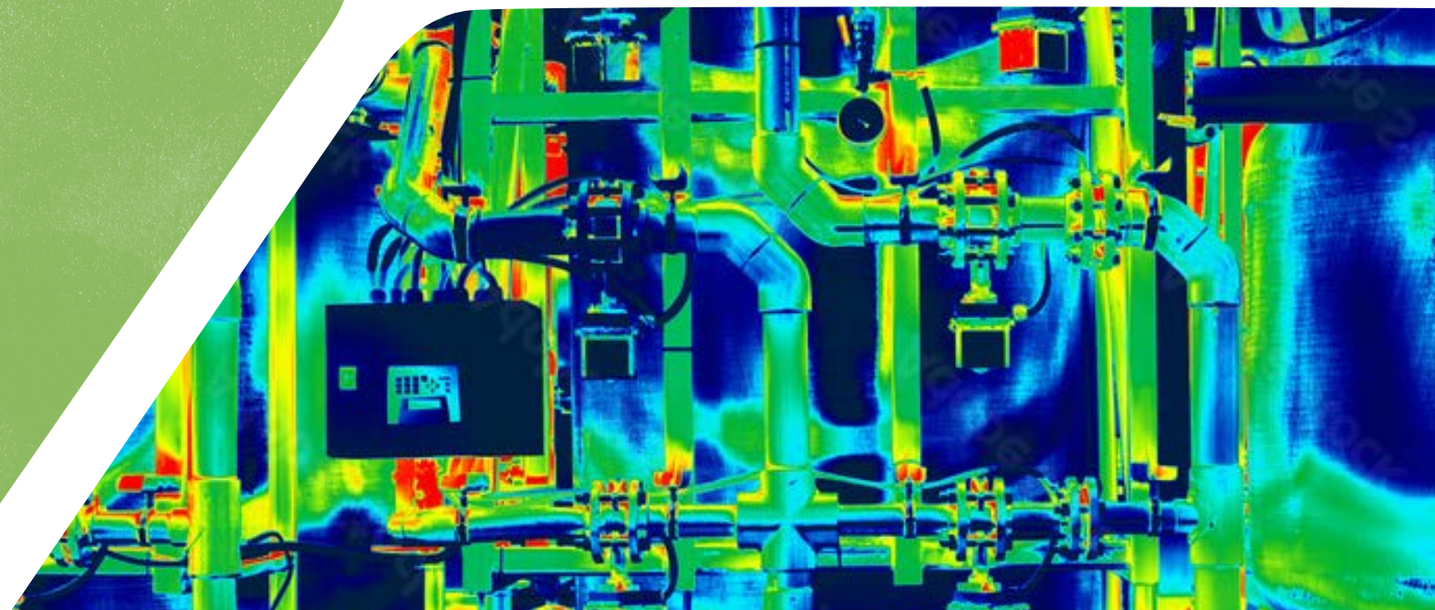
P&G BEST PRACTICES
FOR SUPPLIERS:

REDUCING GREENHOUSE GAS EMISSIONS

SCOPE 1&2

NET ZERO 2040
IT'S OUR HOME

2025



UNLOCKING BEST PRACTICES TOGETHER

This document provides practical examples of the **key effective sustainability programs** that P&G is implementing across manufacturing sites and that have aided our progress in **reducing our GHG emissions** over the past years vs. our 2010 baseline.

The intent of sharing these programs is to **inspire, provide recommendations and offer a starting point towards** jointly reducing the environmental footprint of the final manufactured product that reaches consumers.

There are four topic areas that will be covered in this tool kit.

1 **SUSTAINABILITY MANAGEMENT PROGRAM**
Setting an overall program approach on how to coordinate and integrate sustainability efforts with manufacturing sites

2 **ENERGY & WATER MONITORING AND ANALYTICS**
Monitoring consumption across a site, to identify and create insights and action plans to improve efficiency of operations

3 **THERMAL STUDIES**
Assessing thermal energy use at a site level to identify opportunities to optimize waste heat and make progress towards decarbonization of the site

4 **RENEWABLE ELECTRICITY SOURCING**
Reducing a company's impact by sourcing renewable electricity

Please note that the following content outlines P&G best practices and recommendations; suppliers are responsible for their own decisions and execution.

1

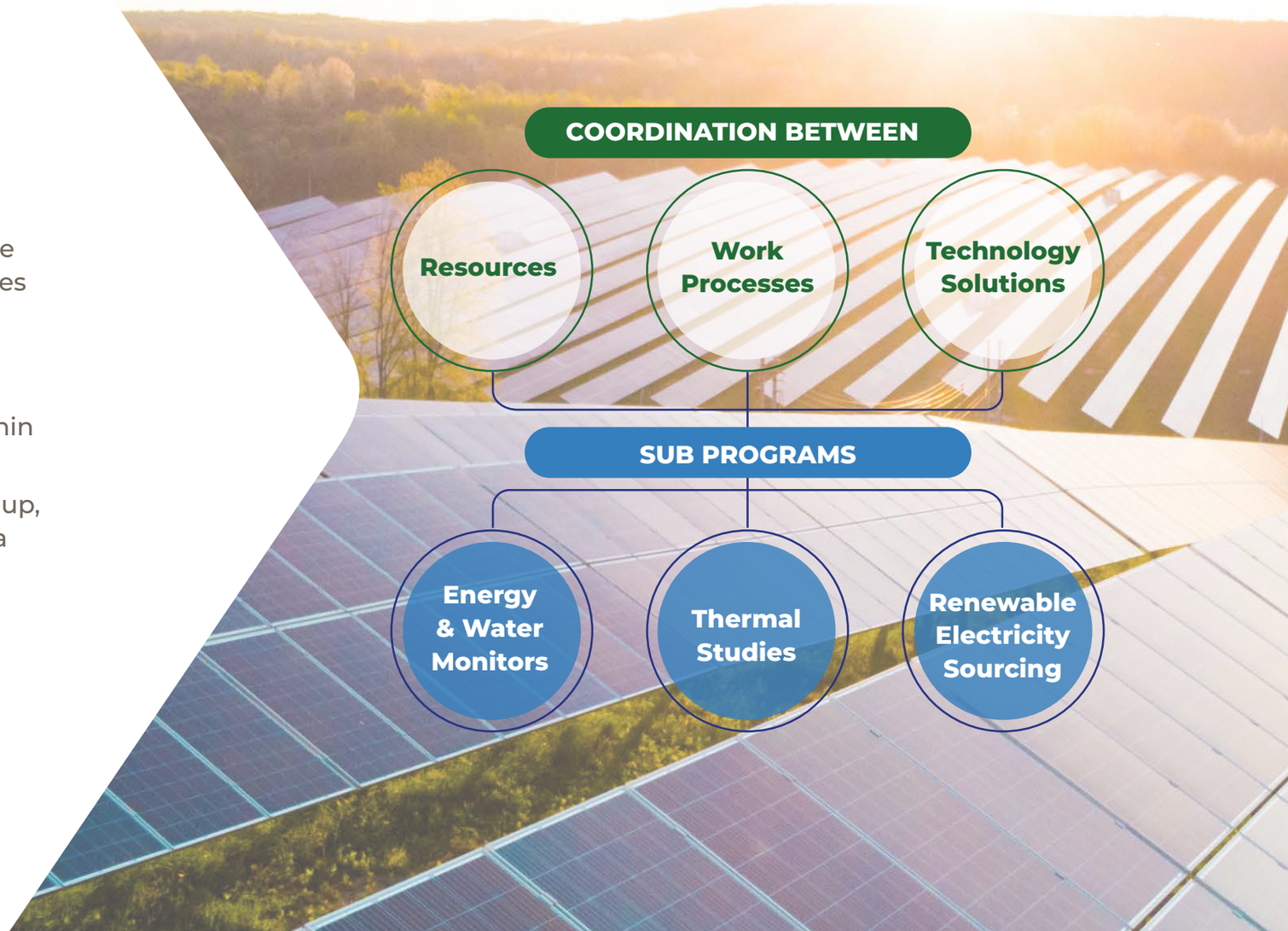
SUSTAINABILITY MANAGEMENT PROGRAM

To establish or expand sustainability efforts at manufacturing sites, an integrated sustainability management program can be established. This program coordinates resources, work processes and technology solutions across all sites. This creates scale and can deliver more positive impacts efficiently.

Energy & Water Monitoring, Thermal Studies, and Renewable Electricity Sourcing can be implemented as sub-programs within the overarching sustainability efforts of a company.

The following pages will show you our approach on how to set up, manage, and maintain such a program, helping to turn it into a key driver for reducing emissions from manufacturing sites.

INTEGRATED SUSTAINABILITY MANAGEMENT PROGRAM APPROACH



SETTING UP A SUSTAINABILITY MANAGEMENT PROGRAM

Four key steps to be considered:

STEP 1
Assess Current Footprint and Define Goals

- **Understand your current footprint** and existing practices around climate, water, waste & nature.
- **Establish a baseline** and identify your strengths and weaknesses.
- **Define** clear, science based & measurable **companywide goals**, backed with **sufficient plans** and in line with your company's vision & values.

STEP 2
Take Action & Implement Projects

- **Set clear actions and responsibilities** for each site and **define priorities** and relevant resources.
- **Ensure overall strategy fit** of individual projects and options for footprint reduction.
- **Implement projects/footprint reductions** as per defined roadmap and refine where needed to maintain sufficiency.

STEP 3
Monitor & Review

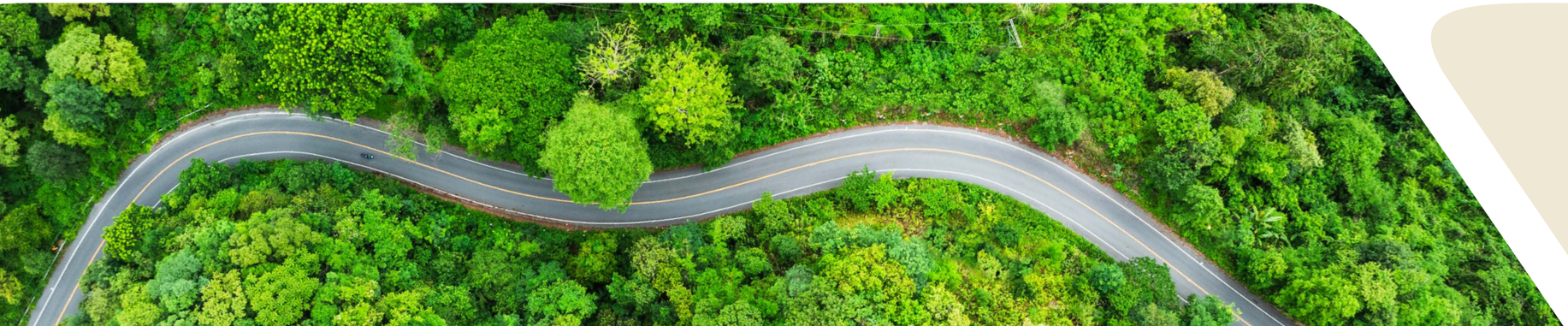
- **Monitor Progress continuously** and assess and recognize what has worked well and what can be improved.
- **Consider internal and external factors** that will drive change over time.
- Make learnings along the way and improve continuously.

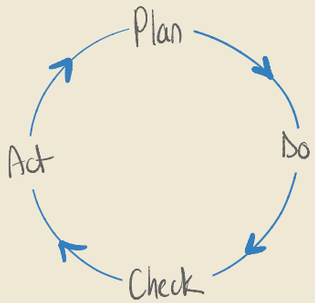
STEP 4
Implement actions and iterate

- **Continue progress and follow through** on identified actions and commitments to eliminate emissions and reduce footprints step by step.
- **Stay adaptable** and flexible for scope or priority changes as there are a lot of variables at play.

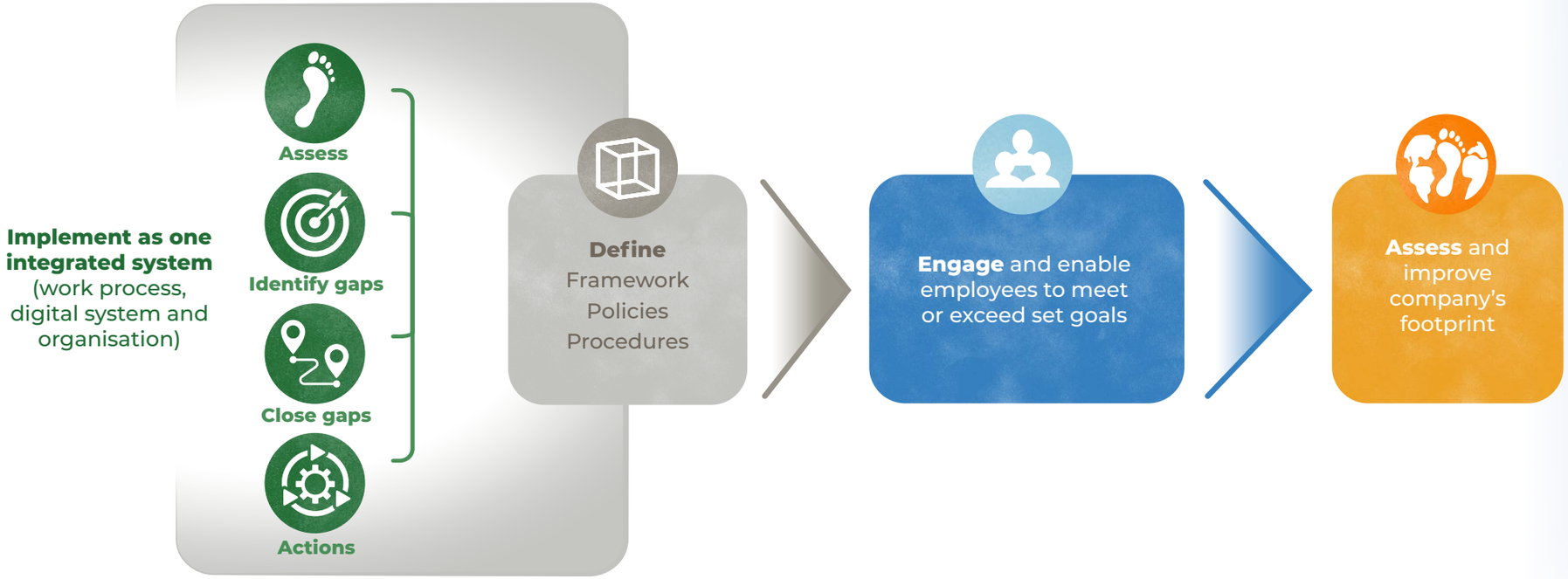
Project Examples

- Energy & Water Monitoring
- Thermal Study
- Renewable electricity
- Heat recovery
- Renewable fuels
- Electrification of manufacturing processes and utilities.
- Raw materials and transformations along the manufacturing processes





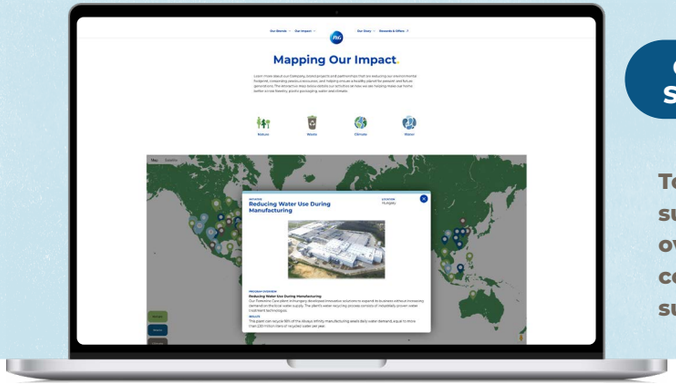
THE SUSTAINABILITY MANAGEMENT PROGRAM SHOULD:



BEST PRACTICE EXAMPLES

Within P&G, setting up an integrated Sustainability Management Program has enabled broad engagement on sustainability across all manufacturing sites. Understanding the potential needs and what actions are required to reduce a site's footprint, and starting a conversation between relevant functions are critical steps to making actual progress towards footprint reduction.

Active participation in the sustainability management system and sharing knowledge and experience with other sites, has enabled multiple P&G sites to kick-start their sustainability efforts and implement some of the programs and technologies described in the following sections, such as Heat Recovery or Energy & Water Analytics.



CLICK HERE FOR SUCCESS STORIES

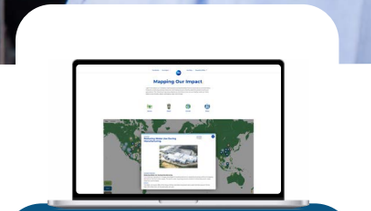
To view specific success stories and overall positive impact coming out of P&G's sustainability efforts

2

ENERGY & WATER MONITORING AND ANALYTICS

Understanding where energy is being consumed at the site is the first step towards optimizing consumption and reducing the site's footprint.

Depending on the business operation and location (for example, in a water-scarce region), water may also be a focus area that can be linked to the same effort. The chart below provides an overview of one of the approaches we have found useful, starting with assessing the site's baseline and integrating data into analytical tools to gain insights that help identify specific optimization opportunities. We refer to this journey as Energy & Water Monitoring and Analytics. It can help reduce consumption and associated emissions at the site by improving equipment, processes, or operating efficiency across all operations.



CLICK HERE FOR P&G'S IMPACT

TEAM CHARTER RESOURCE ALIGNMENT
Define cross-functional team resources and success criteria

→

SITE ASSESSMENT
What data/information already exists?

→

GAP/OPPORTUNITY
Which areas could be monitored additionally?

→

METERING
Define, source, and install meters

→

DATA FLOW & ANALYTICS
Determine how to bring the measurement data together and turn it into insights and actions

HOW TO APPROACH ENERGY & WATER ANALYTICS

STEP 1

Capture Data via Metering Installs or Utilize other relevant Data

Assessing energy and water consumption at the site can take many forms.

Review the Baseline
It starts with reviewing the baseline and what's currently in place. *For instance*: are there existing meters installed across the manufacturing site that measure consumption in some areas? Or does the equipment specification indicate consumption?

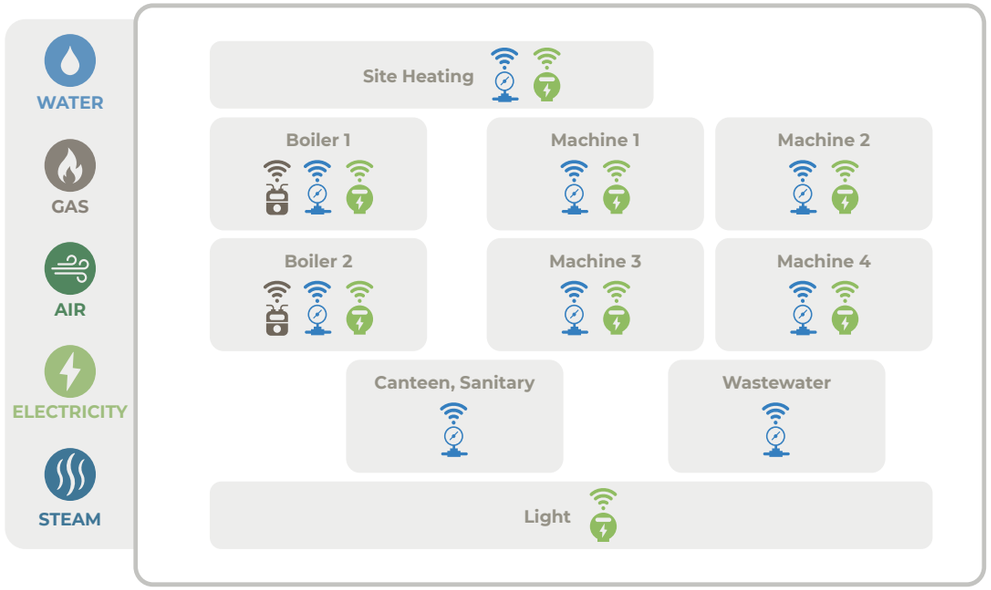
Assess Monitoring Options
Depending on the use cases at the site, permanent meter installations may make sense for continuous monitoring, or temporary monitoring may be a better alternative.

For example, meters simply clamped onto a pipe and transfer data remotely, can offer a way for making spot checks and identifying major utility consumers.

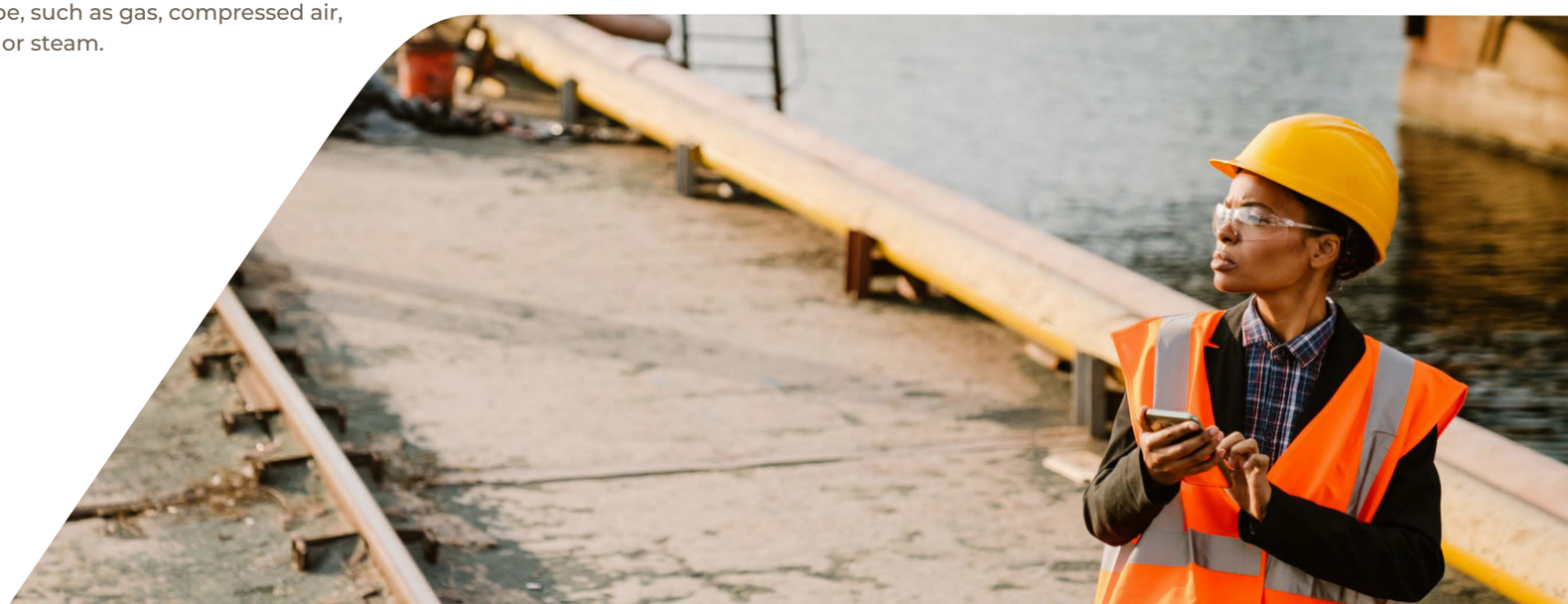
Leverage Data
Review any other data sources that may be helpful and could provide information on when and where consumption is occurring.

For instance, adding the context of manufactured products (type, quantity, scrap etc.) could later be beneficial in understanding the consumption data as it may explain higher or lower phases in usage.

The illustration shows an example of how a site assessment can look. It is a visual mapping across the site for relevant consumers, existing and potential measurement locations and energy type, such as gas, compressed air, electricity or steam.



Site Assessment example



STEP 2

Flow & Contextualize Data within and beyond sites

Collecting energy & water data across manufacturing areas is only the first step. Establishing a robust data architecture that is secure, reliable, and adaptable enough to integrate diverse data sources—both internal and external to the company—is a crucial step in the overall process. After the data streams are configured, the next phase involves preparing and cleansing the data. This process may reveal outliers, gaps in context, or the need to merge different data sources to fully understand the metrics being analyzed.

Integrating data from multiple sites and storing it in a cloud-based location can provide significant advantages, enabling benchmarking across various manufacturing locations. This approach not only offers a foundational understanding of each site's operational footprint but also allows for the evaluation of equipment performance variations across different locations. While additional projects and investments may sometimes be necessary to translate insights into actionable steps, often, merely monitoring consumption and benchmarking across different areas, departments, shifts, and weekends can reveal easily implementable opportunities for improvement. These low-hanging fruit initiatives typically require minimal investment yet can result in noticeable enhancements in efficiency.

These can then be implemented quickly and cost effectively, without major investment but lead to visible efficiency improvement.

STEP 3

Bring to Life and Integrate into Everyday Culture

All the monitoring and analysis work ultimately aims to provide insights for optimization. However, to achieve this and transform those insights into specific actions, the entire effort must be woven into the site's work processes and daily culture. Otherwise, it may remain an isolated initiative that results in an attractive dashboard but fails to effectively reduce consumption and environmental impact.

Relevant Data

Before investing in analytics tools, assess how dashboards and advanced analytics will be developed, incorporate insights from experts in each department, and determine how the data will be used.

Consumption Dashboard

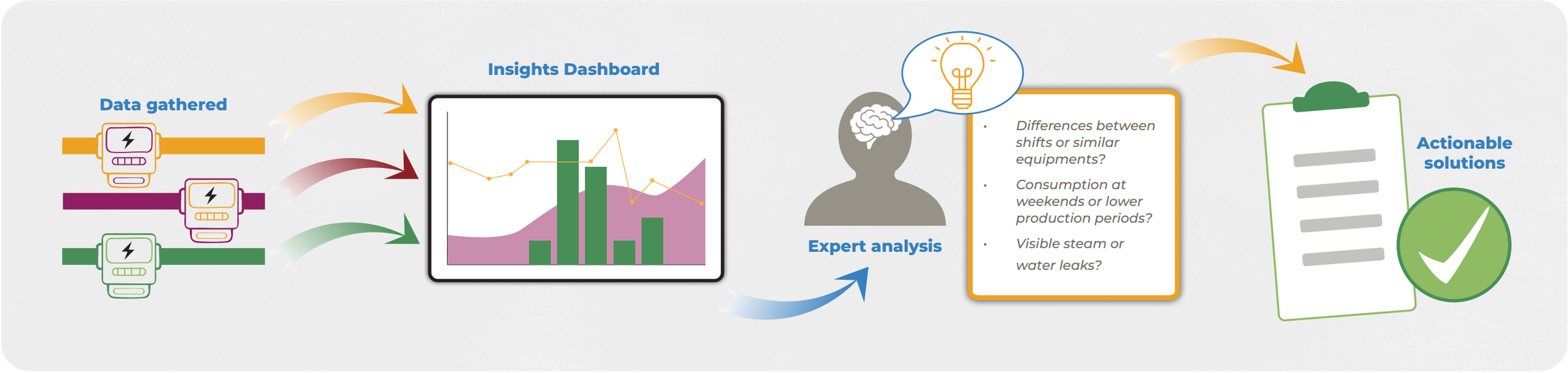
Consumption dashboard review should be integrated into regular production meetings to assess sustainability metrics side-by-side with production metrics.

Drive Insights

Identify specific optimization opportunities by combining metering data with expert knowledge. Reaching an understanding of where and why losses happen, enables the manufacturing team to drive the appropriate actions.

Lead to Actions

Encouraging teams to take ownership and empowering them to identify solutions creates a culture and mindset of leadership.



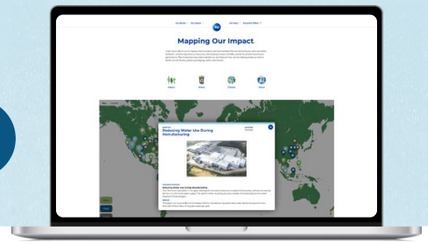
BEST PRACTICE EXAMPLE

Once relevant metering is in place and data is being analyzed it's time to assess and identify how to eliminate potential losses. Particularly, when just getting started there are often low hanging fruits that do not require a lot of capital investment or major changes in operating processes but, rather a sum of smaller changes in behavior and daily operating processes.

For instance, multiple manufacturing sites in P&G have installed energy and water meters across the site at main utility lines. This allowed us to understand sub-distributions and large consumers particularly within the manufacturing area. The data from these meters was then integrated into dashboards at the site which has helped to monitor energy and water consumption over time and identify losses and opportunities.

Actions, such as optimizing equipment shutdown, extending preventive maintenance procedures and detecting and fixing leakages quickly after they appear have been implemented and resulted in significant reductions in the Emissions and Water Footprint, as well as lowering site utilities costs. Establishing a variety of smaller improvements can be a good way to gain initial traction of the program and engagement across the manufacturing floor.

Gained insights and savings and the resulting cross-functional engagement coming from these initial actions are then a further accelerator for finding future improvements and support actions that may require higher initial investments.



CLICK HERE FOR SUCCESS STORIES

3

THERMAL STUDIES

The core concept of "lean production" is to emphasize value-added activities by minimizing waste. Industrial waste heat refers to heat released from industrial processes where energy, primarily heat and electricity, is used to create high-value products.

A Thermal Study is a system-oriented analysis of site thermal energy use. It is the starting point to understand potential options and technologies for recovering waste heat and utilizing it at the site.

Reuse of waste heat following a data-based approach

Reduce energy consumption

HOW TO APPROACH THERMAL STUDIES

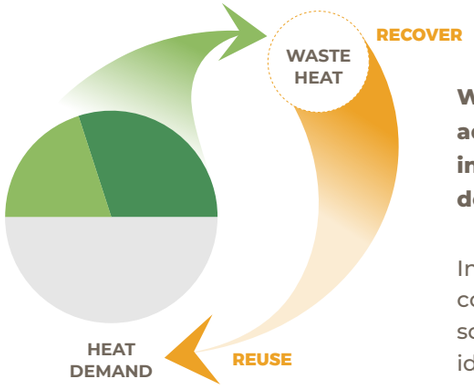
It is expected that 20% to 50%[1] of industrial energy consumption is ultimately lost or discharged as waste heat.

Before investing heavily in heat recovery equipment, first action should be always to reduce unnecessary heat generation and losses.

There may be several options to reduce waste heat in a facility including:

- Insulating areas of high heat loss such as pipes and exhaust stacks
- Equipment tune-ups such as optimizing air fuel ratios
- Implementing automated control

(1) Waste heat recovery: Technology and Opportunities in U.S. Industry



Waste heat can be converted to value added processes if it is recovered and put into use again to cover some of the heat demand in the process or facility.

In order to recover waste heat, the right combination of source of waste heat (heat source) and use of heat (heat sink) must be identified and the right recovery technology must be selected.

Pinch analysis is a system-oriented method aimed at determining the theoretical minimum energy demand for heating and cooling processes. It focuses on holistic optimization while minimizing investment and operating costs, making it the preferred methodology in a thermal study.

Common waste heat sources in a production site are:

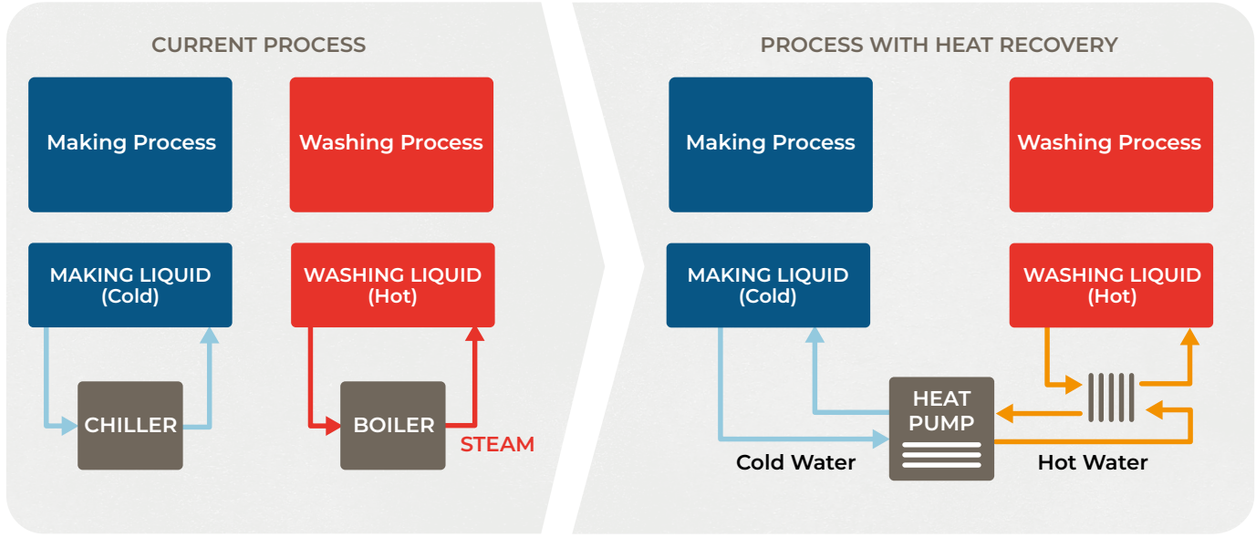
- Flue/exhaust gas structures
- Compressors
- Chillers
- Motors and engines
- Wastewater and other effluents

Thermal energy from these waste heat sources can be re-used for heat sinks:

- Pre-heating
- Upgrading to higher grade of heat for production
- Conversion to electricity

DIRECT HEAT RECOVERY

Direct heat recovery should be the first consideration in thermal analysis.
Industrial heat pumps are useful when there is no option for direct heat recovery. Industrial heat pumps are a class of active heat-recovery equipment which can upgrade the temperature of a waste heat source so that it can be re-used within a process, with the input of electric power.



An example of heat recovery process between two production processes, using heat pump to increase waste heat temperature to useful temperature

(2) Source: NT Japan Annex 48

LEARN MORE: COST EFFECTIVE RESOURCES

You can explore and assess low-to-no-cost options available for sustainability program training, energy and thermal studies. Programs available in your country, such as U.S. EPA's ENERGY STAR program and U.S. DOE's Better Plants program, offer training and resources for effective energy management practices.

CLICK HERE FOR ENERGY STAR

CLICK HERE FOR BETTER PLANTS

In addition, U.S. DOE proposes free energy assessments to small- to medium-sized companies through their Industrial Assessment Centers.

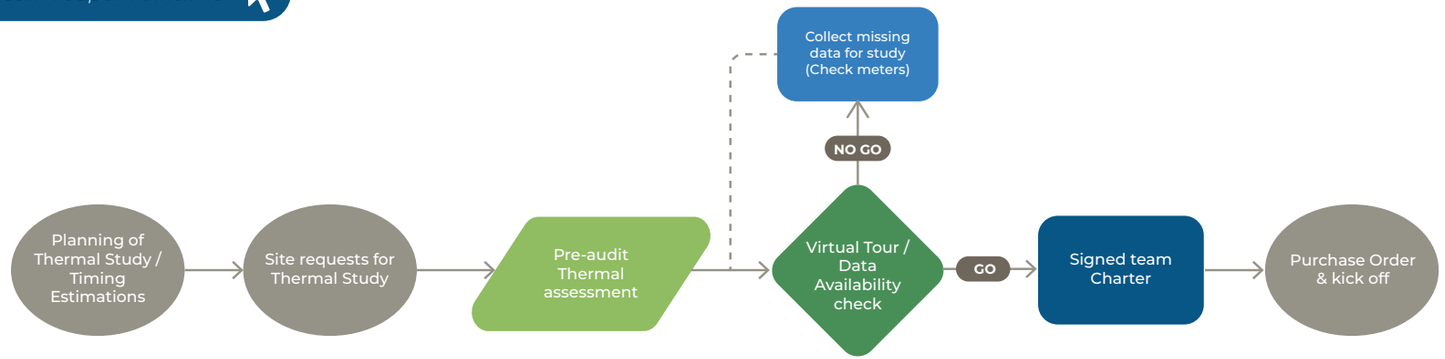
Additionally, check with your local energy provider, non-governmental organizations (NGOs), or local university partnerships for low-to-no-cost assessment programs that can help identify improvement opportunities.

Resources are also available on the Renewable Thermal Collaborative (RTC) platform, which can help unlock sustainable, scalable solutions that reduce emissions. P&G is a founding member of the RTC and has demonstrated strong leadership in this area.

CLICK HERE FOR RTC

Thermal Study kick off

During a thermal study, an expert can conduct various site visits to perform a site energy audit and help you identify all the above mentioned components, i.e. understanding where heat is being wasted and what are the best options to recover and use it.



BEST PRACTICE EXAMPLE

After a Thermal Study is conducted on a site, there are three types of projects that can be implemented at a manufacturing site:

- Fundamental improvements such as steam traps, boiler house optimization etc.
- Direct heat recovery options such as heat recovery from an exothermic production process
- Heat pump applications, where direct heat recovery is not enough to supply thermal demand on site (depending on electricity and gas cost this can be an operational saving or hurt)

Below is a theoretical example project where waste heat from molding cooling process is utilized with heat pumps and used for heating the production building.

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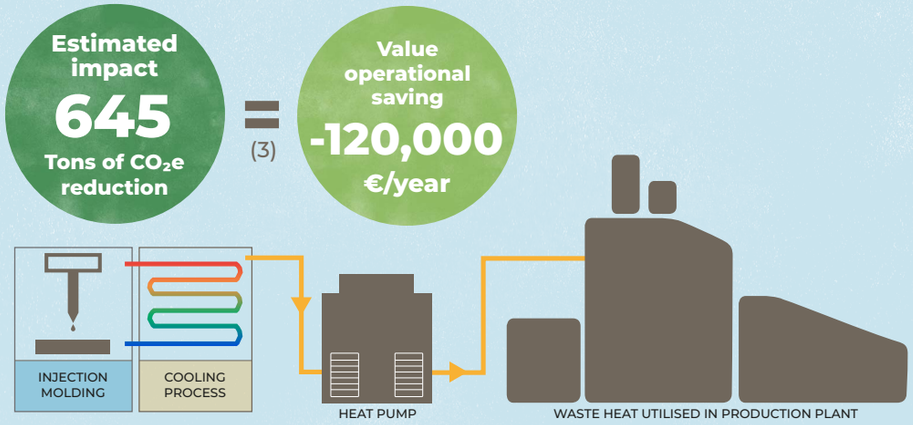
Hypothetical project: Molding Heat Recovery



(3) The operational savings are calculated based on the current natural gas and electricity costs at the time of completing the study. However, it is highly recommended to conduct a sensitivity analysis to assess the impact of potential changes in the commodity market on the feasibility of the project. This analysis helps to understand how fluctuations in commodity prices can affect the project's financial viability.

4

RENEWABLE ELECTRICITY SOURCING

P&G's ambition is to reach net zero greenhouse gas (GHG) emissions across our supply chain and operations from raw material to retailer by 2040. Our climate journey began over a decade ago with goals at our own manufacturing facilities. Since then, we have expanded and accelerated our efforts to address GHG emissions across the life cycle of our products, and within our operations and supply chain.

The goal for Scope 2 is to:

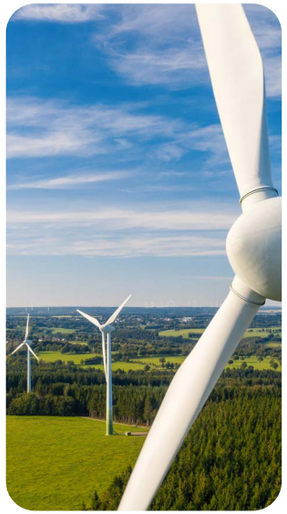
Purchase 100% Renewable Electricity

WHAT IS RENEWABLE ELECTRICITY?

Renewable electricity refers to electrical power generated from renewable energy sources that are naturally replenished over time. These sources include:

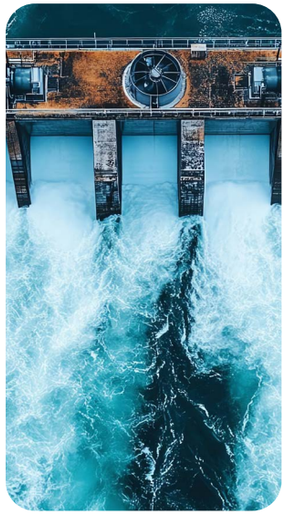
SOLAR ENERGY

Captured from sunlight using solar panels or solar thermal systems



WIND ENERGY

Generated by converting the kinetic energy of wind into electricity using wind turbines

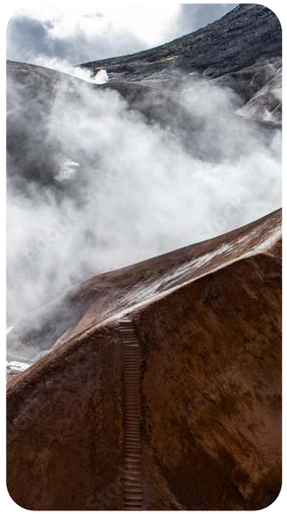


HYDRO POWER

Produced from the movement of water, typically harnessed through dams or run-of-river systems

BIOMASS

Created by burning organic materials (like wood, agricultural residues, and waste) or converting them into biofuels



GEO-THERMAL ENERGY

Generated from the heat stored within the Earth, which can be used for electricity generation or direct heating

HOW TO APPROACH RENEWABLE ELECTRICITY

Determining the right renewable electricity approach for you involves several steps to ensure that your strategy aligns with your goals, resources, and the specific context of your situation.

Step 1
Assess your current energy usage

Step 2
Define your goals for sustainability and decide where to focus

Step 3
Understand available renewable options

HOW CAN COMPANIES SOURCE RENEWABLE ELECTRICITY?

ENERGY ATTRIBUTE CERTIFICATES (UNBUNDLED)

- Scalable
- Quick to implement
- Available through brokers
- Vintage is important
- Availability and cost may be an issue in some markets

UTILITY/SUPPLIER RENEWABLES

- Dependent on utility offerings
- Range of impact depending on program design (green tariff vs green power program)
- Not available in all markets

ONSITE RENEWABLE ELECTRICITY

- Small scale - often covers only a portion of facility use
- Potential for savings
- Certificates must be included
- Not viable at all sites
- Additionality possible

OFFSITE GENERATION (Power Purchase Agreements and Tax Credit Investment)

- Large scale, long-term purchase
- Allocation of EACs across multiple sites
- Variable cost - subject to market volatility
- Not available in all markets
- Additionality possible

Schneider Electric. (2024). Content sourced from Schneider Electric Sustainability Business renewable electricity core education series made available through the ACCELERATE program introduced on the last page.

Additionality in renewable electricity sourcing means that the energy produced from renewable sources is above what would have happened anyway. It ensures that new projects contribute to increasing renewable energy capacity, rather than just replacing existing power sources.

A company consuming electricity can receive and match **Environmental Attribute Certificates** (EACs), or RECs, **Renewable Electricity Certificates**. They are used to confirm the use of Renewable Electricity. Accounting and reporting of RE follows established industry standards.

RECs or EACs can be sourced via:

- PPAs, Power Purchase Agreements (directly connected to the company sites, enabled through a contract by the offtaker)
- VPPAs, Virtual Power Purchase Agreements (connected to the electricity grid and does not serve the offtaker directly). VPPAs enable the creation of RE capacity via financial commitments
- Purchase of certificates available in the market from existing capacity, indirectly supported by any company.

P&G BEST PRACTICE: MANAGING A PORTFOLIO OF RENEWABLE ELECTRICITY OPTIONS

To manage our Scope 2 footprint with Renewable Electricity solutions, we are using a portfolio approach which adapts to changes over time responding to new learnings and emerging understanding.

We look at our footprint and renewable electricity solutions globally, given our global footprint. This may be small or large, depending on the region and area where our production sites are located.

For different markets, we make portfolio choices based on our footprint and the renewable electricity market maturity, which has an impact on selectable options.

We operate within accepted renewable electricity accounting standards, which also has an influence on the choices we make.

Legislative changes have another key influence on our portfolio; we see more countries defining local rules that can open new investment opportunities and thus business models to accelerate renewable electricity capacity development.

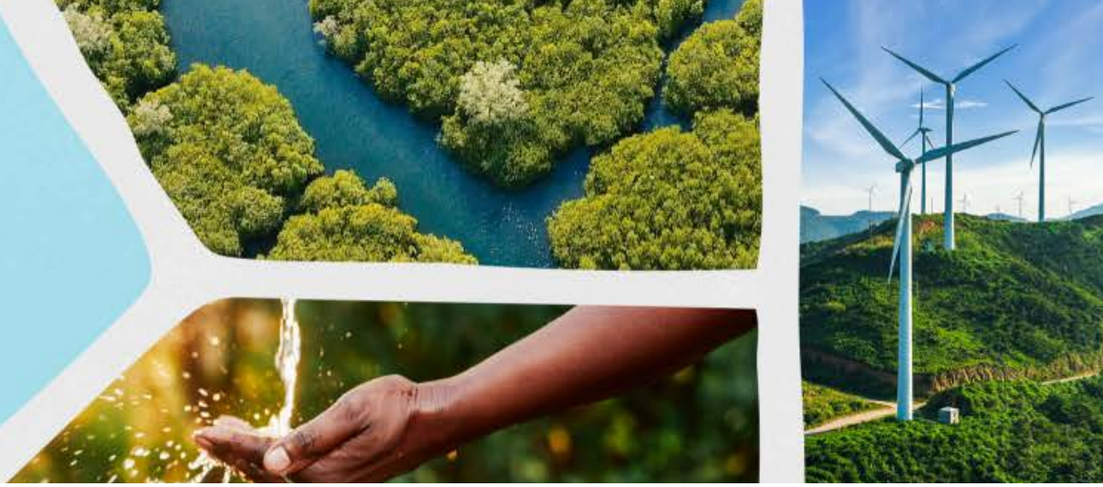
This iterative process will become more important as we increase the number of active projects we have in place, and more projects need to be renewed or replaced in future.

Ongoing portfolio management is imperative and is an iterative process. The capacity creation of RE is a long-term business and we look to define the best options in the market. We also look to build strong governance models to ensure the projects deliver the right output. Our continuous market assessment helps us to identify the winning business options and becomes the basis for new capacity and capability building projects.

P&G's preference for our RE portfolio composition is an increase in the use of bundled RECs and a reduction in unbundled RECs over time - supporting the increase of available RE capacity to our supply chain and the industry. Suppliers will need to determine their own RE portfolio strategy that fits their specific business needs.

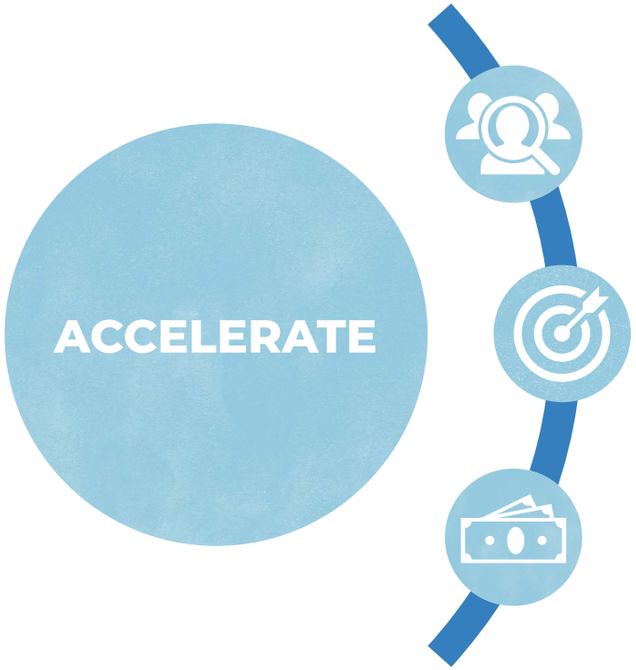
ACCELERATE

RENEWABLE ELECTRICITY PROGRAM



As part of the Climate Unlock Program, P&G has partnered with Schneider Electric to provide a Renewable Electricity Program, Accelerate.

The program is led by Schneider Electric and is focused on enabling greenhouse gas emission reductions within P&G's supply chain. It is designed to meet suppliers where they are, provide the right training and education to help accelerate RE procurement, and aggregate opportunities for VPPA targeted programs.



Who is the program for? The Accelerate Program is for the supply chain partners of Procter & Gamble.

What is the program designed to do? The program has two key objectives:

1. Deliver renewable electricity education to P&G's supply chain partners through live and on-demand sessions. Covering everything from the basics of renewable electricity to advanced cost-saving strategies.

2. Offer P&G's supply chain partners accessible, unique and innovative renewable procurement options across different locations. From Aggregated Power Purchase Agreements to Tax Credit Investment and beyond.

How much does it cost to participate? The program is free for the suppliers of Procter & Gamble; suppliers only have a financial obligation if they choose to purchase renewable electricity.

REGISTER HERE