Apparel Impact Institute (Aii)

Climate Solutions Portfolio (CSP) Registration Application

Version 3.0 | Last Updated: 5/27/2024

Contents

1. CSP Program Overview

1.1. Program Context and Purpose

The apparel/textile industry is a major contributor to global CO_2e emissions. Science tells us the industry must make reductions of at least 50% by 2030 and achieve net zero by 2050. Many leading brands and retailers have made reduction commitments in the Science Based Targets initiative (SBTi) consistent with these goals.

The apparel/textile industry is facing three key challenges in achieving its necessary CO_2e reductions:

1. **What solutions exist to reduce emissions?** Stakeholders struggle to locate science-backed initiatives and programs with the potential to support their CO_2e reduction goals.
2. **Which solutions are credible and verifiable?** A limited amount of unstandardized data on the effectiveness of many of these solutions creates uncertainty and confusion about their efficacy.
3. **Which solutions do we prioritize?** Fragmented coordination across the industry around priorities and timelines slows down the scaling of proven programs. Failure to "follow the tonnes of CO_2e" opens the door to spending time and money where it is easiest to start rather than to where it delivers the largest results.

At Apparel Impact Institute, our mission is to identify, fund, and scale science-based, measurable programs within the apparel and footwear industry. In 2022, we proudly introduced the Climate Solutions Portfolio (CSP), an initiative designed to champion and fund a curated collection of solutions set on lowering greenhouse gas reductions in apparel and footwear manufacturing. Our goal is to simplify and accelerate the adoption of proven and promising solutions that tackle emissions and create a positive impact.

We break down solutions into innovations, projects, or programs that deliver measurable CO_2e reductions. Our focus is on identifying those solutions that can help the industry reach its bold target of a 50% emissions reduction by 2030.

With this **Registry Application** we are looking for proven solutions to be part of the CSP Registry so that we can increase their deployment. Aii will support registered solutions deploy through integrating solutions into our programs and enabling matchmaking with facilities.

Core Requirements for Registrants

We're on the hunt for solutions, programs, & technologies that:

- are proven solutions that are already operating at a commercial scale (15+ sites).
- have performance data to demonstrate effectiveness.

- would benefit from business development opportunities with Aii partners (manufacturers, brands, banks).
- do not need grant funding to deploy at scale; have demonstrable business cases.
- can be integrated into Aii programs to support increased deployment of the solution.

Benefits for Registered Solutions Providers

- Connect with top brands, retailers, facilities, investors from around the globe.
- Open doors to potential inclusion in our blended capital financing pipeline.
- Become a recommended technology for our programs, like Clean by Design.
- Access a dedicated platform to track and highlight your C02e emissions.

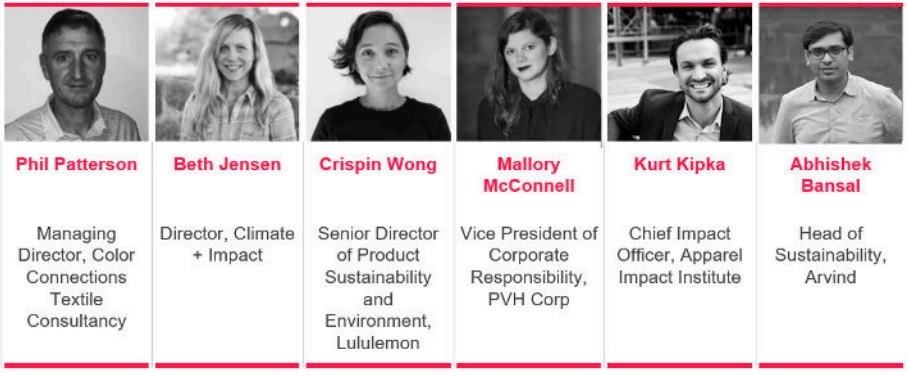
We are looking for projects that focus on decarbonization in the following areas:

- Reduce process demand for energy
- Reduce energy losses
- Reduce/eliminate GHG emitted from generating heat and electricity
- Reduce emissions from production of natural and synthetic fibers
- Minimize waste in each step of production
- Maximize circular reuse of fibers, fabrics or chemicals

This is a rolling application. Registrants are selected in the second week of every month. The first two weeks are taken to review applications that came in the previous month. You will hear about your application 4-6 weeks after applying.

1.2. CSP Advisory Council (CSPAC)

The CSPAC is composed of Aii staff, apparel/textile experts, and industry representatives. When the CSPAC's expertise is limited, it will engage subject matter experts to help evaluate applications.



Phil Patterson	Beth Jensen	Crispin Wong	Mallory McConnell	Kurt Kipka	Abhishek Bansal
Managing Director, Color Connections Textile Consultancy	Director, Climate + Impact	Senior Director of Product Sustainability and Environment, Lululemon	Vice President of Corporate Responsibility, PVH Corp	Chief Impact Officer, Apparel Impact Institute	Head of Sustainability, Arvind

1.3. Application Process

- **Application Release** – Aii releases CSP application to public – this application is always open. Applicants should review the materials and send any clarifying questions to CSPHelp@apparelimpact.org .
- **Application Submission** –Applications can be submitted through the online form at any time during this stage. If supporting materials cannot be uploaded to the online application, documents should be sent to CSPHelp@apparelimpact.org.
- **Application Screening** –Aii will review applications for fit, completeness, and clarity, and may follow up with clarifying questions or requests for additional information.
- **Application Evaluation –** Eligible and complete applications will be assessed by Aii; the CSP Advisory Council (CSPAC); and subject matter experts, if needed. CSPAC meets on the second week of every month and will discuss all applications received by the end of the previous month. Therefore depending on when your application is submitted, it will take 4-6 weeks for review and approval.

1.4. Overview of Evaluation Methodology

The CSP application is designed to identify solutions with data indicating real tCO_2e reductions for textile/apparel manufacture.

We consider three specific criteria when evaluating applications:

- **Reach** – How much of the industry can the solution be applied to? (e.g., All wet processing? Acrylic knitwear manufacture only?)
- **Effectiveness** – What are the % energy/tCO_2e savings the solution is estimated to deliver relative to a typical industrial baseline? (Baselines are provided in the appendix to the Ready Reckoner).
    - The Ready Reckoner combines the Reach and Effectiveness and auto-calculates the Maximum Potential Savings (MPS) of tCO_2e for the solution
- **Scale** – What is a realistic estimate for the roll-out/scale up of the solution in terms of the % MPS that can be achieved by 2030?

The Ready Reckoner auto-calculates the annual tCO_2e reduction potential of the solution. All applicants must use the Ready Reckoner to calculate the solution's tCO_2e reduction potential. Details from the calculations must be inserted into the relevant sections of the Registry application.

The Ready Reckoner uses a database that includes baseline energy use and tCO_2e emissions for the most widely used materials and processes.

The energy use and emission baselines are calculated for supply chain tiers, processes, and even sub-processes using data from the WRI "Roadmap to Net Zero" report, other publicly available data sources, and subject matter experts' professional judgment. We have used typical model processes to create baselines against which all solutions must be compared (these are contained in an appendix to the Ready Reckoner).

By going to this level of detail, we can assess the potential real-world emission reductions of proposed solutions in a given timescale — typically by December 31, 2030.

To complete the registry application and to use the Ready Reckoner, applicants must:

- know exactly where their solution is applied at a sub-process level (to allow Reach to be auto-calculated)
- calculate the effectiveness of their solution compared to Aii baselines

It is important that applicants read the detailed advice on how to calculate effectiveness relative to Aii baselines, which can be found in the Ready Reckoner: Solution Impact Evaluator (guidance on how to do this can be found in Appendix A). Please review the guidance and the demo of the tool (available on the CSP application hub) **before** completing the Registry application.

Aii's calculations are intended to be used ONLY for the CSP application process and are not intended for uses outside of this process. **By creating an account on the Submittable platform you are committing to not circulate our calculation tools outside of your organization.**

As you complete your application, please contact us at csphelp@apparelimpact.org if you think we have overlooked something that is necessary to present the benefits of your solution adequately.

We will strive to continuously improve our methodology, incorporating better data as it emerges. We thank you for your patience and invite your feedback and additional data to enhance our understanding of baselines as our evaluation process evolves.

1.5. Other Important Notes

Confidentiality

Aii encourages applicants to be as transparent with their responses as possible, particularly regarding a solution's effectiveness and reach, so that we can be publicly accountable for our decision-making. At the same time, we recognize the need for business confidentiality in some cases. Applicants are requested to explicitly note any confidential data or text. All information marked as such will be kept strictly confidential and proprietary. Aii staff, CSPAC members, and select subject matter experts (if utilized) will be privy to the confidential components of the application materials only while under NDA with Aii. If you have any concerns about submitting data under this policy, please let us know

Units and Labels

Please clearly label graphs, charts, diagrams, etc. and specify units for any numeric figures in your application or supplementary data. Please use the following units:

- Monetary figures in US Dollars (USD$)
- Energy use figures in kilowatt hours (kWh) – according to baseline processes in the Ready Reckoner
- tCO2e emission figures in metric tons of carbon dioxide equivalent ($mtCO_2e$). Please note where MT (with a capitalized M) is used - this refers to megatonnes

Where applicable, please normalize figures to the appropriate economic or operational variable (e.g., USD$ per unit/per kg CO_2e reduced/per machine/per ton of raw material/per kg production, etc.).

Solution details

Maintaining transparency regarding any barriers to scaling and potential adverse consequences of your solution is crucial. We cannot support projects that have adverse consequences on water impacts, chemical issues, human rights, local environmental pollution, health, or biodiversity. If your solution involves chemicals, we ask that you provide documentation, ensuring a clear understanding of what we are vetting. Furthermore, if there are patents associated with your solution, please include them as part of your application.

Data

We require specific data to assess the effectiveness, reach, and scale of the proposed solution. As this application is for proven solutions, our preference is to receive impact calculations based on **measured data** based on implementation of the solution that has already taken place.

2. Application Questions

In this section we list all the questions you will need to respond to in the application along with some guidance on how to respond to them. Please refer to this guidance as you fill out the application form.

2.1. Organizational information

Contact Information	
1. Company / organization submitting application:	
2. Company/organization website:	
3. Country where the organization is based:	
4. Primary contact full name:	
5. Primary contact email:	
6. Primary contact phone number:	
7. Primary contact location (city, country)	
8. Other relevant personnel associated with the Solution (include email contact information if you want them included in follow-up communication from Aii):	

2.2. Solution Description

Solution Description	
9. Name of Solution:	
10. Please upload your Solution Overview report.	Please use the template file provided to prepare a report that provides the required overview of your solution. We understand this is a detailed report that is being requested. This report has been tailored to technology specific applications. If you feel your solution cannot be explained according to the template (a mill improvement program for example) please get in touch and we can discuss how best to modify the report to suit your solution. If you have any questions please reach

	out to CSPHelp@apparelimpact.org. The purpose of this level of detail is to support the Advisory Council to make the most informed decision possible on your solution and therefore help Aii to encourage the deployment of your solution throughout the supply chain.

2.3. Category of Solution

Solution Description	
11. Is your solution focused on any of the following areas? *By selecting any of these project types, you acknowledge that you may not be eligible for registration. You may proceed with the application, but please bear this in mind.* ● Downstream consumer focused circularity solutions ● Innovative materials ● Develop/enhance data technology/traceability tools or programs. ● Develop/enhance measurement and verification (M&V) programs or methods. ● Develop/expand training/programs for capacity development. ● Undertake study to improve understanding of baseline emissions of apparel manufacturing such as with LCAs. ● Develop/expand technology to capture, store, repurpose, or reutilize carbon. ● Other No, my solution addresses levers listed in question 15	*By selecting any of these project types, you acknowledge that you may not be eligible for registration. You may proceed with the application, but please bear this in mind.*
12. How does your solution reduce emissions? *Please answer the following questions detailing how your solution reduces emissions, select all that apply.*	
Does your solution reduce emissions from natural fiber growth or synthetic fiber manufacture? *Please select all sub-levers that apply.*	

• Reduce the CO_2e emissions intensity from conventional polyester manufacture. • Replace polyester manufacture with bio-based alternatives. • Reduce CO_2e emissions of conventional nylon/acrylic/elastane manufacture. • Replace nylon/acrylic/elastane manufacture with bio-based alternatives. • Improve pesticide/fertilizer application technologies or practices. • Improve irrigation efficiency & energy source. • Reduce energy intensity of fertilizer production. • Replace/supplement ginning with renewable energy sources. • Improve efficiency of ginning practices. • Reduce CO_2e emissions intensity of pulp production.	
Does your solution reduce process demand for energy? *Please select all sub-levers that apply.* • Undertake/expand overall factory energy efficiency assessment and reduction programs. • Use less heat/lower temperatures. • Use less and lower temperature hot water. • Use less electricity. • Optimize process engineering and production planning for tCO_2e reduction.	
Does your solution reduce energy losses? *Please select all sub-levers that apply.* • Undertake/expand overall factory energy efficiency assessment and reduction programs. • Insulation. • Improve boiler utilization and efficiency. • Improve generator utilization and efficiency. • Maximize reuse of heat and hot water.	

Does your solution reduce/eliminate tCO_2e emitted from generating head and electricity? *Please select all sub-levers that apply.* ● Switch to lower carbon thermal energy sources. ● Reduce intensity of generation of thermal energy. ● Maximize reliance on renewable sources of energy. ● Electrify equipment currently running on fossil fuel.	
Does your solution minimize waste in production? *Please select all sub-levers that apply.* ● Plan production to minimize running empty machines, numbers of cleanings, underloading machines etc. ● Automate error detection in knitting machines. ● Reduce woven waste via wider looms etc. ● Improve right-first-time dyeing. ● Eliminate/reduce sample manufacture. ● Improve pattern layout, including with computer aided design tools. ● Advance color visualization/assessment techniques that do not require physically preparing samples.	
Does your solution maximize (circular) reuse of fibers and fabrics? *Please select all sub-levers that apply.* ● Enhance sorting for fabric type to identify composition and blend. ● Enhance technology for separating fiber types. ● Accelerate/enhance mechanical recycling of fibers. ● Accelerate/enhance chemical recycling of fibers. ● Develop methods to reuse fibers, returning into manufacturing process to become fabric. ● Develop and expand recycling of chemicals used in manufacture.	

Reach questions	
13. Please select the Tier your solution affects. You will then be prompted to select the process within that Tier your solution affects. Please select all that apply. ● Tier 0 (brand/design) ● Tier 1 o Laying/cutting o Sewing o Finishing ● Tier 2 o All fabric construction ▪ Weft knit ▪ Warp knit ▪ Weaving ▪ Knitwear o All dyeing ▪ Dope dye ▪ Fiber dye ▪ Batch dye ▪ Yarn/fiber dye ▪ Continuous dye ● Tier 3 o Polyester yarn formation o Cotton yarn formation o Viscose/lyocell yarn formation o Nylon yarn formation o Acrylic yarn formation o Other mmcf yarn formation o Elastane yarn formation	

Reach questions	
o Wool yarn formation o Poly propylene formation o Other plant yarn formation ● Tier 4 o Polyester feedstock/precursor production or polymerization o Cotton agriculture & ginning o Viscose/lyocell agriculture & fiber o Nylon feedstock/precursor production or polymerization o Acrylic feedstock/precursor production or polymerization o Other mmcf agriculture & fiber o Elastane feedstock/precursor production or polymerization o Wool agriculture & scouring o Poly propylene feedstock/precursor production or polymerization o Other plant agriculture	
14. Please select the energy type your solution impacts (if applicable) ● Heat ● Electricity ● N/A – if your project focuses on reducing inputs that are not energy (e.g. fertilizer application), just select N/A.	

2.4. Effectiveness

Definition: The Effectiveness of a solution is the % amount of CO_2e emissions reduced per kg of production relative to Aii baselines

Please note that it is a requirement for your CO_2e % reductions to be made relative to our baselines, which are provided in the appendix to the Ready Reckoner. This helps us to objectively compare the Effectiveness of solutions. Calculations done in the provided documents should be uploaded into the application. Should you wish to include your own calculations relative to your baselines, please do; however, we will be focusing on the reduction potential relative to the standard baselines for consistency.

Please read the instructions on how to calculate effectiveness and how to use the Ready Reckoner in APPENDIX A

Percentage Reduction vs baseline model process	
15a. What is the % reduction in CO2 emissions from electricity use?	The appendix to the Ready Reckoner contains the typical energy use of processes and sub-processes and is expressed in terms of kWh / kg as this is a unit commonly used in facilities. We also provide an estimate of the proportions of electricity and heat energy used in a process or sub-process. We use a default conversion factor of 279.82 g of CO2 emissions per kWh so, in most cases the % energy reduction is exactly the same as the % of CO2 reduction. Where renewable energy solutions are employed, the energy consumption of a process may remain unchanged but the CO2 emissions would fall. In these cases we expect the % of energy replaced by renewables to be entered.
15b. What is the % reduction in CO2 emissions from heat energy use?	
15c. What is the total % reduction in CO2 emissions of the solution, per kg of production?	
15c. List the processes/ (sub-processes this refers to).	These should match the processes/subprocesses selected in the Ready Reckoner calculations.
16. Please upload the spreadsheet you have used to do the Effectiveness calculations. Please make sure you have consulted the application guidance in your calculations and provided all necessary underlying data.	Here we want to see how the solution arrives at its % reduction vs Aii's baselines.

tCO_2e Reduction Performance Data	
17. Did you use measurement data or estimates for the effectiveness calculations? ● Measurement	If secondary/estimates is selected an explanation of methodology, sources and assumptions must be provided.

tCO_2e Reduction Performance Data	
• Secondary/estimates	
18. If our baseline data was in conflict with the figures you use in your impact projections, please provide an overview here.	We will take these conflicts into consideration when evaluating the effectiveness calculations.
19. Has a third party audited any previously calculated tCO_2e emissions savings studies?	Please upload the associated documents.

2.5. Scale & Cost of the Solution

Definition: Scale is a credible, realistic projection of how quickly a solution can be implemented to achieve its maximum potential savings, considering factors that either enhance or inhibit its growth.

We are seeking proven solutions who are operating at scale. Applicants should be very clear with information regarding their existing market share, production volumes, competition, patents, and so forth.

Scale	
20. Please describe the current scale of your solution using the most relevant metric (e.g. production volume, number of facilities using solution, market penetration)	
21. Which countries is the solution currently being deployed? Please list.	

Solution Costs	
22. What is the cost of implementing this solution for implementing sites?	One-time implementation & recurring annual costs. Please state this on a per site basis. This should be the regular cost of a site implementing the solution - USD • One-time implementation cost • Recurring annual costs
23. Please provide the anticipated recurring annual financial savings of the solution in USD (e.g., using less purchased electricity), if applicable.	USD

Solution Costs	
24. Please upload a spreadsheet listing the cost of the solution and the annual tCO2e savings achieved through its implementation for facilities that have implemented your solution.	This should be a comprehensive list of cost and savings data from the implementation of your solution onsite. There should be a minimum of 5-10 data points for newer solutions and 30-50 for established solutions. For machinery, this should be the one-time cost; for inputs (e.g., chemicals), this should be the annual cost of purchases; for programs, this should be the cost of the program and any ensuing investments a site makes as a result of program recommendations. We will use this data to calculate and evaluate the $/tCO2e of your solution. If selected as a Registrant, this information will be published on your CSP Solution page. Example list: Facility A: $200,000 CAPEX investment 24,000 tCO2e annual savings. Facility B: $220,000 CAPEX investment 26,000 tCO2e annual savings. Where possible please use facility names. If not possible please anonymise the data.
25. If your solution has any other benefits such as reducing water consumption, chemistry or social please describe these here.	If yes, please describe.

2.6. Ready Reckoner Calculations

Using the guidance in Appendix A and B please complete the calculations for your solution in the Ready Reckoner: Solution Impact Evaluator and submit the results and the file in this section.

26. Please insert the following figures from your Ready Reckoner Calculation	

Reach (in MT CO_2)	Please take these figures from your Ready Reckoner: Solution Impact Evaluator calculations. It is important to note that the results from this portion of the tool are in mega tonnes. If your MPS or projected annual savings come out as less than 1 MT, please express them in tCO_2e.
% Effectiveness (electricity)	
% Effectiveness (heat/direct fuel)	
MPS (MT CO_2)	
Geographically Restricted MPS (If different from above) (MT CO_2)	
27. Please upload your completed Ready Reckoner: Solutions Impact Evaluator.	

3. Application Feedback

Applicants who do not make it to the Registry will receive an automated email letting them know they were, unfortunately, unsuccessful. Due to the volume of applications, we will not provide tailored feedback to applicants.

4. Appendices

4.1. Appendix A – Effectiveness Calculation & Ready Reckoner: Solutions Impact Evaluator

The Ready Reckoner is created using data from the WRI "Roadmap to Net Zero" report, other publicly available data sources, and subject matter experts' professional judgment. It uses data from a master file that holds information on:

- volumes processed at each stage of production
- the typical energy use of individual processes and sub-processes (provided in the Ready Reckoner appendix)
- the typical split between electrical and heat energy (provided in the Ready Reckoner appendix)
- calculations for CO_2 emissions based on our default emission factor of 279.82 g CO_2 per kWh

This master file is created using typical industrial processes to allow comparisons of varied solutions, but if applicants believe the baseline data does not fairly represent their specific solution, we welcome feedback.

We strive to continuously improve the master data file and will revise it via expert input on an ongoing basis. Please note that the level of detail in the benchmark values in the tool varies by tier, reflecting the current state of available data. This will be updated annually as we expect industry data to improve.

In order to use the Ready Reckoner, applicants must have the following information at hand:

- **Detailed information on where the solution is applied in the textile manufacturing process (or, for circularity or quality improvement solutions, where the benefits are delivered)**
- **A calculation for the effectiveness of a solution in terms of % reduction of tCO_2e emissions for both electricity and heat energy, in relation to typical baseline processes detailed in the appendix of the Ready Reckoner.**

- For solutions that are geographically restricted and will remain geographically restricted (e.g., a factory project in a specific country), applicants must be able to estimate the % of relevant global industry that is conducted in that region (e.g., a project working with cotton spinners in Brazil would estimate that Brazilian spinning factories represent X% of all cotton spinning capacity).
- For solutions that are geographically restricted, applicants must decide if they will use the Aii default CO_2 emissions factor. If they wish to use a local emissions factor, they must have details of local factory fuel use and details of the fuel use for the local electrical grid.
- For solutions that are geographically restricted in a pilot phase with a view to global roll-out, there is no requirement to consider geographical restrictions.

All applicants must input this key information into the Ready Reckoner. he applicants and Aii will be provided with information on the following to enable objective comparison of different solutions:

- The Reach of the solution
- The Maximum Potential Savings (MPS) of CO_2 (a combination of the Reach and the Effectiveness of the solution)
- Where relevant, any effect of geographical restrictions on MPS and any effect of local emission factors
- A projection of the CO_2 savings per annum based on projected scale and roll-out

The applicant can download the Ready Reckoner: Solutions Impact Evaluator from within the application.

4.2. How to Calculate the Effectiveness of the Solution

The appendix to the Ready Reckoner has a table containing the typical energy use for a tier, process, or sub-process n kWh / kg.

This figure is typical gross energy use (i.e., including inefficiency of boilers/gensets, underloading of machines, errors, etc.), and within the Ready Reckoner is a default conversion factor of 279.82 g CO_2 / kWh.

This kWh / kg figure is also supplemented with an estimate for the split between electrical energy and heat (or direct fuel use) energy.

The table also contains details of the model process that is used as the baseline. These must be used when providing figures for the effectiveness of solutions to allow a fair and objective comparison of solutions.

For example:

If a solution enables a medium-shade reactive jet dyeing of cotton to be washed off in three baths @ 7:1 liquor ratio, the baseline model process of a 6-bath wash-off process must be used for calculation purposes, even if previously the applicant has compared their solution to a notional 8-bath wash-off process.

If a solution saves energy in spinning of nylon yarns, the energy saving must be calculated against spinning of a 170 dtex yarn.

- Calculate the % reductions in emissions due to electricity (this can be reducing electricity use, improving efficiency of generation, and delivery or introduction of renewable energy) relative to the baselines provided in the Ready Reckoner appendix.
- Calculate the % reductions in emissions due to heat or direct fuel use (this can be reducing heat or fuel demand, improving efficiency of generation, and delivery of steam or electrification with introduction of renewable energy) relative to the baselines provided in the Ready Reckoner appendix.

How to Estimate Scale
When estimating the realistic scale of a solution the following should be considered:

- The MPS (maximum potential savings of CO_2) is calculated by combining the Reach of the solution and the % savings of the solution relative to baseline process figures
    - The MPS assumes the solution is rolled out to every single relevant process in every single relevant facility and is therefore a notional figure.

Estimating scale is not straightforward, but we expect applicants to demonstrate how they have arrived at their figures and to apply the following type of logic:

- If it is reasonably anticipated that the solution will be applied to a certain tonnage of production, the figures should be compared to the volume figures in the Ready Reckoner appendix (e.g., if a solution for reducing the impact of polyester fiber manufacture is anticipated to be applied to 2 MT per year by 2030, it would represent ($2 \div 45.4 \times 100 = 4.41\%$) of MPS).

- If the solution is to be rolled out on a facility-by-facility basis, we would expect a reasonable estimate of the facility's production capacity to be used. For example, it would be reasonable to assume that an average dyehouse has a daily capacity of around 15 tonnes or ~4320 tonnes per year. If a wet processing facility improvement program were to be rolled out to 200 facilities by 2030, it would represent ~864,000 tonnes (0.864 MT). From the Ready Reckoner appendix, it can be estimated that dyeing accounts for around 87.6 MT, so the scale would be ~1% of MPS.

- If a solution is an easy, low cost, drop-in solution for part of the supply chain where there are limited numbers of a facility type (e.g., rope and slasher dyeing of indigo), it is conceivable that the scale could be much higher.

- Drop-in solutions to existing processes, such as new chemicals, that require no capital investment are seemingly very easy to scale in terms of *adoption,* but we also need to know about the scaling of production as this may be the limiting factor. If sufficient chemicals to service only 5% of potential industry can be produced by 2030, the scale will be capped at 5%.

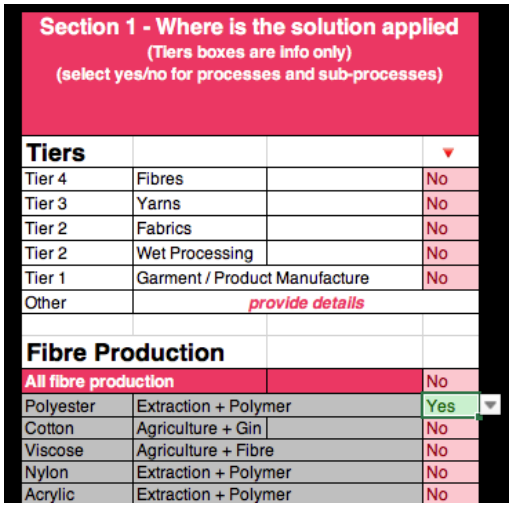
- Similarly, if new machines need to be produced to deploy a solution, the numbers of machines that can actually be manufactured and their production capacity must be factored into the scale figure.

The CSPAC will make a judgement on whether the cost of a solution or any drawbacks compared to incumbent technology will negatively affect the scale.

4.3. How to use the Ready Reckoner

1. Select the exact parts in the supply chain where the solution is applied.
    a. If the solution applies to a sub-process only (e.g., only the dye application sub-process of a dyeing process), then the sub-process alone should be selected.
    b. If the solution applies all sub-processes within a process, please only select the whole process – do not select the process AND the sub-processes.

Note: The tiers drop-down selection is for informational purposes only.

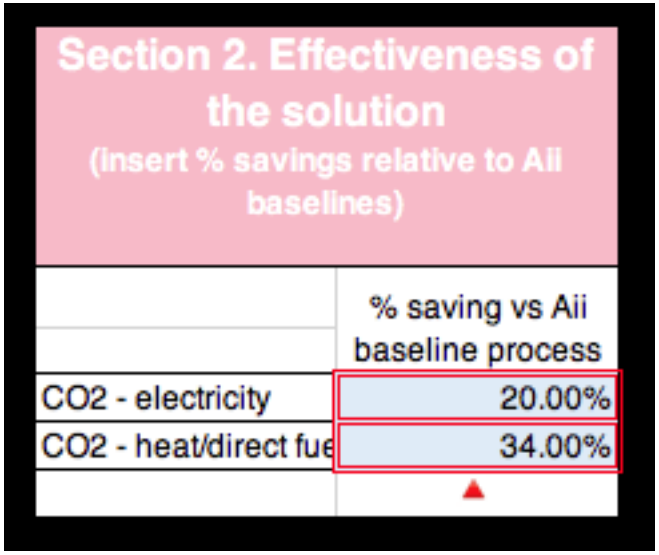


Section 1 - Where is the solution applied
(Tiers boxes are info only)
(select yes/no for processes and sub-processes)

Tiers			
Tier 4	Fibres		No
Tier 3	Yarns		No
Tier 2	Fabrics		No
Tier 2	Wet Processing		No
Tier 1	Garment / Product Manufacture		No
Other	*provide details*		
Fibre Production			
All fibre production			No
Polyester	Extraction + Polymer		Yes
Cotton	Agriculture + Gin		No
Viscose	Agriculture + Fibre		No
Nylon	Extraction + Polymer		No
Acrylic	Extraction + Polymer		No

2. The Reach (i.e., % of the total industry CO_2 emissions) will be automatically calculated.

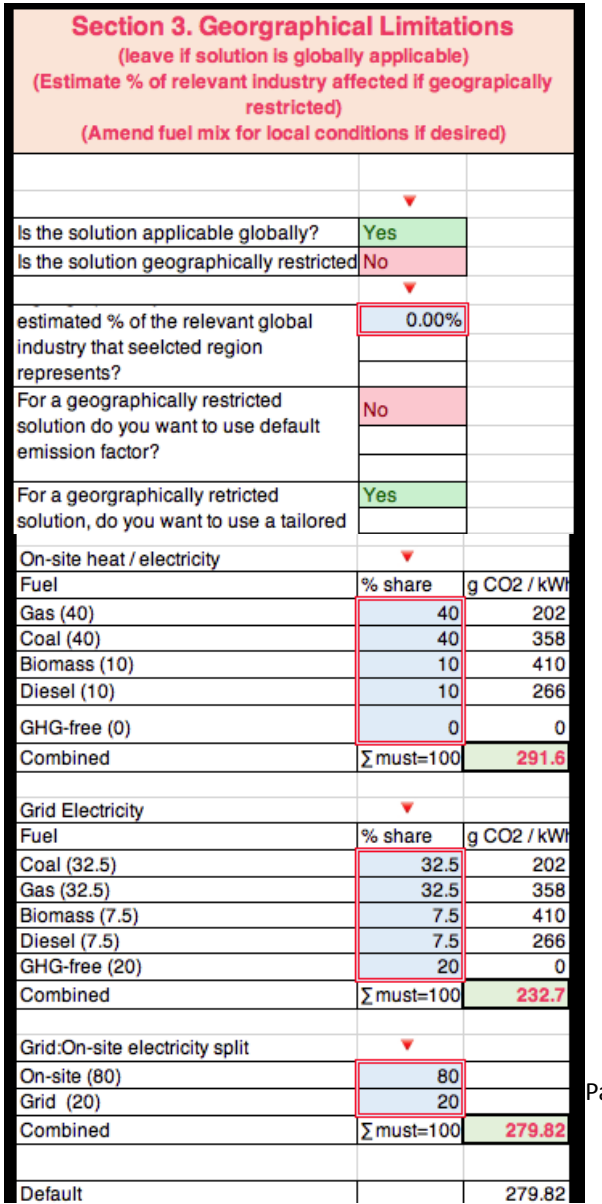
3. Effectiveness - Input the % reductions for emissions due to electricity and heat.



Section 2. Effectiveness of the solution
(insert % savings relative to Aii baselines)

	% saving vs Aii baseline process
CO2 - electricity	20.00%
CO2 - heat/direct fue	34.00%

4. The MPS (Maximum Potential Savings of CO_2) is automatically calculated.



Section 3. Georgraphical Limitations
(leave if solution is globally applicable)
(Estimate % of relevant industry affected if geograpically restricted)
(Amend fuel mix for local conditions if desired)

Is the solution applicable globally?	Yes	
Is the solution geographically restricted	No	
estimated % of the relevant global industry that seelcted region represents?	0.00%	
For a geographically restricted solution do you want to use default emission factor?	No	
For a georgraphically retricted solution, do you want to use a tailored	Yes	
On-site heat / electricity		
Fuel	% share	g CO2 / kWh
Gas (40)	40	202
Coal (40)	40	358
Biomass (10)	10	410
Diesel (10)	10	266
GHG-free (0)	0	0
Combined	∑must=100	291.6
Grid Electricity		
Fuel	% share	g CO2 / kWh
Coal (32.5)	32.5	202
Gas (32.5)	32.5	358
Biomass (7.5)	7.5	410
Diesel (7.5)	7.5	266
GHG-free (20)	20	0
Combined	∑must=100	232.7
Grid:On-site electricity split		
On-site (80)	80	
Grid (20)	20	
Combined	∑must=100	279.82
Default		279.82

5. Select whether the project is global or geographically restricted (the default is set as global).
- If the project is geographically restricted, estimate the % of relevant global industry that is carried out in that region.

6. For globally restricted solutions, select whether you will use our default emissions factors or whether you want to create a local emission factor.

-To create a local emission factor, please fill in data for the % split of factory fuel type, fuel types for the local grid, and the split between grid and on-site electricity for the specific location.

7. The MPS after any geographical restrictions will be automatically calculated.

4.4. Appendix B – Example Calculations Ready Reckoner: Solutions Impact Evaluator

There are an incredibly diverse range of potential solutions to reduce tCO_2e emissions in the supply chain, and the Ready Reckoner covers most scenarios in a relatively straightforward way.

However, others may be a little more complex.

Example 1: A wet processing mill improvement program, with a verified history of saving 10% of heat energy and 5% of electrical energy, ready for global rollout

Section 1: Select "All wet processing" from the drop-down box.
Section 2: Input 5% in the electricity and 10% in the heat box for effectiveness.
Section 3: Confirm that the solution is applicable globally.

Example 2: A solar PV project restricted to cotton weavers in India that can save 25% of electrical energy.

Section 1: Select "Cotton Weaving" from the drop-down box.
Section 2: Input 25% in the electricity and 0% in the heat box for effectiveness.
Section 3: Select "No" for applicable globally and 'Yes" for geographically restricted.
Enter a figure for the % of global cotton weaving that you believe is carried out in India.
Choose if you wish to use emission factor defaults.
If you wish to use tailored emission factors, choose this option and enter regional factory fuel data, regional grid fuel data, and the regional split between grid and on-site electricity generation.

Example 3: A new dye that enables batch-dyed polyester to be washed off in a single bath, halving the electricity and heat energy use in the wash-off process (preparation and dyeing remain unaffected).

Section 1: Select the "wash-off" sub-process box for polyester fiber/yarn dye and polyester fabric batch dye.
Section 2: Input the % electricity and % heat savings FOR THE SUB-PROCESS in the effectiveness box (i.e., 50% for each).
Section 3: Confirm that the solution is applicable globally.

Example 4: A recycling solution that takes end-of-life dyed polyester garments, shreds them and re-uses the dyed yarns to make dyed yarns that require no dyeing, which can be made into weft-knitted fabrics with no wet processing. Solution aims to process 2000 tonnes per annum saving.

This not a simple situation and requires a nuanced approach.

They key to calculating the solution's annual savings is:

- Focus on where in the supply chain the benefits are *delivered.*
- Give credit to the innovator for potential reductions (e.g., the reduced use of virgin materials. Unless a solution is shared with a major fiber producer, it may well be out of the hands of the solution as to whether their re-use of material actually results in less virgin fiber being produced, but we will assume that is the case).

In this example, the re-use of dyed fibers will reduce the need for virgin fibers. It will not reduce the need for spinning or fabric production; it will reduce the need for dyeing, and garment-making will remain unchanged.

The key to getting sensible figures is to be completely open and honest with the scale.

Section 1: Select "polyester fiber – extraction and polymerization" and all processes relating to polyester dyeing from the drop downs.
Section 2: Since the processes are eliminated, input 100% in the electricity and 100% in the heat box for effectiveness NOTE: This will generate a huge figure for MPS
Section 3: Select globally-applicable or regionally restricted and emissions factors, as appropriate. Bear in mind this applies to the original processing of virgin materials and will not be possible unless the provenance of the original fiber and dyeing was known.

Finally, you must generate a figure for the projected annual savings via the Ready Reckoner and then subtract the impacts of the recycling process.

Example 5: A quality improvement device that eliminates nylon weaving faults, reducing fabric wastage from 1% o 0%

Note: Volume of woven nylon = 2.1 megatonnes

They key to calculating the projected annual savings is:

- Focus on where in the supply chain the benefits are *delivered.*
- Give credit to the innovator for potential reductions – even if it is out of their hands and cannot be proved that they will be delivered.

On the face of it, this is a simple solution that delivers savings in weaving, but it is actually complex and may require more than one Ready Reckoner calculation.

Eliminating weaving faults would also mean that you can save 1% of the nylon fibers and 1% of the nylon yarns that are used in woven fabrics.

Additionally, weaving faults are not always easy to detect before dyeing, so it is reasonable to assume that at least half of the faults would go undetected, be dyed, and then rejected after dyeing. It is fair to say that 0.5% of the impacts of woven nylon dyeing could be save.

Calculation 1 – 1% savings in weaving

Section 1: Select “Nylon Weaving” from the drop-down box.
Section 2: Input 100% in the electricity and 100% in the heat box for effectiveness (since the processes are eliminated).
Section 3: Confirm that the solution is applicable globally .

Calculation 2 – 1% savings in virgin nylon used for woven fabric

Section 1: Select “Extraction and Polymer” from the dropdown box.
Section 2: Input 100% in the electricity and 100% in the heat box for effectiveness (since the processes are eliminated).
Section 3: Confirm that the solution is applicable globally.

Calculation 3 – 1% savings in nylon yarns used for woven fabric

Section 1: Select “Nylon Filament Spinning” from the dropdown box.
Section 2: Input 100% in the electricity and 100% in the heat box for effectiveness (since the processes are eliminated).
Section 3: Confirm that the solution is applicable globally.

Calculation 4 – 0.5% savings in dyeing of woven nylon fabric

Section 1: Select “Nylon Fabric Dye” from the dropdown box.
Section 2: Input 100% in the electricity and 100% in the heat box for effectiveness (since the processes are eliminated).
Section 3: Confirm that the solution is applicable globally.

In this example, the solution provider would be required to complete separate calculations, add the totals, and then subtract the impacts of the solution itself.

4.5. Appendix C – CSP Solution Reporting Requirements

Registrants agree to accurately transparently feature their solution and the solution’s impact on Aii’s Climate Solutions Portfolio Platform and update the information at minimum on an annual basis. The information published on the platform will include where applicable:

- Number of brands using solution
- Number & country of facilities using solution
- Tier in which the solution takes place
- Average project/implementation duration
- Average investment per project (brand & facility)
- tCO_2e, energy, & any other KPI savings
    - Total historical
    - Average savings per facility on an annual basis
    - Total solution savings per year
- Financial savings associated with the solution
- Payback period
- Investment cost per tCO_2e reduced

The purpose of being a Registrant, and of having an up to date solutions page, is to demonstrate impact to date and impact potential to brands, facilities and the financial community. These interested parties may then contact the Registrant to enquire about further deployment and scale of the solution. By featuring this information transparently the Registrant is supporting the industry's ability to measure contribution to 2030 goals.

Registrants are also required to measure the CO2e impact of their solution as it gets deployed. Whenever an implementation of the solution occurs as a result of Aii and CSP matchmaking, the Registrant is required to send the impact data to Aii. This data will be used by Aii to capture its annual enablement of impact as well as supporting facilities and brands in communicating their reductions.