDCs) are at the heart of the Paris Agreement and the achievement of these long-term goals.

Selected players and initiatives

Sustainable Apparel Coalition (SAC)

leading alliance for sustainable production in the apparel, footwear, and textile industry, based in San Francisco, with around 200 global members within the apparel, footwear, and textile industry, in energy management contributing through Facility Environment Module (FEM) Self-assessment and Verification

Partnership for Sustainable Textiles (PST)

multi-stakeholder initiative with about 150 representatives from five different actor groups (German Federal Government, business, non-governmental organizations, unions, standards organizations) initiated in 2014 by German Federal Ministry for Economic Cooperation and Development, located in Bonn, Germany, GIZ acting as secretariat, with focus on take more responsibility for sustainability in supply chain and striving to improve the conditions in the global textile production – from the production of raw goods for textile production to the disposal of textiles.

Greenpeace

Campaign launched in July 2011; lobbying for 100% renewable energy adoption

Selected players and initiatives

United Nations Framework Convention on Climate Change (UNFCCC)

- The UNFCCC entered into force on 21 March 1994. Today, it has near-universal membership. The 197 countries that have ratified the Convention are called Parties to the Convention. Preventing “dangerous” human interference with the climate system is the ultimate aim of the UNFCCC.

The Intergovernmental Panel on Climate Change (IPCC)

- Created in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP), the objective of the IPCC is to provide governments at all levels with scientific information that they can use to develop climate policies.
- According to IPCC report Global Warming of 1.5 °C — (ipcc.ch), Human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C. Global warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate.

Selected players and initiatives

ISO

- ISO is an independent, non-governmental international organization with a membership of 165 national standards bodies that develops voluntary standards that support innovation and provide solutions to global challenges.
- Major standards for energy management;
 - [ISO 50001:2018 ENERGY MANAGEMENT SYSTEMS — REQUIREMENTS WITH GUIDANCE FOR USE](#)
 - [ISO 50002:2014 ENERGY AUDITS — REQUIREMENTS WITH GUIDANCE FOR USE](#)
 - [ISO 50004:2020 ENERGY MANAGEMENT SYSTEMS — GUIDANCE FOR THE IMPLEMENTATION, MAINTENANCE AND IMPROVEMENT OF AN ISO 50001 ENERGY MANAGEMENT SYSTEM](#)
 - [ISO 50005 ENERGY MANAGEMENT SYSTEMS — GUIDELINES FOR A PHASED IMPLEMENTATION \[UNDER DEVELOPMENT\]](#)
 - [ISO/CD 50006.3 ISO 50006 ENERGY MANAGEMENT SYSTEMS — EVALUATING ENERGY PERFORMANCE USING ENERGY BASELINES AND ENERGY PERFORMANCE INDICATORS \[UNDER DEVELOPMENT; Older version ISO 50006:2014\]](#)
 - [ISO/TS 50008:2018 ENERGY MANAGEMENT AND ENERGY SAVINGS — BUILDING ENERGY DATA MANAGEMENT FOR ENERGY PERFORMANCE — GUIDANCE FOR A SYSTEMIC DATA EXCHANGE APPROACH](#)
 - [ISO 50015:2014 ENERGY MANAGEMENT SYSTEMS — MEASUREMENT AND VERIFICATION OF ENERGY PERFORMANCE OF ORGANIZATIONS — GENERAL PRINCIPLES AND GUIDANCE](#)
 - [ISO 50047:2016 ENERGY SAVINGS — DETERMINATION OF ENERGY SAVINGS IN ORGANIZATIONS](#)
 - [ISO 52127-1:2021 ENERGY PERFORMANCE OF BUILDINGS — BUILDING MANAGEMENT SYSTEM — PART 1: MODULE M10-12](#)
 - [ISO 23045:2008 BUILDING ENVIRONMENT DESIGN — GUIDELINES TO ASSESS ENERGY EFFICIENCY OF NEW BUILDINGS](#)
 - [ISO 11011:2013 COMPRESSED AIR — ENERGY EFFICIENCY — ASSESSMENT](#)

International buyers requirements Example – Higg FEM

Level - 1 Requirements

- Track all energy sources
- Track and measure its energy use from the sources
- Standardize methods and frequency to track each energy source

Level - 2 Requirements

- Establish energy baselines
- Identify energy intensive processes or operations
- Set targets for improving energy use
- Set targets for reduction of GHG emissions (Scope-1 and Scope-2)
- Develop implementation plan to improve energy use and reduce GHG emissions
- Demonstrated continual improvements compared to baselines

Level - 3 Requirements (not mandatory)

- Calculate and report Scope 3 emissions
- Develop Science-Based Targets

Targets set by international buyers

De-carbonization: Eliminating coal and other fossil fuel use in whole supply chain

Renewable energy: Increase renewable energy in energy mix

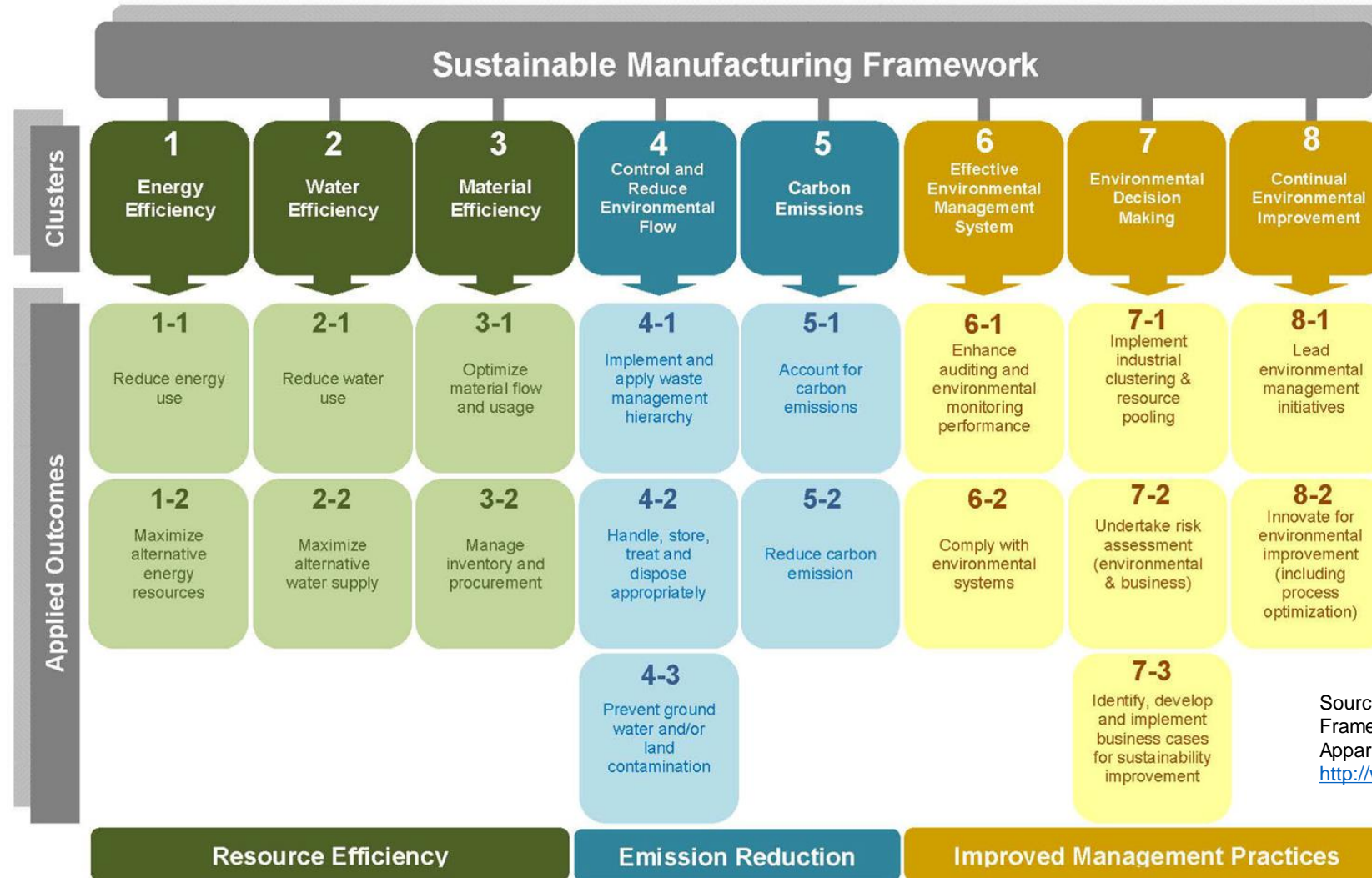
Emission Reduction: Reduce GHG emissions across supply chain

Plenary Reflection

- What is your experience of working in the textile sector and what do you observe / experience regarding international and national requirements on energy?
- Is Energy an isolated subject or is it linked with other subjects as well?

Time: 15 minutes

Integration into sustainable production



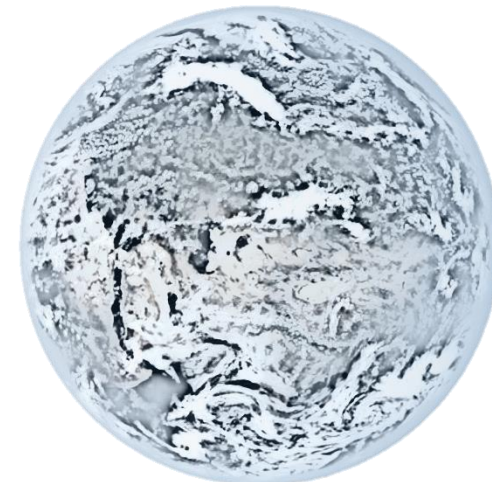
Source: RMIT University, Australia, Capability Framework for Sustainable Manufacturing of Sports Apparel and Footwear, 2012, Sustainability, <http://www.mdpi.com/2071-1050/4/9/2127/htm>

Key takeaways

- Energy management is no more a company level issue but a global challenge, hence global efforts impact companies as well
- Textile and Garment buyers have developed ambitious targets on energy and climate which make energy a Compliance issue as well
- Energy is not an isolated subject and must be addressed in integration with other sustainable production aspects

Next steps

- Identify global and regional, legal and supply chain requirements of energy management for your company.
- Develop an inventory of applicable legal and other requirements



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