

Net Zero Supplier Engagement: GHG Reduction Strategies and Roadmap

OBJECTIVE

To enhance your understanding on GHG reduction roadmaps and key strategies to move towards being a carbon conscious business while continuing to grow.

Content

Developing a GHG Reduction
Roadmap

Circularity

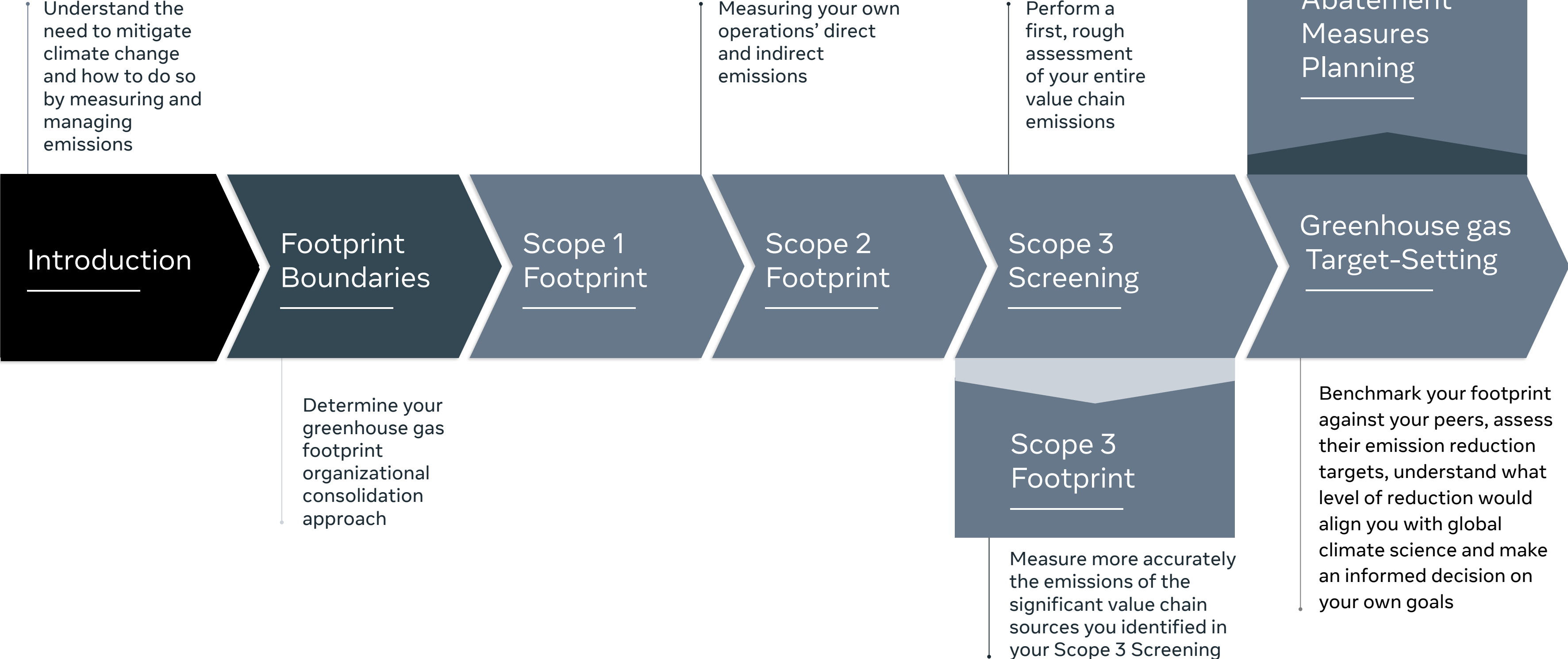
Business Travel

Heavy Transportation

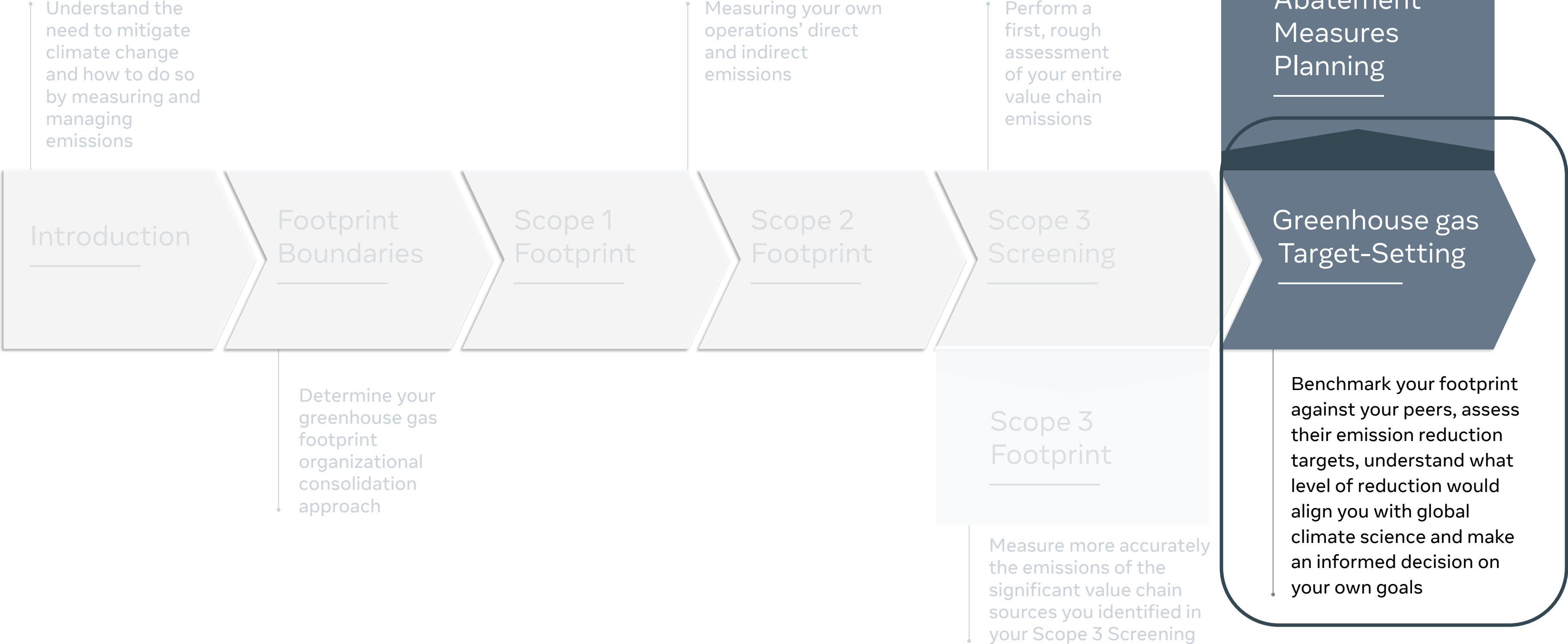
Efficiency, Electrification and
Alternative Refrigerants

Supplier Engagement

Your climate sustainability journey



Your climate sustainability journey



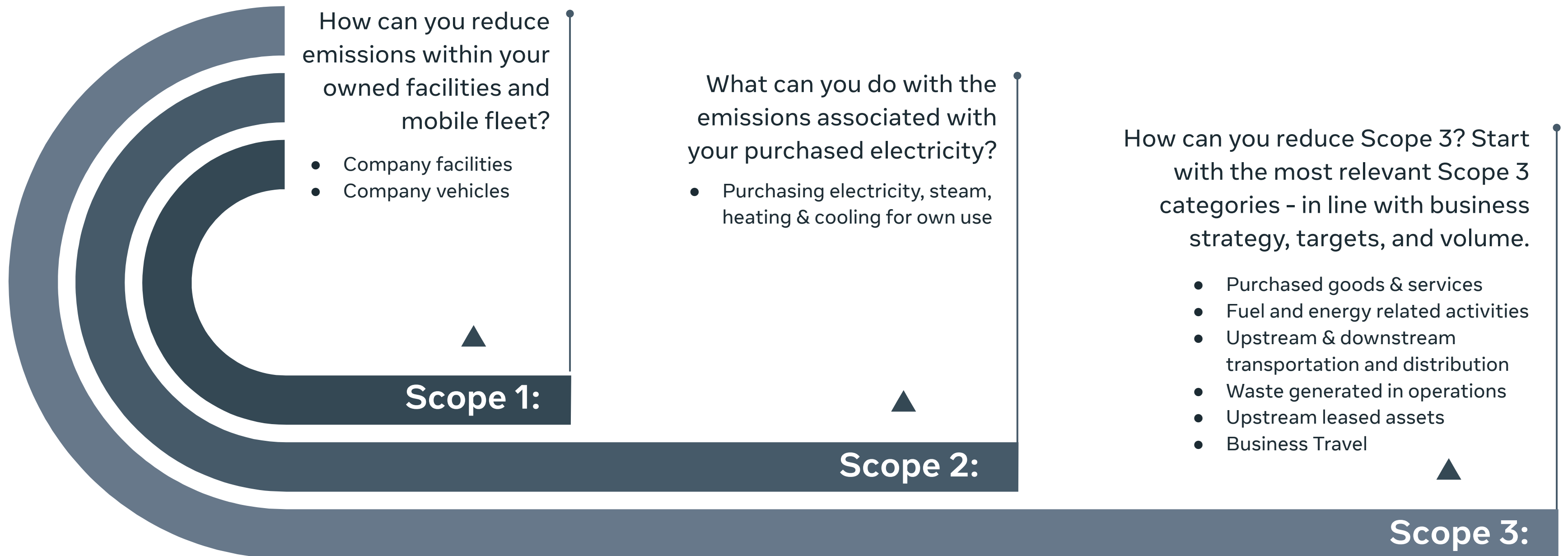
01 Developing a GHG reduction roadmap



Why reduce your businesses GHG emissions?



How to strategize a GHG Reduction Roadmap?



Consider which Scope you are targeting and look at each of these actions as a lever to pull to get you there



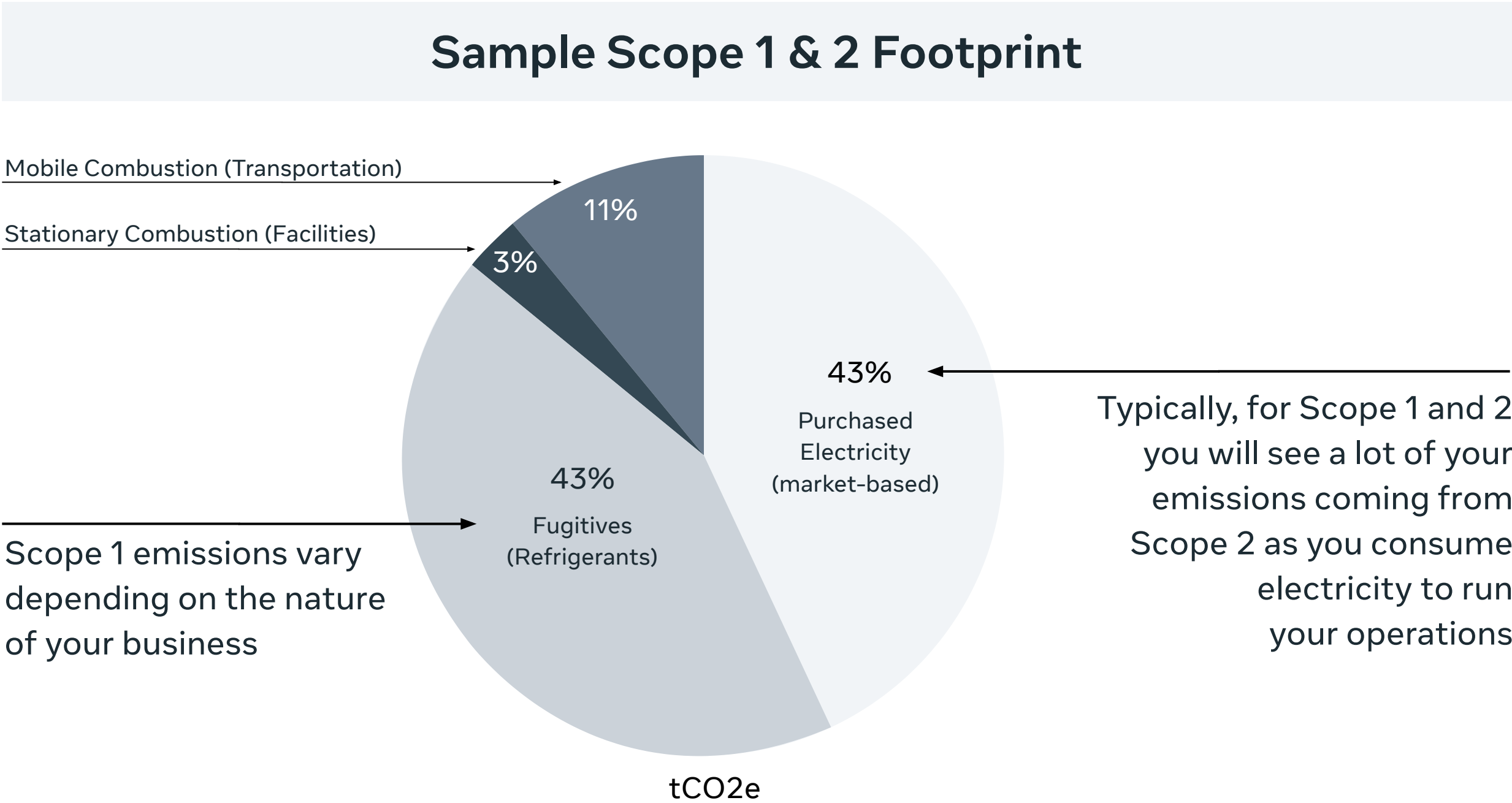
Some of these reduction levers will be easier to pull than others and some will be harder



Understand the feasibility, market readiness and drivers to narrow down reduction measures

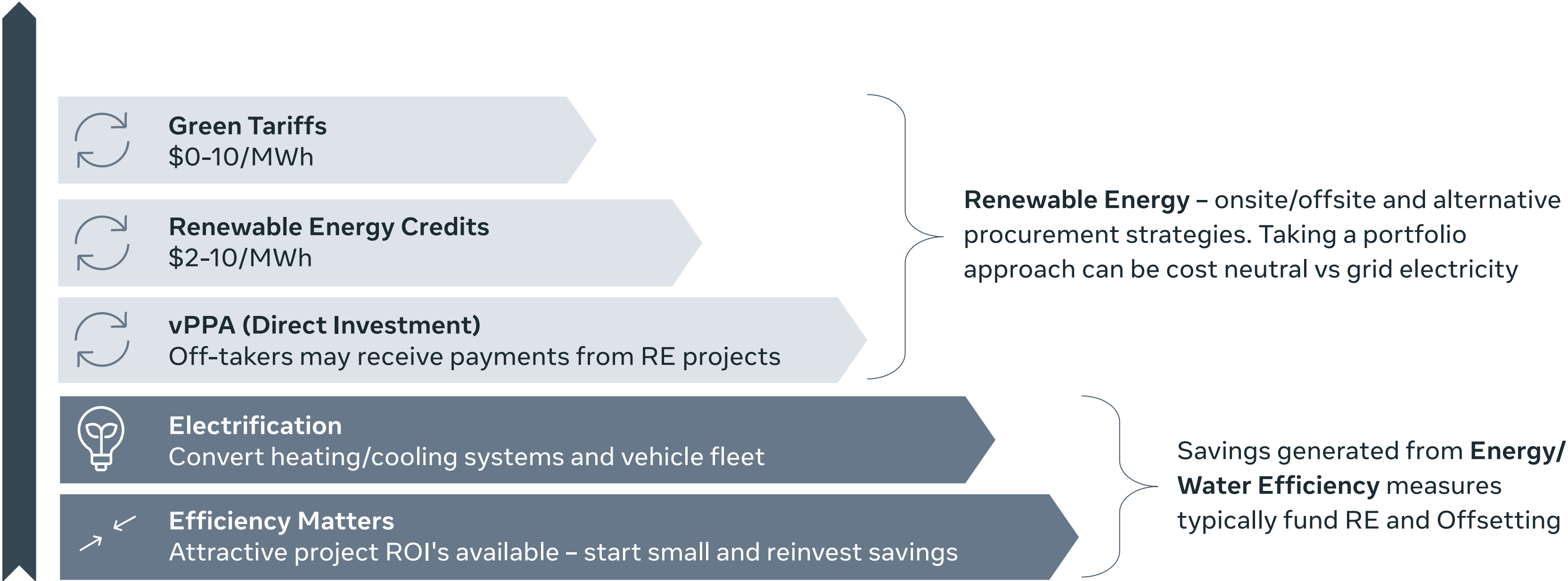
Assessing your scope 1 and 2 footprint

Given that you have more control over Scope 1 & 2, it's important to understand what your hotspots are and what are going to be the different strategies to reduce that.



Overall savings typically available

How do these measures stack up?



GHG impacts and levers

The GHG impact of any activity can be expressed as a simple product of two factors:

1. The activity level (e.g. km driven)
2. The GHG intensity of that activity (e.g. the amount of CO₂e emitted per km)



Identify relevant areas for GHG reduction measures

Investigate the range of options available to you today - given current cost and technology constraints.

Scope	Aspect	Emission reduction levers
Scope 1	Buildings	Natural gas, diesel, & refrigerant efficiency measures for all owned sites and leased sites as sole lessor
	Buildings	Transition from natural gas to electric (i.e., electrification of all gas-using equipment such as boilers, hot water heaters, etc.)
	Buildings	Phase out high GHG emitting refrigerants
	Mobile Combustion	The transition of company fleet to electric vehicles
Scope 2	Buildings	Renewable energy purchases for all facilities globally
	Buildings	Electricity efficiency measures for all owned sites and leased sites as sole lessor
	Buildings	LED retrofits
	Buildings	Green Lease clauses that include 100% renewable energy requirement for multi-tenant office spaces



Typically, energy efficiency measures will have a payback time and return-on-investment (ROI) that can help you save money



Higher planned investments include refrigerant phaseouts, electrified vehicle solutions, as well as renewable energy credits (RECs) purchases

Scope 3 reduction levers

Many of these reduction measures will have an impact on several different Scope 3 categories. Below are some example initiatives and linked Scope 3 categories.

Scope	Lever	Example Initiatives
Scope 3	PG&S	Packaging reductions Use of recycled materials Preferential procurement from vendors offering services with lower GHG emissions
	FERA	Transition from natural gas & diesel fuel heating to electric Transition from company cars running on diesel and gasoline to electric
	Upstream T&D	Distance reduction between suppliers Shipping efficiency Low carbon fuel transition in ocean freight
	Waste generated in operations	Employee engagement on waste reduction Define criteria for zero-waste packaging in vendor contracts



Six identified solutions to reduce GHG emissions

Circularity

Renewable Energy
(covered in a separate training)

Business Travel

Heavy Transportation

Electrification

Supplier Engagement

02 Circularity



What is circularity?

A model of production and consumption based on the principles of reducing waste, keeping materials & products in use, and regenerating nature.

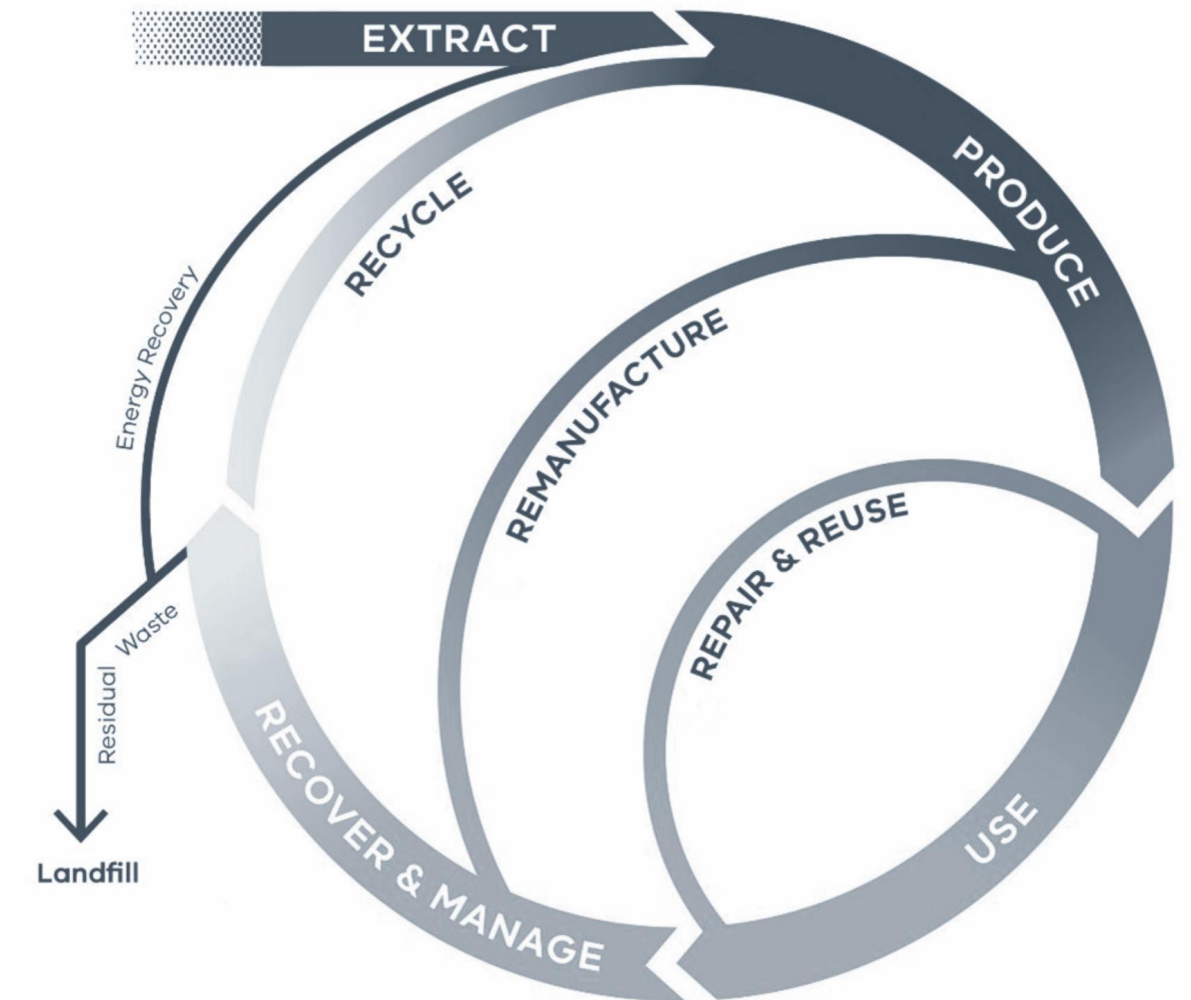
Circularity can lead to emission reductions

- Scope 1 & 2
- Scope 3
 - Purchased goods & services
 - Capital goods
 - Upstream and downstream transportation
 - Waste
 - End-of-life treatment of sold products

Key stakeholders

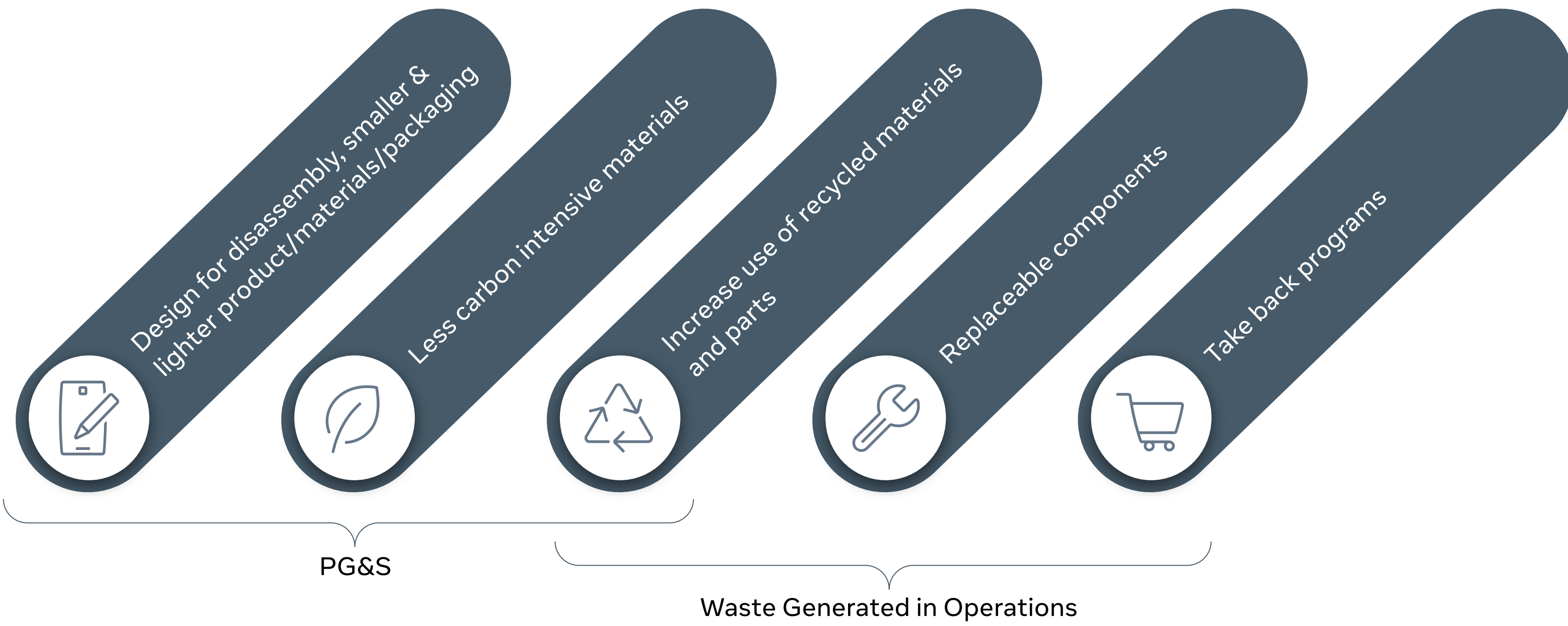
Developing new partnerships, or innovating our practices with existing partners, to unlock circularity benefits.

- Consumers
- Design, engineering, R&D
- Procurement
- Supply chain
- Industry

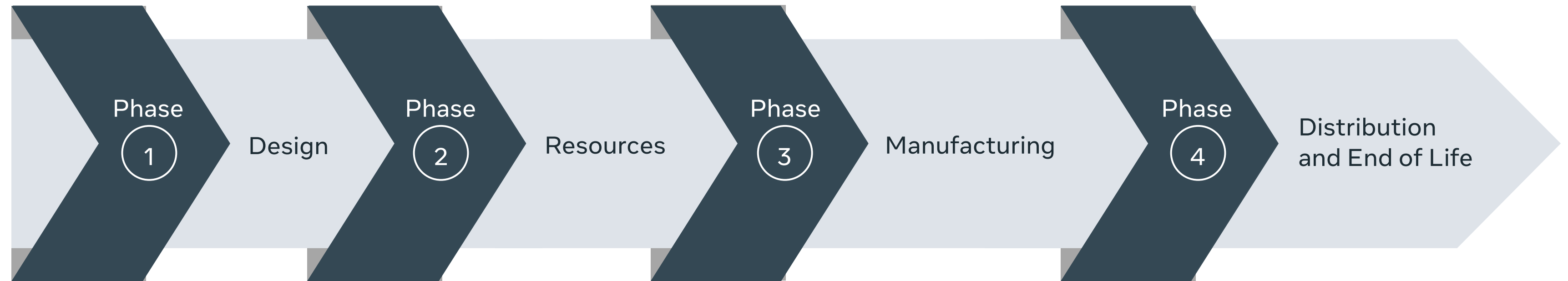


Design for circularity

Levers to promote longevity, reuse, and recyclability through innovative collaborations with suppliers and customers.



Questions to ask when considering circularity in products



- Is it possible to access parts or modules for repair and reuse?
- Are parts of the product built in a standardized way?
- Can the product design withstand the intended use for the intended use time?

- Are recycled or renewable materials used instead of virgin materials?
- Are materials with big environmental burden avoided?
- Are toxic and hazardous materials avoided?
- Is it composed of a few different materials?

- Are your production cycles optimized?
- Is waste avoided during manufacturing?
- Are waste and by-products used as a resource for other nearby companies?

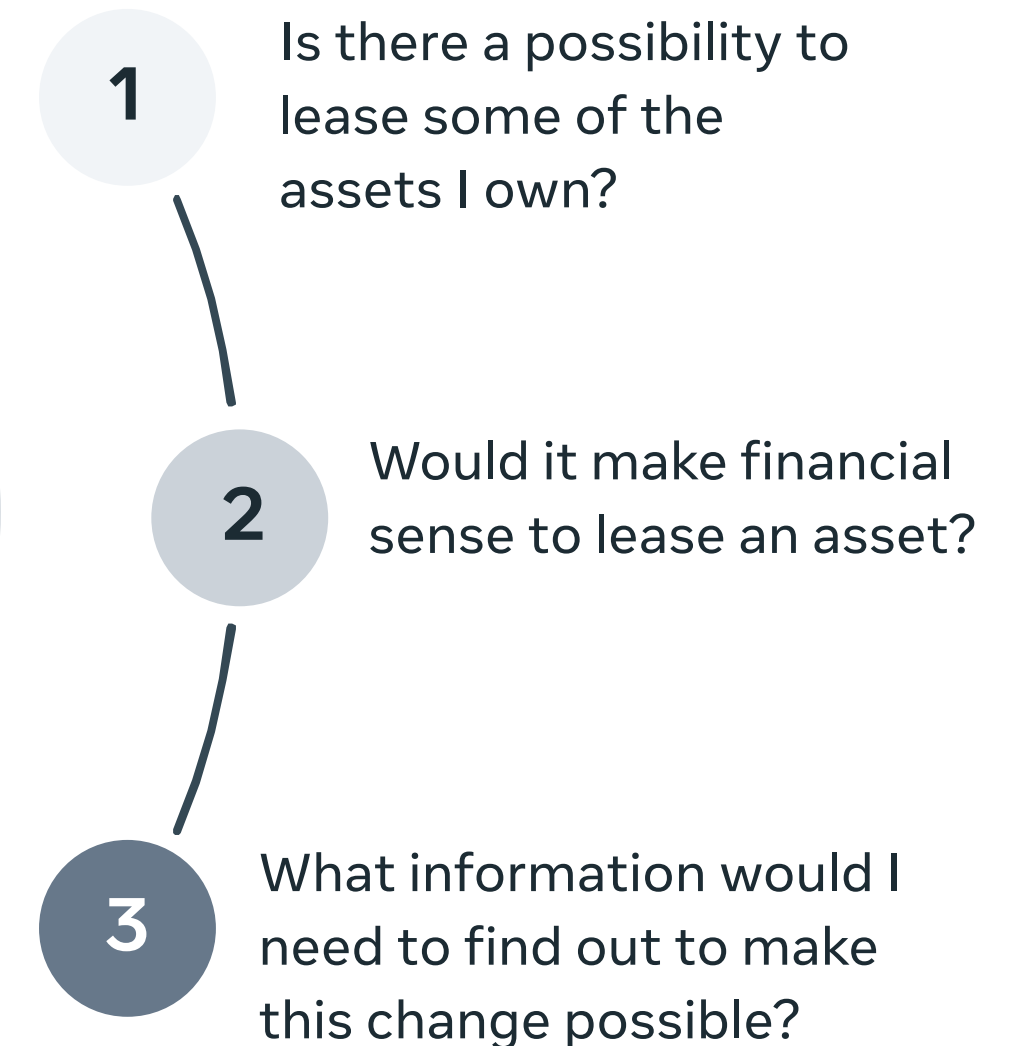
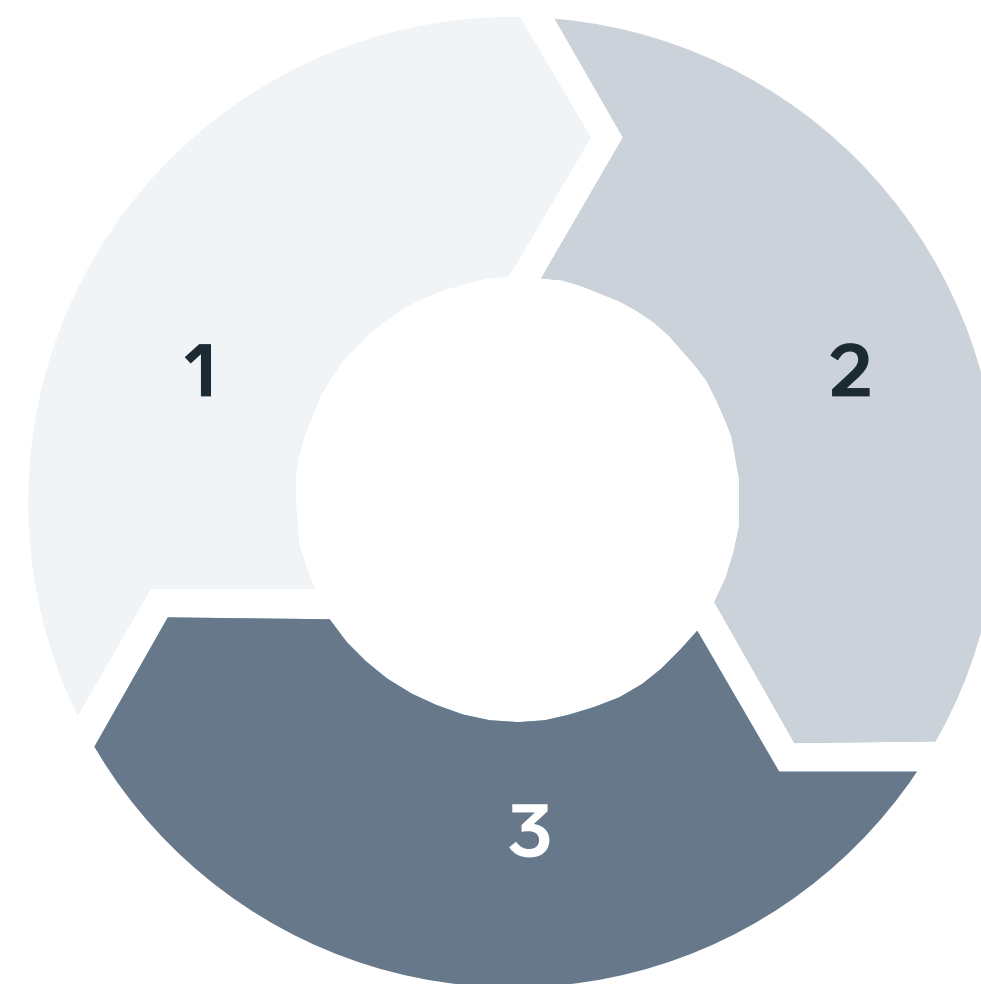
- Are long distances being avoided within the supply chain?
- Is packaging eco friendly, reduced or even avoided?
- Can the packaging be reused or recycled?
- Can the product have a take-back program?

Circularity in services

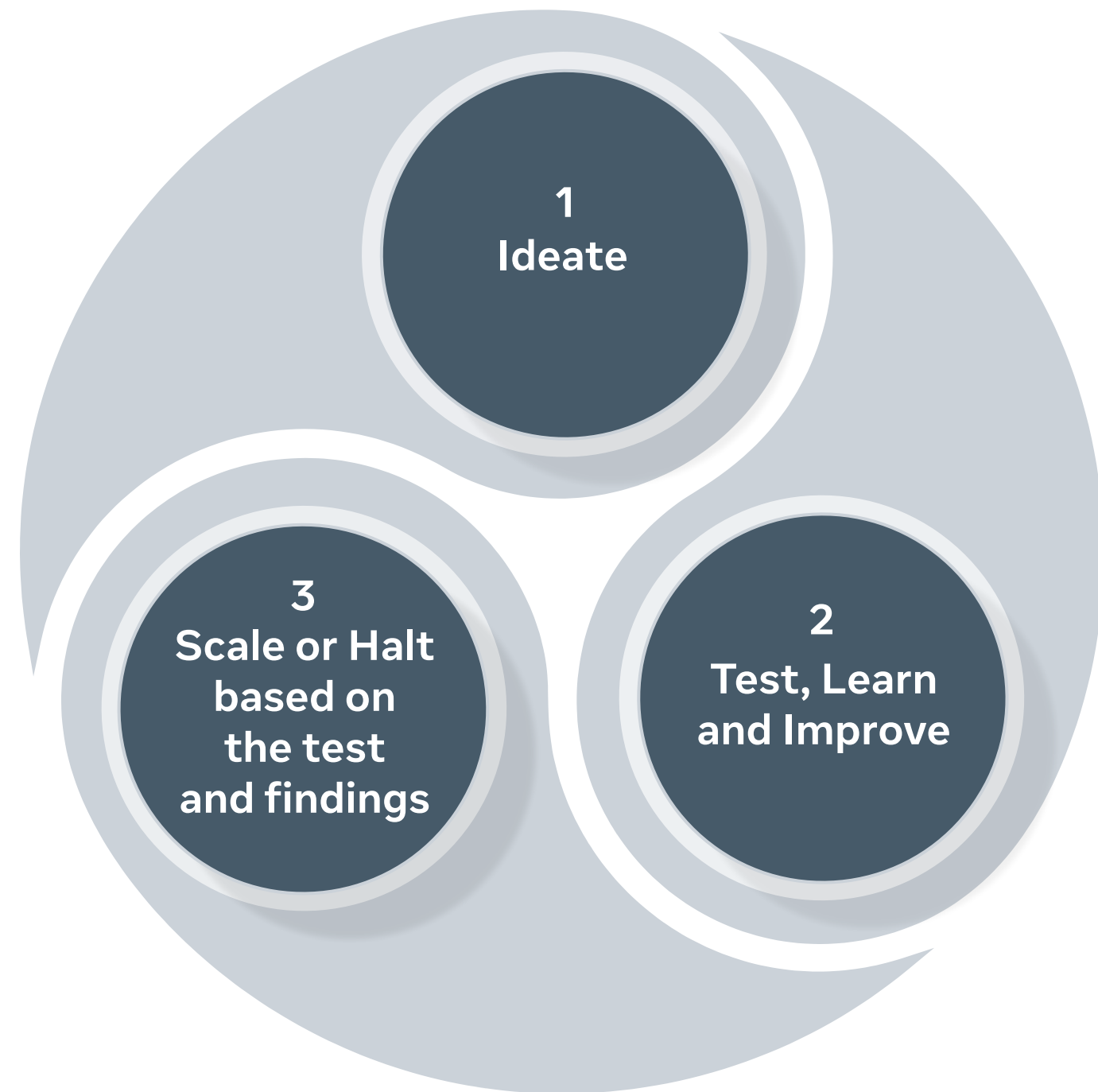
Service-based business models use far fewer products and materials than manufacturing, but circularity can still lead to environmental benefits and emission reductions.

Reusing products & components

- Increase the utilization of assets
 - Leasing, sharing, pay-per-use, etc.
 - Ex: copiers, company cars, other equipment
- Extend the lifetime of assets
 - Reuse, refurbishment, replacement of parts
 - Ex: computers, desks, office furniture



Circularity strategy development



1. Ideate

Bring the key stakeholders to go through the circularity principles and discuss:

- Which elements of circularity can we incorporate to benefit our business?
- What do we need to adapt circularity principles - information, resources, partnerships?
- What partnerships do we need to secure?
- What is the end result we are aiming to achieve?

2. Test, learn and improve

Bring the key stakeholders to go through the circularity principles and discuss.

3. Scale or halt based on the test and findings

Bring the key stakeholders to go through the circularity principles and discuss.

Circular design case study: Dell computers

Concept Luna

- A Dell engineering and design initiative focused on reimagining a laptop to prioritize circular materials, repairability and reuse.

Circular Transformation

- **Far fewer screws.** Just four are needed to access the internal components for disassembly or repair. (A 10x reduction.)
- **A bio-based printed circuit board that dispenses with traditional glue.** The polymer is water soluble, which means recyclers can more easily separate metals and other recoverable components.
- **A relocated, smaller motherboard.** Not only did Dell shrink this component by 75 percent, it's also in the top cover, making it simpler to repair or swap. (It also helps with heat dissipation.)
- **A palm rest and keyboard mechanism designed for easy separation.** These are two of the mostly commonly replaced components in any laptop, for kind of obvious reasons.



Potential Emissions Reduction Impact	Scope 1 & 2	Less manufacturing required
	Purchased Goods & Services	Fewer new parts purchased
	Fuel & Energy Related Activities	Less energy from manufacturing
	Waste Generated in Operations	More materials being recycled and smaller components means less waste

Challenges and resources

Challenges and resources in implementing specific aspects of a circularity program.



Benefits

- Cost savings
 - Efficiency
 - Products and materials not wasted
 - Longer lifetime leads to purchasing less frequently
 - Business models favoring use/access over ownership



Challenges

- Systemic shift
 - Time
 - Research
 - Upfront costs

Resources

- [The Circular Business Model \(hbr.org\)](https://hbr.org)
 - Ellen MacArthur Foundation
 - [Business and the circular economy \(ellenmacarthurfoundation.org\)](https://ellenmacarthurfoundation.org)
 - [Introduction - Circular economy procurement framework \(gitbook.io\)](https://gitbook.io)
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Key takeaways

Circularity

- Circularity minimizes waste and prioritizes reuse/recycling of products & materials
- Shift from linear to circular economy requires a broad systemic transition
- This transition can lead to drastic emission reductions

Meta is willing to collaborate! Bring your ideas to us



03 Business travel



Business travel

Why focus on business travel?

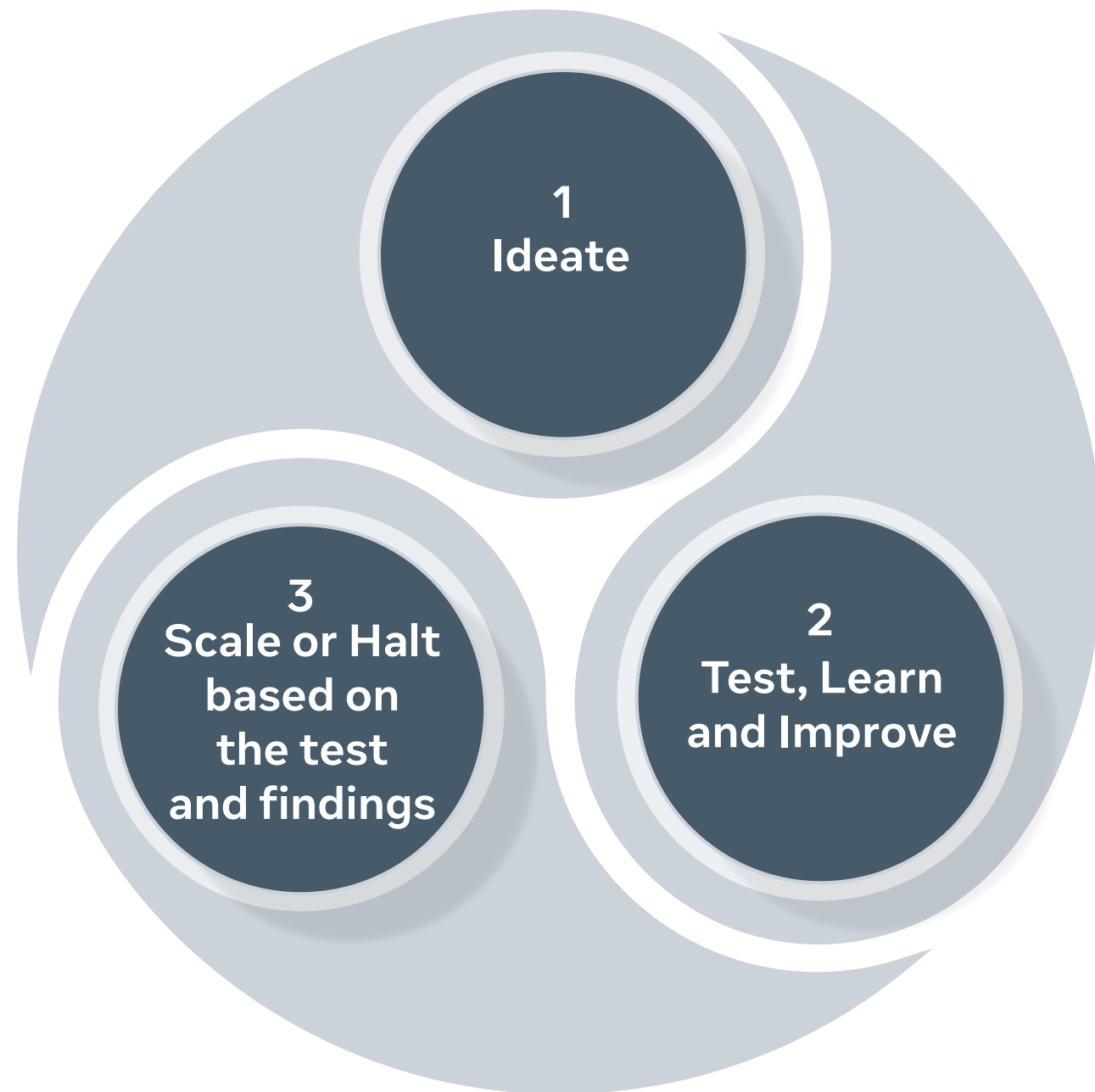
- Increasing availability of emission reduction solutions, both tools and technologies
- Strong system enablers with new regulatory incentives and engaged travel partners
- High degree of direct control around business travel

Key stakeholders

- Travel and finance teams
- Employees and managers
- Clients



Business travel reduction strategy



1. Ideate

Bring the key stakeholders to discuss:

- How can we collect data trip purpose, mode, length, etc.
- Do we have the data to calculate carbon emissions?
- Are we able to project future emissions relative to business travel reduction target?
- How can we identify opportunities for meaningful carbon emissions reduction?

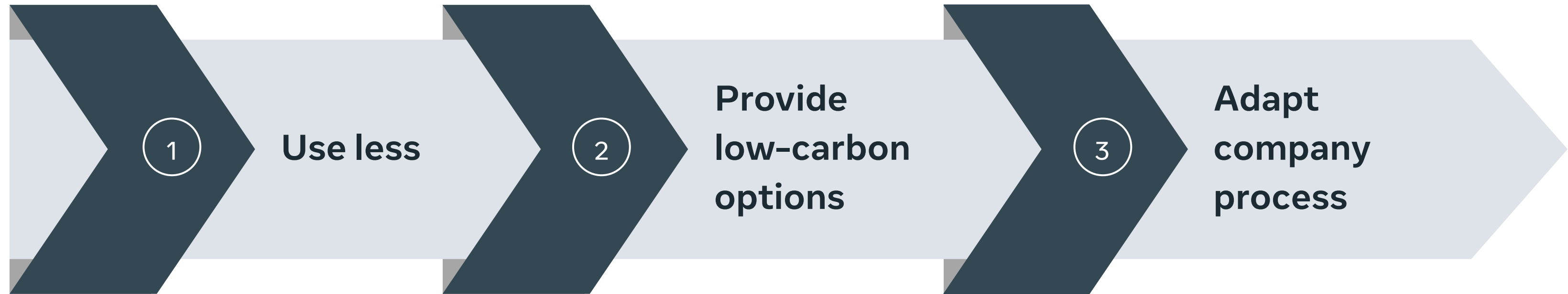
2. Test, learn and improve

- Identify key reduction levers (e.g., travel low-carbon, travel less, and use new technology)
- Evaluate key considerations (cost, business impact, etc.) of each lever
- Build roadmap and business case
- Develop implementation plan, including role for engaging external stakeholders (such as Meta) around expectations for business travel

3. Scale or halt based on the test and findings

- Address scalability plan
- Continue to improve the quality of data collected in order to improve accuracy

Reduction lever: Travel less



- Encourage use of technology-based alternatives
- Carbon-based budgeting for teams

- Optimizing booking channels for high-efficiency aircrafts, sustainable hotels, etc.
- Engage actively with suppliers and build sustainability into RFPs/supplier agreements (e.g. airlines, lodging, ground contracting)
- Consider Sustainable Aviation Fuel (SAF), a fuel derived from renewable biomass and waste resources

- Require pre-authorization to ensure that alternatives to travel have been considered
- Improve internal data collection (e.g. purpose of trip) and methodology for business travel emissions
- Employee incentive programs

Case study: Business travel reduction through employee incentives



When a Radius travel client wanted to get more of their employees to follow the company travel policy, Radius travel introduced their proprietary Points 2 Points gamification program, where the agency rewarded travelers with points for policy compliance.

Radius partnered with the Eden Reforestation Project, and **travelers were able redeem these points to plant trees** in deforested areas of Haiti, Nepal, Madagascar, Indonesia, and Ethiopia.

- Travelers “planted” over 800,000 trees in the program’s first years
- Use of lowest logical airfare increased 2%

Resources:

- Scottish research paper on [The Impact of Workplace Initiatives on Low Carbon Behaviors](#)
- WWF UK corporate summary [Moving On: Why Flying Less Means More for Business](#)

Resources



Meta is a Founding Member of SABA.

“As part of our commitment to reach Net Zero emissions across our value chain, we are proud to join SABA and contribute to a roadmap for sustainable aviation. Supporting efforts to drive market demand for sustainable aviation fuel is important to our company because it’s important to our employees—and it is a vital part of our goal to reach Net Zero emissions.”

Resources:

- Sustainable Aviation Buyers Alliance ([SABA](#)) – alliance driving investment in SAF
- Roundtable on Sustainable Biomaterials ([RSB](#)) – drives the development of a bio-based and circular economy
- WEF’s [Clean Skies](#) – Coalition led by the World Economic Forum to advance adoption of SAF

Key takeaways

Business travel

Overall Best Practices

- Follow the mitigation hierarchy (Use Less, Use Better, Use Low-carbon options)
- Real opportunities for cost-savings with certain levers
- Need good data available to many stakeholders (managers, employees, client relationship owners) to provide insights on how to travel less and low-carbon



04 Heavy transportation



Heavy duty transportation

Why focus on heavy duty transportation

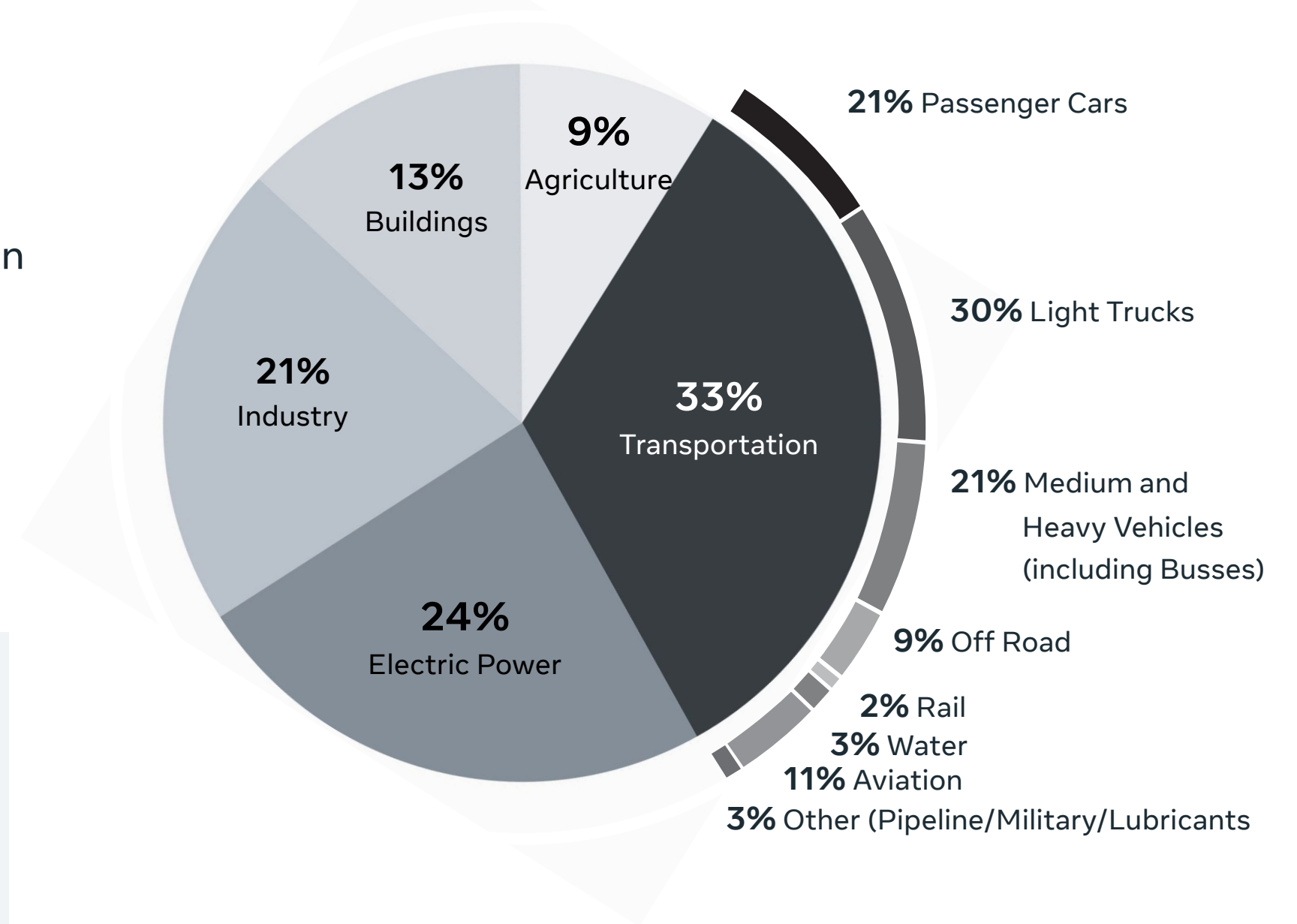
- Has potential for impact on Scope 1 mobile and Scope 3 upstream and downstream transportation
- Transportation is the highest emitting sector in the US
- There are opportunities for large emission reductions by switching to more emissions efficient modes of transportation
- Electric vehicles (Battery and fuel cell EVs) offer a viable decarbonization pathway

While commercial deployment is still limited, there are growing opportunities as technology is advancing rapidly

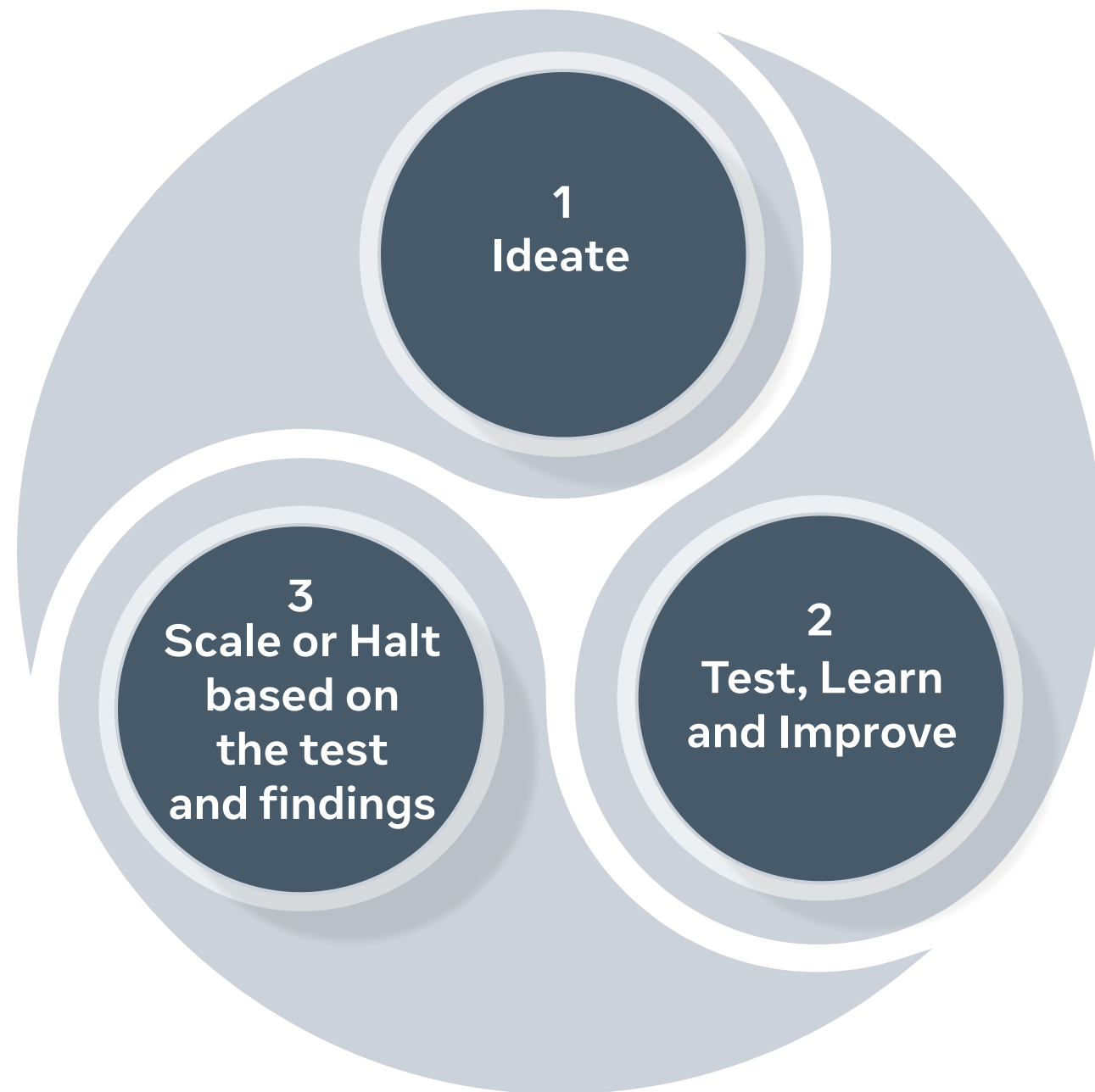
Key stakeholders

- Business leadership
- Logistics team

2019 U.S. GHG Emissions



Business travel reduction strategy



1. Ideate

Bring the key stakeholders to discuss:

- Do you own/manage your fleet?
- If yes – do you actively manage transport?
- If no – does your broker/transport manager have fuel efficiency goals?
- Is your fleet SmartWay certified?
- Do your drivers receive fuel efficiency training?
- Do you have an established fleet maintenance program?
- Do you have a capital plan for fleet replacement with EV?
- Do you participate in “green fleet” R&D, outreach or partnerships?

2. Test, learn and improve

- Identify key reduction levers (e.g., electrification, low carbon transportation options)
- Evaluate key considerations (cost, business impact, etc.) of each lever
- Build roadmap and business case

3. Scale or halt based on the test and findings

- Address scalability plan

Heavy transportation decarbonization opportunities



Low Carbon Modes

- Ocean transportation is more GHG efficient than air
- Demand for EVs could rise rapidly once cost market parity is reached
- Battery Electric
- Hydrogen Earthshot [link](#)



Sustainable Freight Management

- Load optimization and consolidation
- Empty miles reduction
- Mode optimization/shifts



Fleet Performance

- Fleet maintenance
- Fuel efficiency improvements
- Driver behavior training

Key takeaways

Heavy transportation

- Transportation is the highest emitting sector in the US
- Battery and fuel cell EVs offer a viable decarbonization pathway — commercial deployment may be limited but this technology is advancing rapidly
- Other decarbonization opportunities include switching transportation modes, sustainable freight management, and fleet performance
- Key considerations when it comes to decarbonizing heavy transportation include ownership/management of your fleet, training capacity, and the cost of EV adoption



05 Efficiency, electrification and alternative refrigerants



Context on efficiency and electrification

What is electrification?

Switching fossil fuel powered processes/technologies to those that use electricity

Why are efficiency and electrification important?

Difficult to reduce emissions from fossil fuel technologies

How electrification can lead to emission reductions

- Switching the energy source to electricity makes it easier to reduce emissions
- Efficiency reduces the demand of energy and helps ease the transition to renewable energy

Key stakeholders

- Operations Team
- Product manufacturing
- Energy Procurement Team



Strategy for efficiency and electrification

How do efficiency and electrification lead to emission reductions

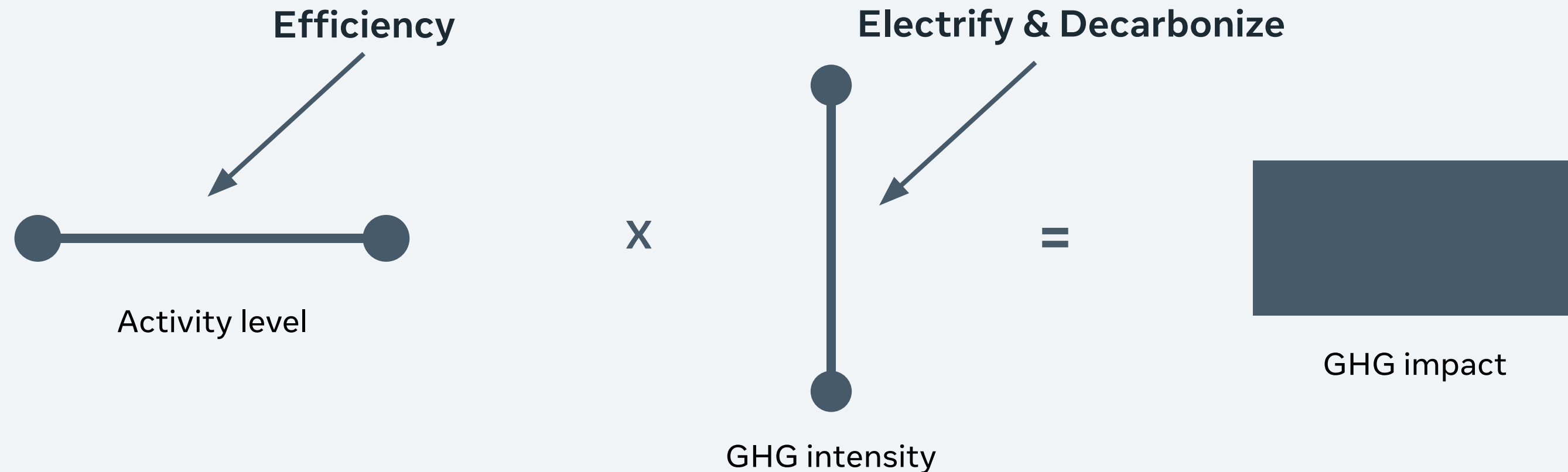
- Efficiency reduces the energy required (activity level)
- Electricity is simpler to decarbonize
- Renewable energy

Efficiency

- Reduce energy required for process
- Cost efficient
- Limited impact

Electrification

- Switch process to one relying on electricity
e.g. electric vehicles, heat pumps, etc.
- Procure renewable energy to reduce GHG intensity



Resources, benefits and challenges: Electrification



Benefits

- Long-term savings



Challenges

- Large upfront cost
- Technology dependent
 - Could require new or different processes

Resources

- [Electrification 101 \(rff.org\)](https://www.rff.org/electrification-101)
 - [Tools and Resources for Electrification - Supporting Resources | US EPA](#)
 - [Electrification of Industry: Summary of Electrification Futures Study Industrial Sector Analysis \(nrel.gov\)](#)
 - [The shift toward electrification in industrials | Deloitte Insights](#)
-

Context and strategy for low-carbon refrigerants

Refrigerants are used for cooling (i.e A/C, refrigeration, fire suppression) and have very high global warming potentials (GWP — how much warming they cause relative to CO₂). Although HFCs do not deplete the ozone layer, they contribute to emissions at 1,000 to 9,000x the rate of carbon dioxide.

Switching to a refrigerant with a lower GWP can lead to significant emission reduction

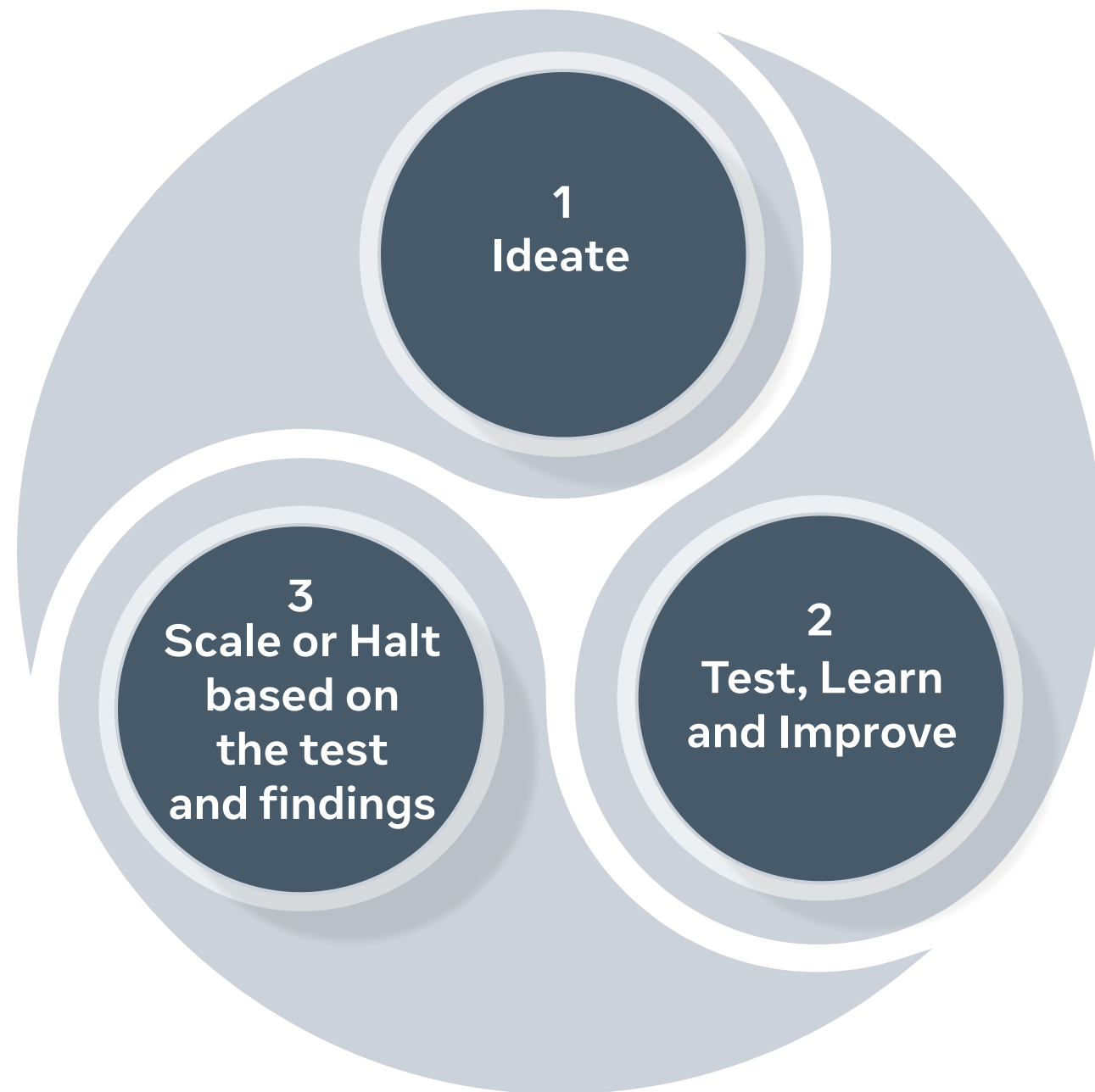
- Fluorinated gases are not the only refrigerants available. Alternatives, such as ammonia or captured carbon dioxide, can replace these powerful greenhouse gases over time

Reduce leakage rate

- Reduces the amount of refrigerant needing to be added to system
- Cost savings and emission reductions



Refrigerant decarbonization strategy



1. Ideate

Bring the key stakeholders to discuss:

- Can we collect an inventory of refrigerant used in the company (type, quantity, purpose and refill)?
- How can we identify the GHG emissions of these refrigerants?
- Can we project future emissions relative to growth?
- How can we identify which of these refrigerants can be substituted with low carbon options?

2. Test, learn and improve

- Identify key reduction opportunities
- Evaluate key considerations (functionality, cost, access, business impact, etc.) for each opportunity
- Build roadmap and business case
- Develop implementation plan (who, what, when, how?)

3. Scale or halt based on the test and findings

- Address scalability plan
- Continue to improve the quality of data collected in order to improve accuracy

Resources, benefits and challenges: Refrigerants



Benefits

- Emission reduction
- Potential efficiency improvement
- Cost savings



Challenges

- Practical considerations of switching
 - Efficiency
 - Flammability
 - Toxicity
 - May require new systems
 - Cost

Resources

- [Refrigeration \(ashrae.org\)](https://www.ashrae.org)
 - [A Guide to Low-GWP Refrigerants | 2021-04-05 | ACHR News](#)
 - [Options for Low-GWP Refrigerants | NIST](#)
-

Key takeaways

Electrification and alternative refrigerants

- Efficiency reduces energy demand, cost, and emissions
- Electrification and decarbonization is key to tackling hard to abate emissions
- Lower GWP refrigerants can reduce emissions and potentially improve efficiency
- Changing systems and processes will have high upfront cost and requires practical considerations



06 Supplier engagement



Supplier engagement: How to engage your value chain

For most companies, the bulk of environmental and social impacts and risks lay within their supply chain. Bigger/bolder sustainability goals require more active collaboration and engagement with suppliers.

Supplier engagement can lead to emissions reductions

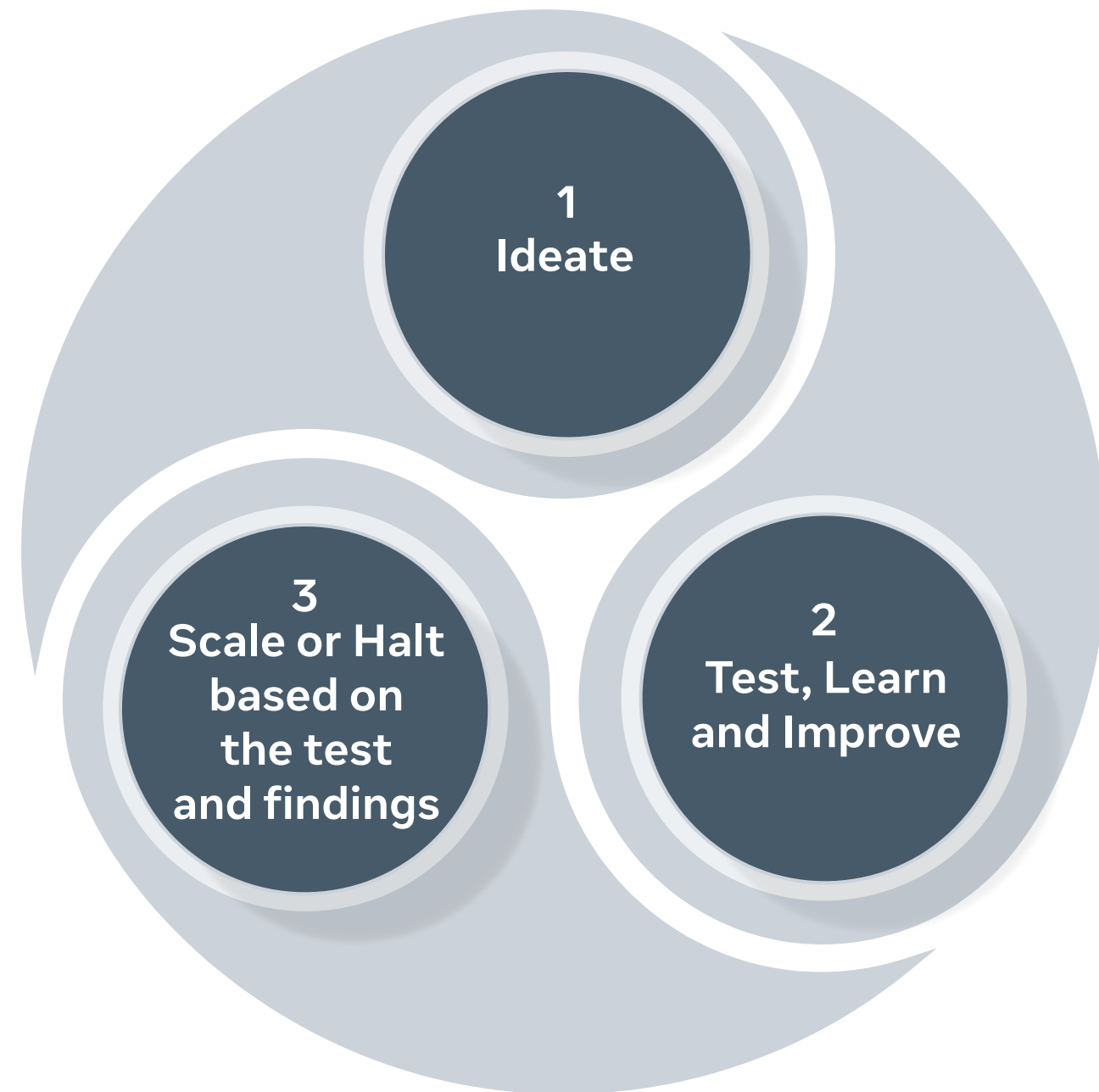
- Identifying suppliers that are proactively addressing their GHG emissions and setting SBTs can be a starting point.
- Collaborating with suppliers who are not as mature in their climate journey can further lead to supply chain emission reductions.

Key stakeholders

- Internal procurement teams
- Business Leadership
- Regional team leads
- Supplier network



Supplier engagement strategy



1. Ideate

Bring the key stakeholders to discuss:

- What is our companies high GHG emission sectors/ sub-sectors?
- Who are our key suppliers? Where are they located?
- How do we identify the supplier GHG maturity?
- What would be the best way to engage with the key suppliers?
- What is the opportunity/risk?
- What is the focus of supplier engagement? (data gathering, maturity assessment, decarbonization readiness, capacity building etc.)

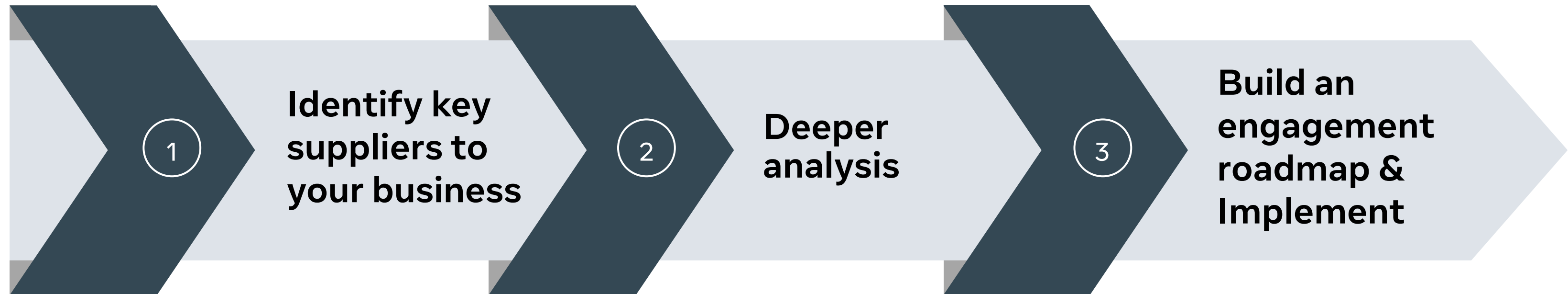
2. Test, Learn and Improve

- Build roadmap and business case
- Develop implementation plan. (who, what, when, how?)
- Pilot the implementation plan
- Learn and revise to enable scale

3. Scale or Halt based on the test and findings

- Address scalability plan

Supplier engagement strategy: Overview



1. Gather GHG emissions data of the top suppliers by spend/ GHG emissions from your company GHG inventory.
2. Project future emissions relative to expected business growth.
3. Identify top suppliers that are the highest emitting of your companies scope 3 emissions.

1. Map key sectors, sub-sectors and regions that are key to your scope 3 emissions.
2. Map the suppliers sustainability maturity thorough literature search/ survey.
3. Map the business importance of the key suppliers with the internal stakeholders.
4. Develop an engagement plan.

1. Discussion with key suppliers and capacity building are usually the starting point.
2. Map the areas you would like to focus on - based on the prioritization and implement with suppliers. (e.g. recycled plastic, renewable energy etc.)
3. Collaboration is key.

Supplier engagement prioritization map



Key takeaways

Supplier engagement

- Have a conversation with your suppliers to help you understand where they are on their climate journey
- Understanding your supplier's climate maturity will give you the context needed to develop a more robust and specific supplier engagement roadmap in order to identify improvement areas
- First, consider the GHG material issues that are relevant to your engagement with your suppliers, and which reduction levers will have the most impact on your supplier's portion of your upstream emissions
- Collaborate with your suppliers to identify opportunities for emission reductions





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