# Developing a Carbon Performance Benchmark for Textile Mills

## Apparel Impact Institute - September 2024

### Overview

With over 500 apparel and footwear companies with approved science-based targets (SBTs) via the Science Based Targets Initiative or commitments to set them, it is clear that the apparel and footwear sector understands the importance of ambitious action on climate change. With these targets, companies are taking concrete steps to reduce greenhouse gas (GHG) emissions across the value chain, and are making financial investments to do so - individually and collectively (e.g., through the Apparel Impact Institute).

As companies develop plans to deliver on their SBTs, they are looking for robust, independent benchmarks or guidelines on what "good" energy and greenhouse gas (GHG) emissions performance looks like for manufacturing processes and materials. For example, companies want to know the energy and GHG emissions profile for "better" performing textile mills versus average ones. With this information, brands can elect to source from suppliers that meet higher performance requirements, manufacturers can make operational and investment decisions to improve performance, and stakeholders will have a consistent benchmark to judge performance.

Apparel Impact Institute (Aii) has initiated an open and inclusive process to develop energy and carbon performance benchmarks for the apparel sector. From discussions with various industry stakeholders, Aii understands that several brands and organizations are exploring similar performance benchmarks, or would like to see one developed for the industry. Aii believes it is critical to create one independent and widely agreed-upon benchmark so that the sector can focus its attention on achieving better performance rather than developing and debating different performance schemes.

This document outlines the project scope and approach and how stakeholders can get involved.

### Scope and Illustrative Output

Given the complexity of this undertaking, Aii will start by focusing on textile mills - which according to the *Roadmap to Net Zero* research, account for roughly 50% of total apparel sector GHG emissions. Aii intends to develop performance benchmarks for other tiers of the value chain in the future, though we will consult with other industry groups to understand the need and the role that Aii might play.

Critically, Aii will not be creating new data sets or data collection tools through this project. Rather, we will gather GHG performance data from different sources - direct from textile mills, technical experts, data sets such as the Higg Index, and more. Ultimately, the performance benchmark will complement existing tools such as the Higg FEM. For example, a mill's energy and GHG emissions data might be gathered via verified FEM assessments and then evaluated against the benchmark.

Also, this is not another “ask” of manufacturers; that is, we are not going to ask mills for data, recommend any operational changes, etc. Ultimately, this performance benchmark must benefit manufacturers, for example, better performing textile mills would attract more customers that want to reduce their supply chain emissions. Related, the benchmark will be purely voluntary, and thus should be viewed as guidelines and not requirements or a standard that must be met. However, we hope and expect that brands, manufacturers, and other stakeholders will use the benchmark to make decisions that result in lower GHG emissions across the sector.

With data gathered from the above-mentioned sources, Aii will develop performance benchmarks for the various sub-processes in textile mills (e.g., sizing, dyeing, setting), and then determine what excellent, good, and basic look like for energy consumption and GHG emissions for the overall facility. To illustrate, consider the example of a mill that applies reactive dyes to 100% cotton fabric in jet dyeing machines followed by relax drying, stenter dressing, and final compacting process. Based on data from facilities and input from industry experts, the benchmark for the total energy use per kg (as determined by the energy content of fuels used on-site plus grid electricity) could have the following levels:[1]

- Excellent: Less than 10 kWh / kg (~2.8 kg $CO_2$ per kg)
- Good: Less than 15 kWh / kg (~4.2 kg $CO_2$ per kg)
- Basic: Less than *20 or 25 kWh / kg (~5.6 to 7 kg $CO_2$ per kg)

## Project Approach

To develop an apparel sector performance benchmark that is broadly trusted and utilized by manufacturers, brands, and other stakeholders, it is essential that Aii is highly inclusive and transparent throughout this project. The final performance benchmark will be publicly available and free to use, and Aii will disclose its approach to creating the benchmark. There will be multiple ways for interested stakeholders to get involved in and shape the work.

Our approach will be as follows:

1. Work with subject matter experts including mill operators, technical consultants, industry organizations, brands, and others with in-depth knowledge of textile mills to sketch out draft performance levels for mill processes. (Timing: Sept - Oct 2024)
2. Refine this draft through in-depth discussions with potential users of the benchmark - manufacturers, brands, and others. (Timing: Oct - Nov 2024)
3. Make the refined draft available for public comment. (Timing: Dec 2024 - Jan 2025)
4. Work with the subject matter experts from step 1 to incorporate stakeholder feedback. (Timing: Jan - Feb 2025)
5. Publish the benchmark. (Timing: Mar 2025)

We expect that the benchmarks will be reviewed and refined over time as we gather additional verified data and to reflect increasing stakeholder expectations.

[1] Through this project, we will align on the best terminology for the different levels