



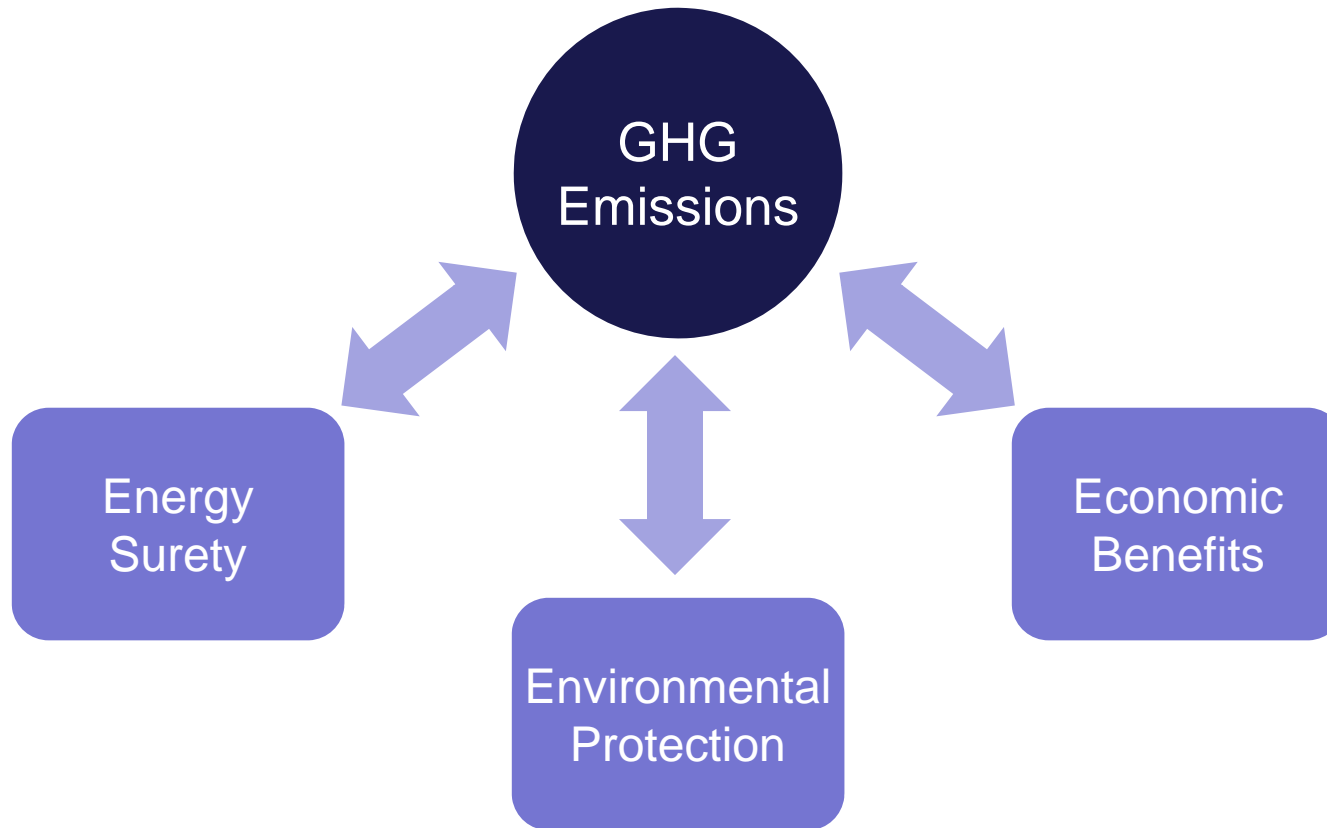
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Greenhouse Gas Management





Motivation





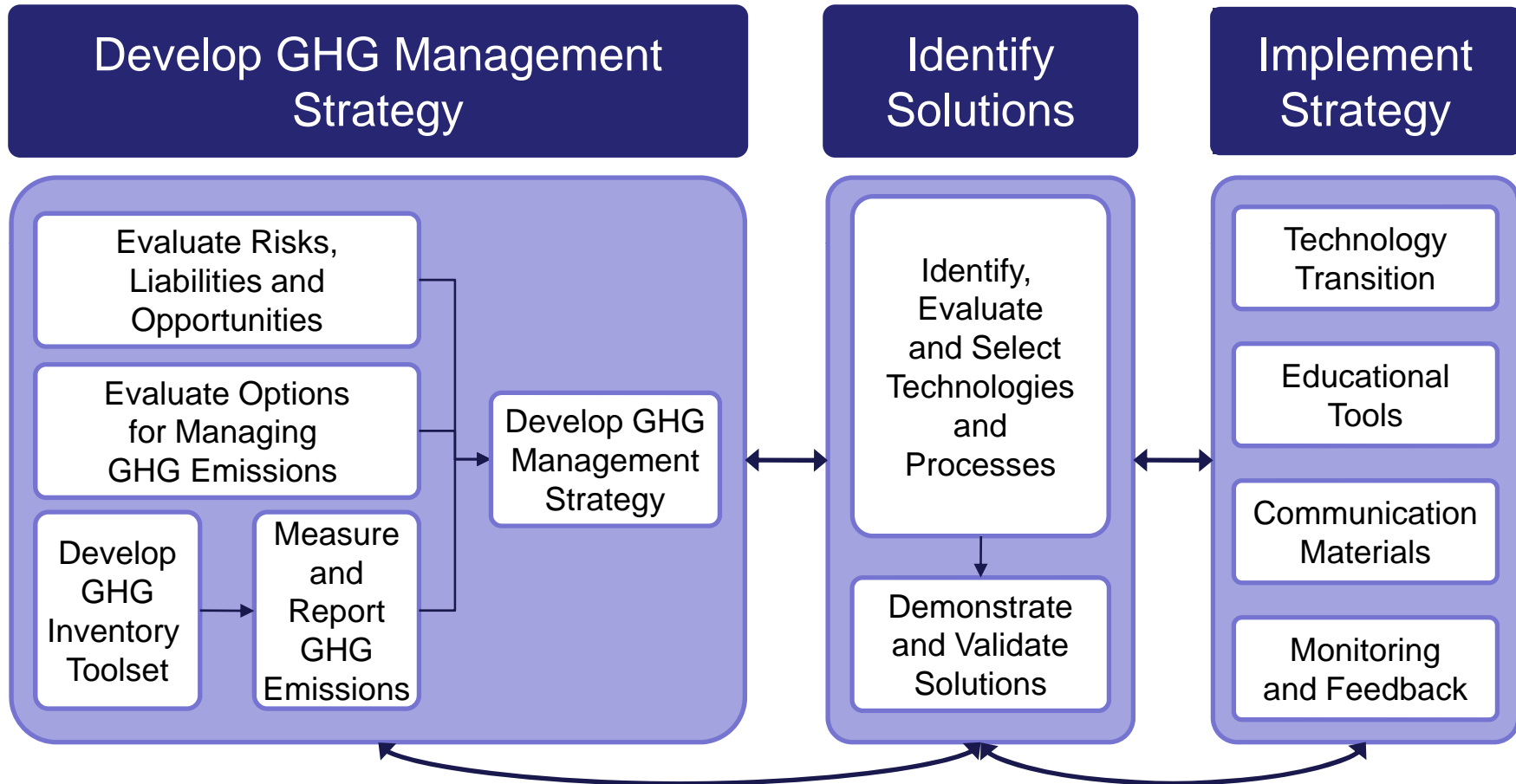
Objectives

Develop and implement proactive GHG management strategies to help organizations/facilities:

- Understand GHG emissions
- Avoid future costs from climate change regulations, risks, and liabilities
- Reduce costs by linking GHG reduction goals to operational improvement
- Obtain financial value from climate-related market activities
- Establish a leadership position

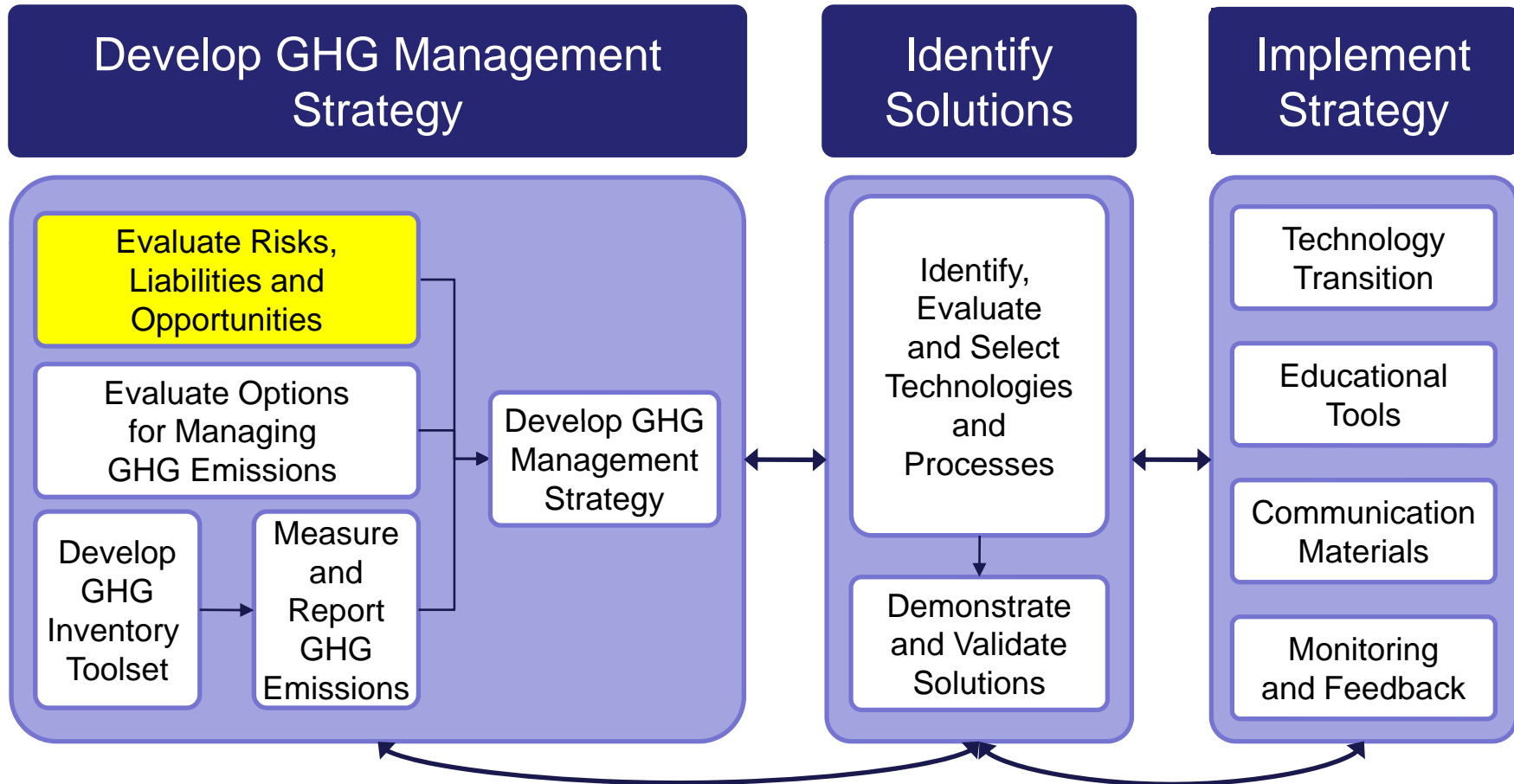


Approach



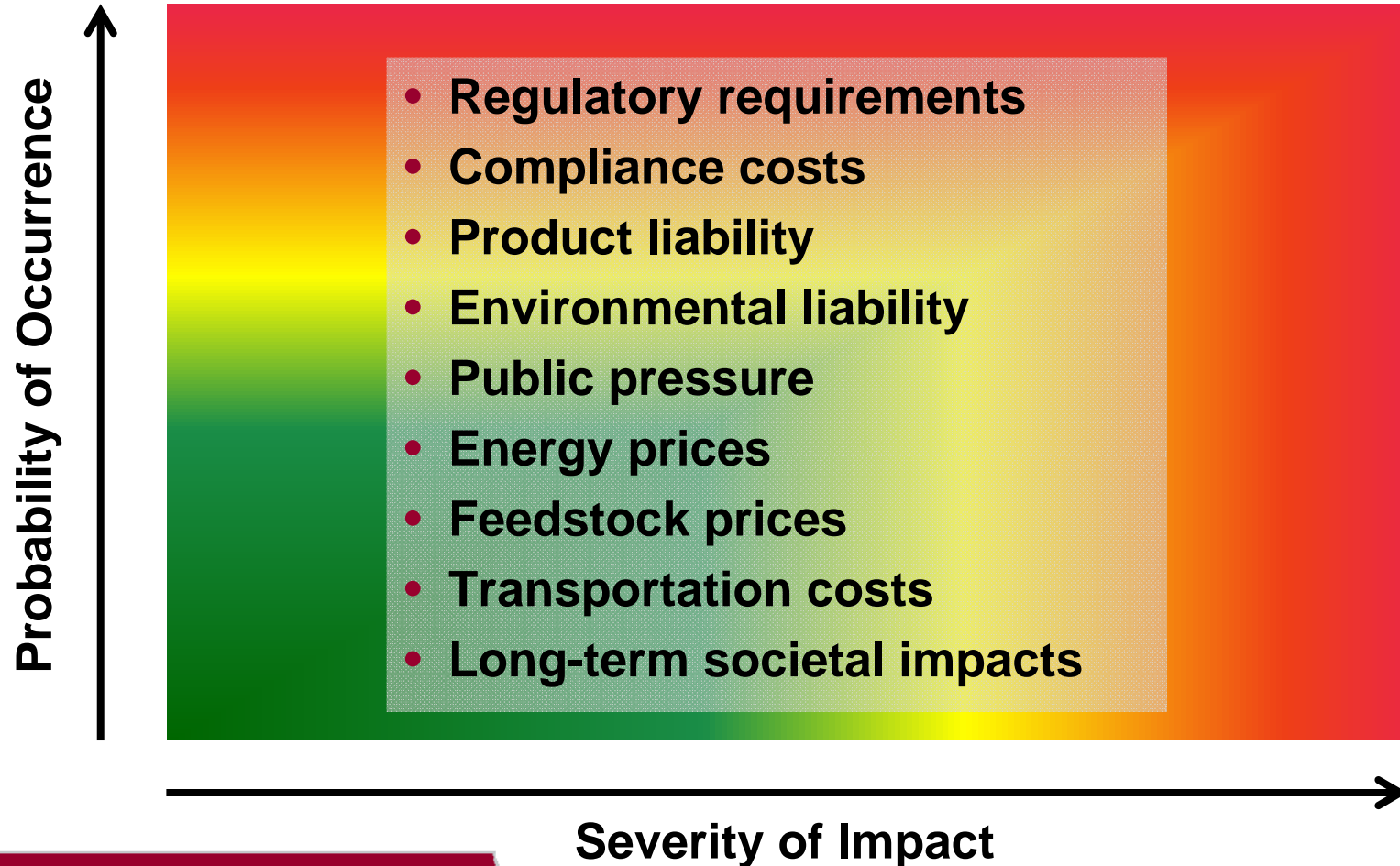


Risks, Liabilities, Opportunities





Risk Assessment



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Opportunity Assessment

Cost Avoidance

- Penalties for noncompliance
- Protection against potential legal action
- Protection against energy price volatility

Cost Savings

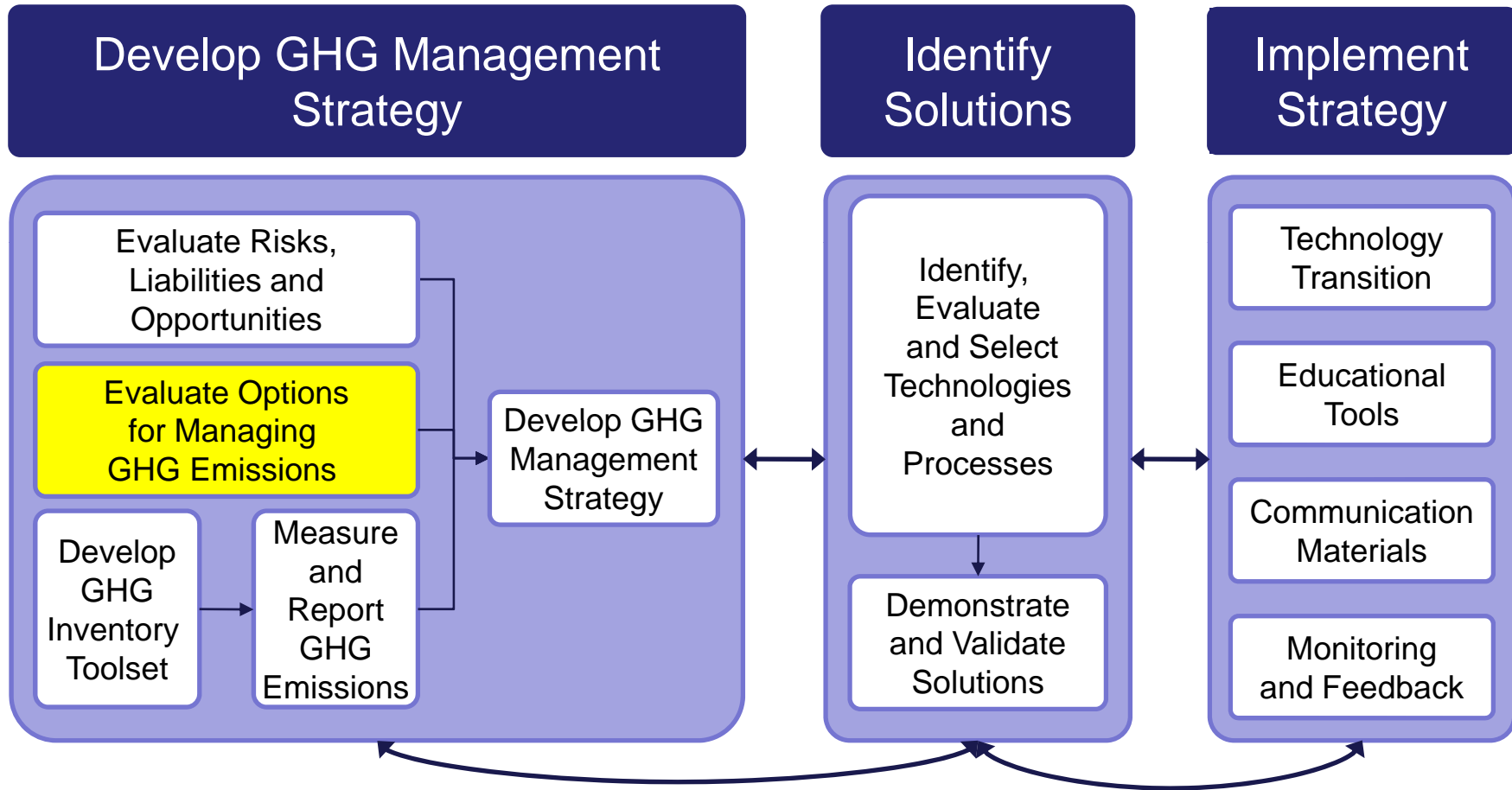
- Energy savings
- Materials savings
- Operational efficiency
- ROI from new processes and technologies

Other Benefits

- Sale of emissions reduction credits
- Recognition
- Public perception
- Creation / advancement of new markets
- Leadership position in carbon constrained world
- Mitigation of climate change impacts



Options



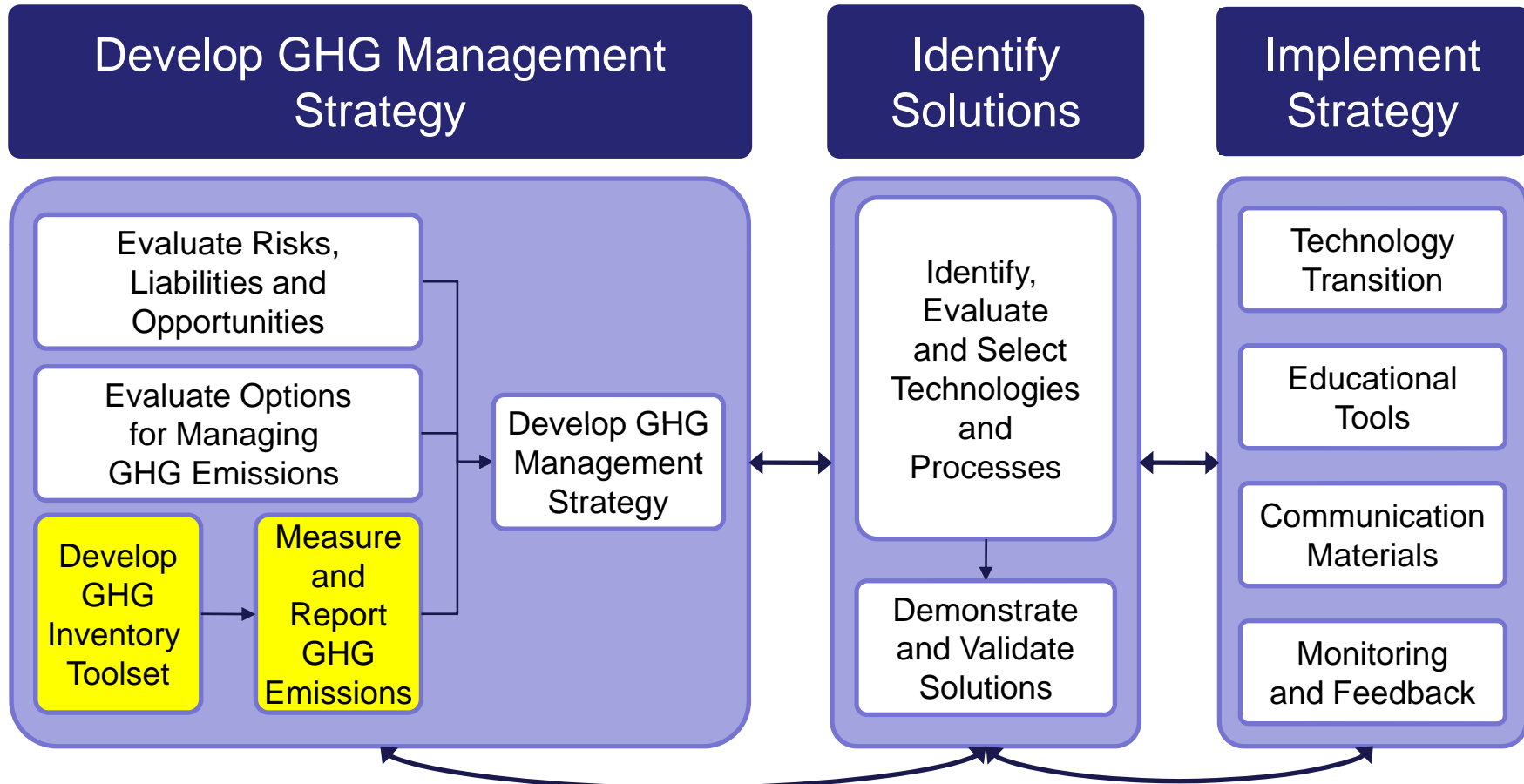


Options

- Conduct business as usual
- Measure and report GHG emissions
- Set GHG reduction targets
- Participate in mandatory reporting programs
- Participate in voluntary reporting programs
- Participate in GHG markets
- Purchase GHG offsets
- Reduce GHG emissions through projects and programs

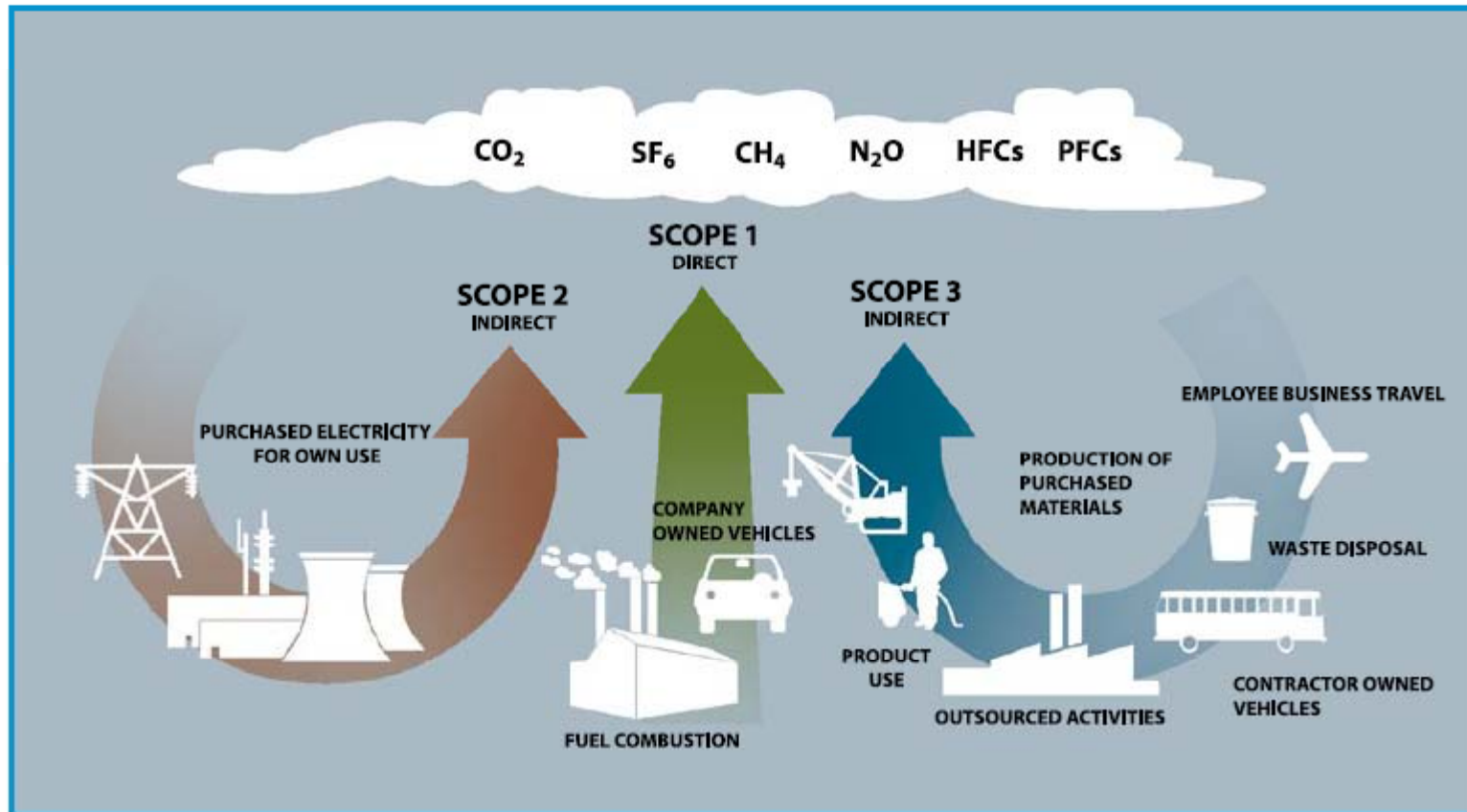


GHG Inventory



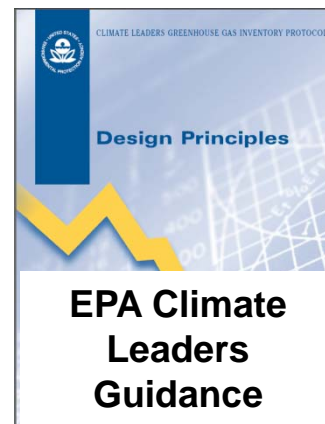
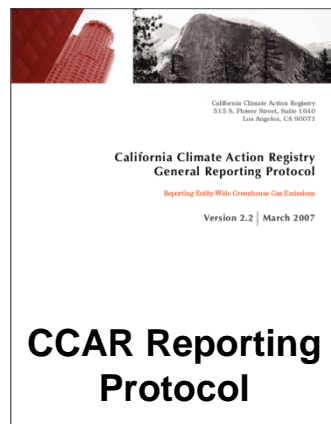
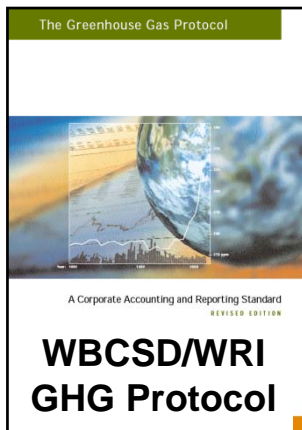


Emission Sources



Source: GHG Protocol, <http://www.ghgprotocol.org/>

Inventory Protocols/Guidance





Inventory Toolset

- U.S. EPA shipyard GHG inventory tool
- WRI sector level toolsets
- Emission factors
- EMIS/EMS
- GHG Application

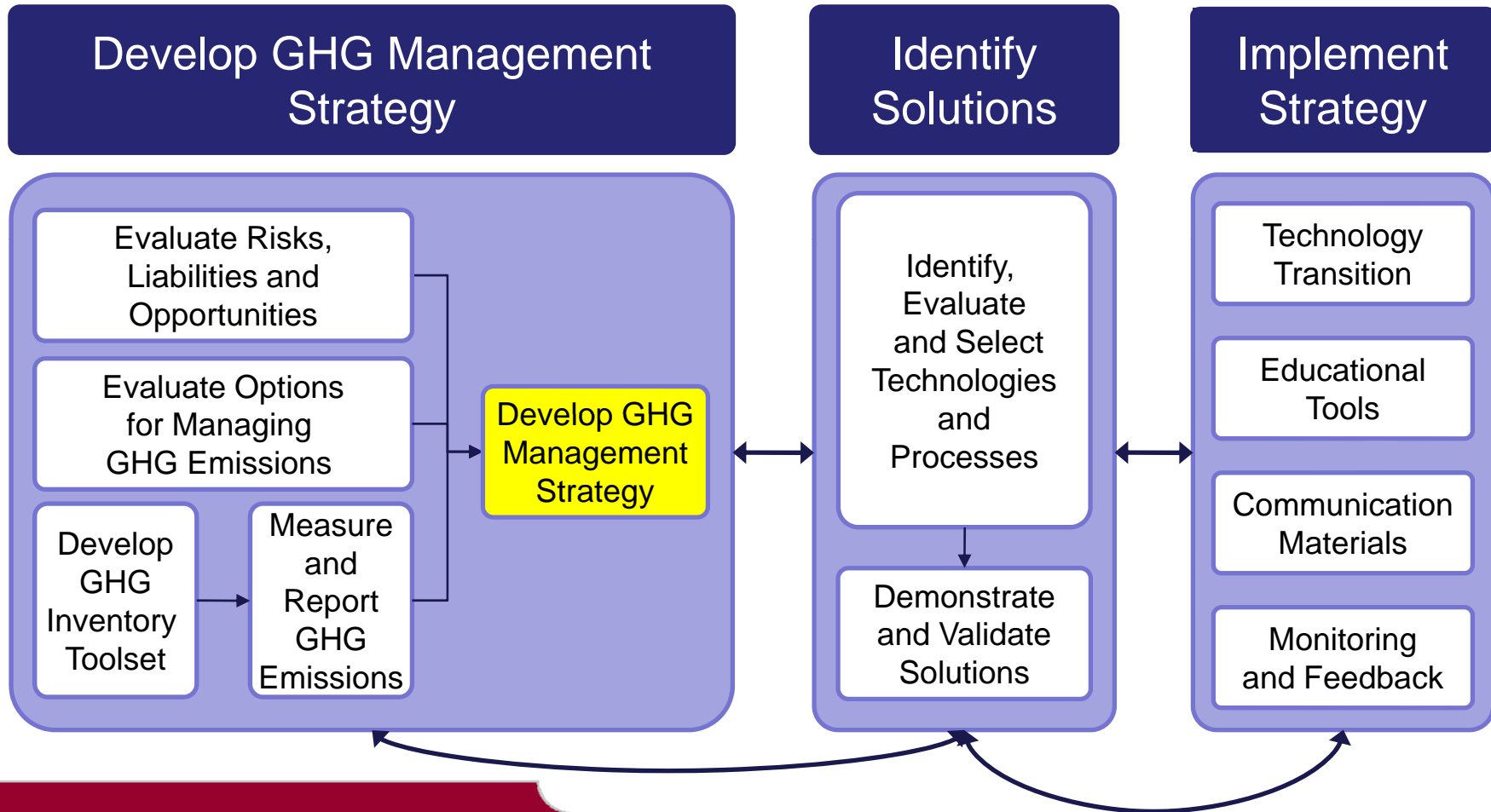


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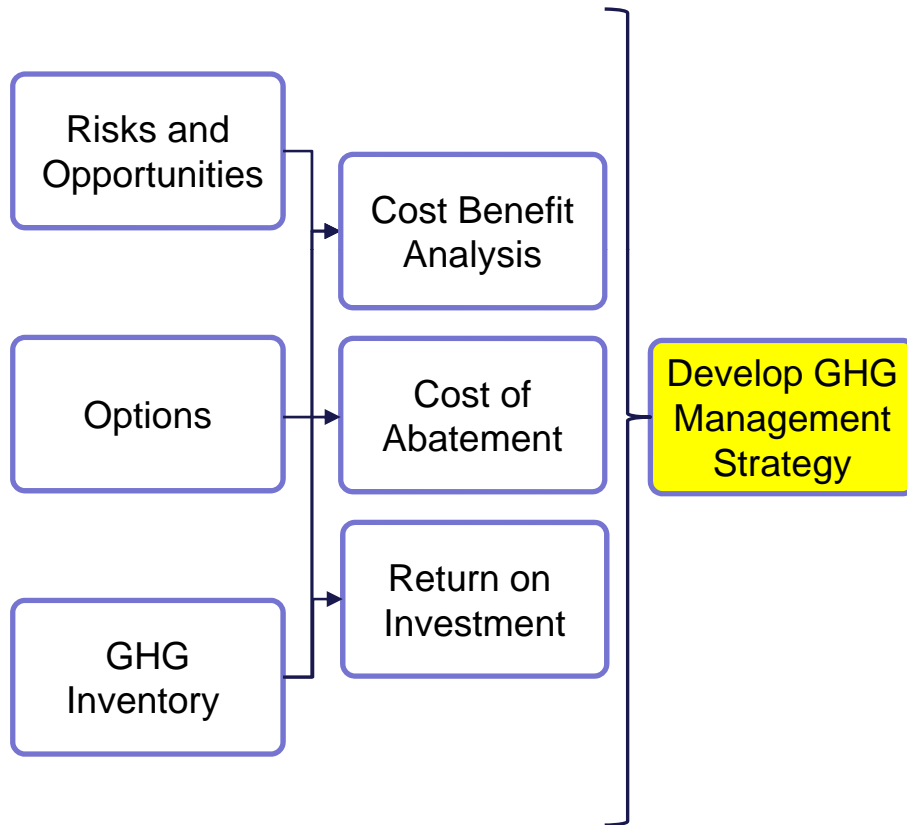


Management Strategy





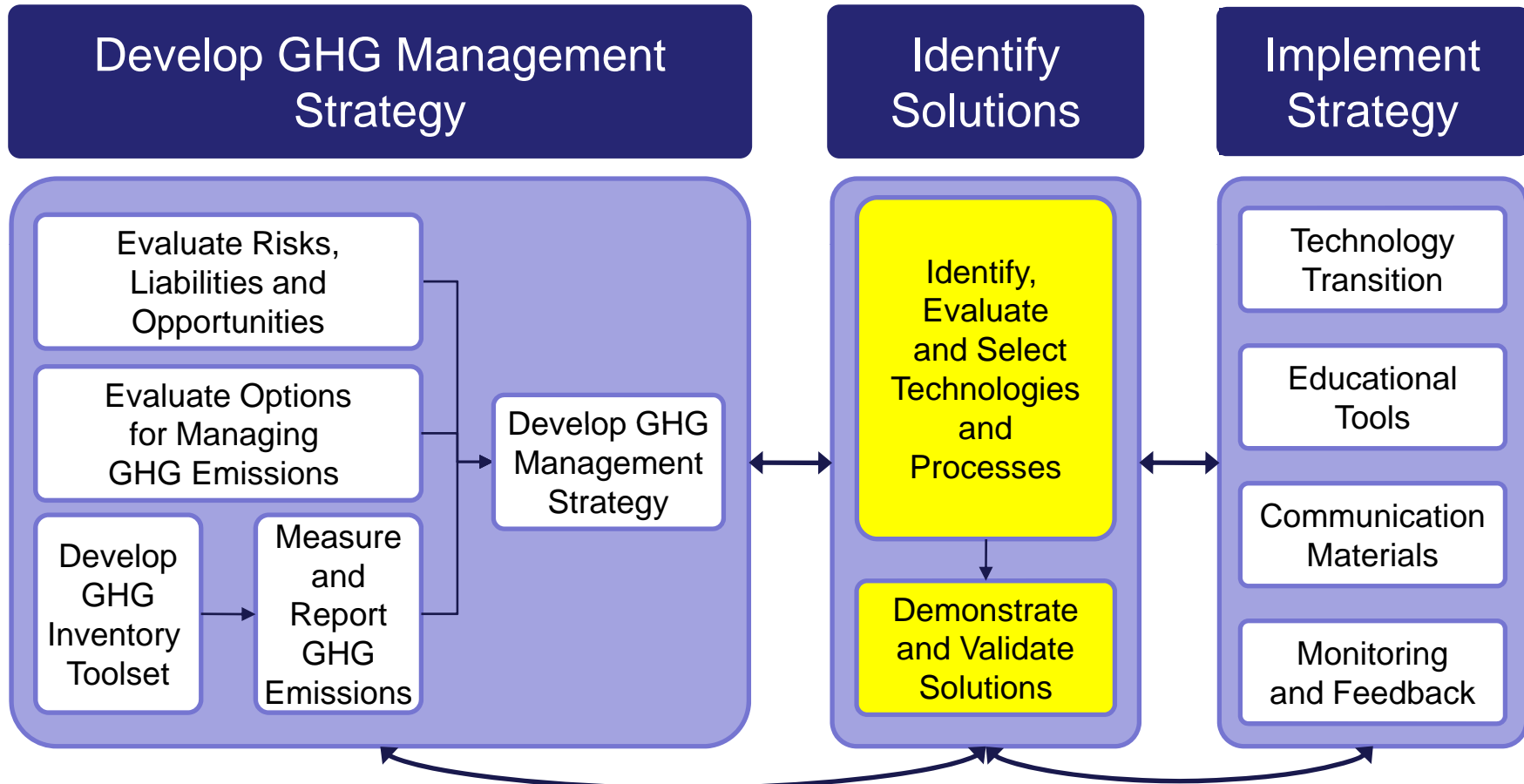
Management Strategy



- Anticipate regulations
- Define response strategy
- Describe risks, liabilities & benefits
- Identify areas w/ significant potential
- Identify cost-effective actions
- Define best practices
- Prioritize actions
 - Minimize costs
 - Minimize risks
 - Maximize opportunities
- Define GHG inventory plan
- Set GHG reduction targets
- Outline education plan
- Outline communication plan

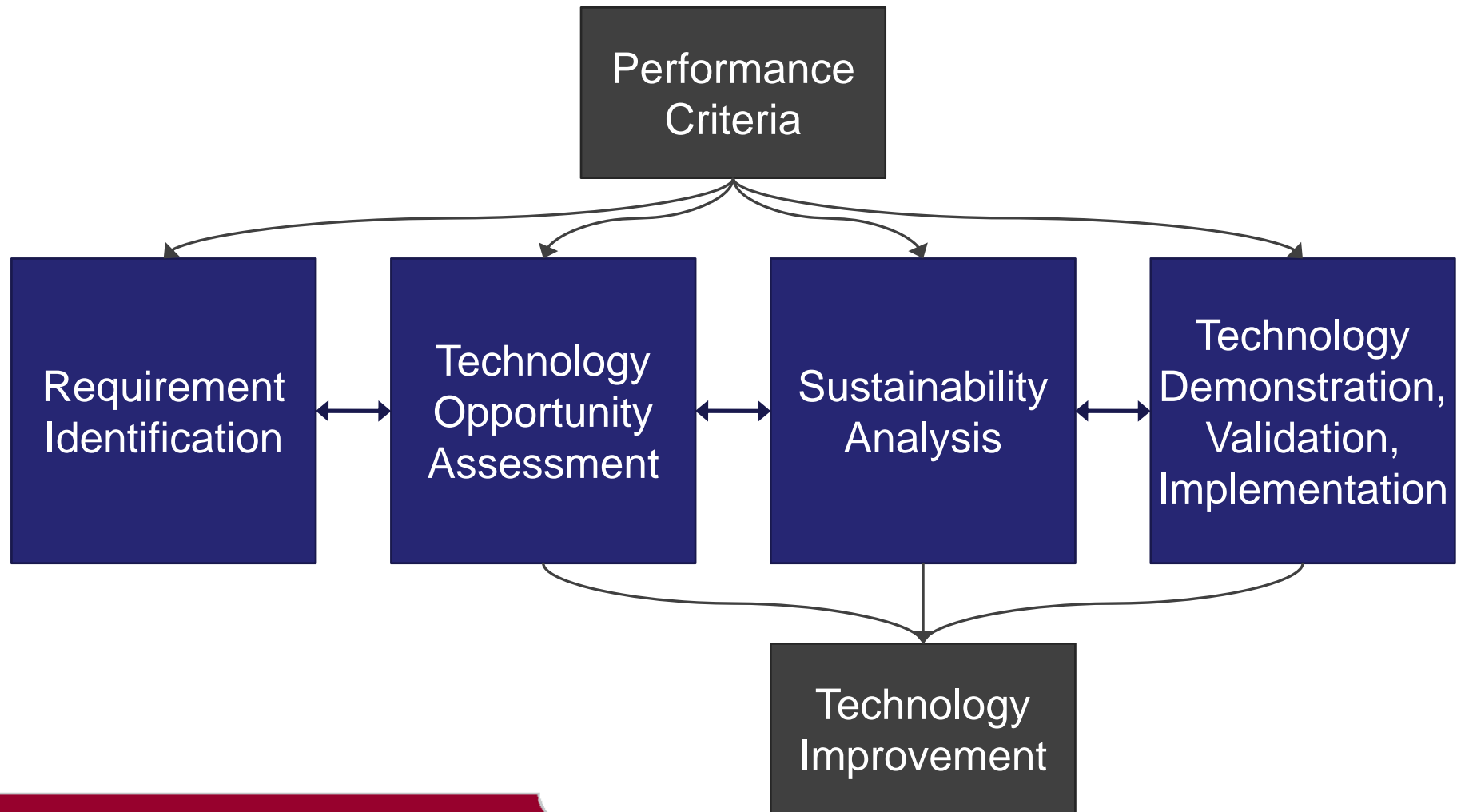


Identify Solutions





Identify Solutions



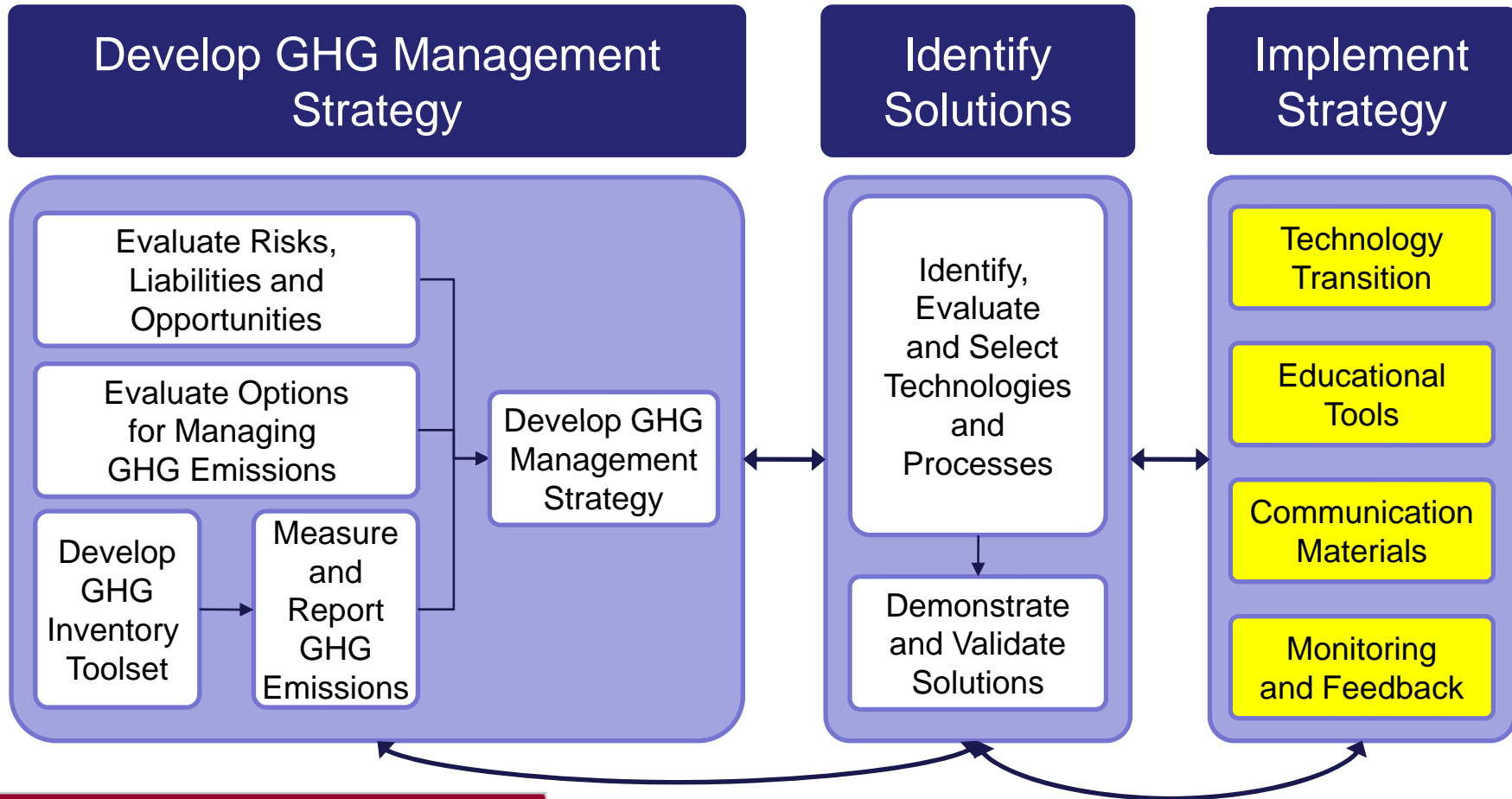


Identify Solutions

- Renewable energy substitution
- Renewable fuel substitution
- Improved energy efficiency
- Energy conservation programs
- Methane capture
- Ozone depleting substance destruction
- Natural sinks (e.g., reforestation and other biomass)
- Carbon sequestration (e.g., capturing carbon from industrial processes and storing it in geological formations)



Implement Solutions





Implementation

Technology
Transition

Transition high performing GHG management solutions as quickly as possible and at the lowest cost.

Educational
Tools

Train personnel to conduct GHG inventories and cost-effectively employ GHG management technologies and best practices.

Communication
Material

Report GHG emissions inventory and reductions to relevant stakeholders (e.g., employees, regulators, public).

Monitoring
and Feedback

Continue to gather information on outcomes and make necessary adjustments.



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Contact Information



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