Sustainability & TUR Planning

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TUR PLANNING

SUPER QUICK OVERVIEW!

Toxics Use Reduction Strategies

- Help reduce or eliminate environmental concerns **at the source**
  - Source reduction
  - Reduce waste
  - Increase efficient use of inputs
  - Reduce risk and liability- potentially across the organization:
    - Environment
    - Worker health & safety
    - Business finances
    - Community impact

Technical Evaluation

- Does the option meet the definition of TUR?
- Will this result in a reduction?
- Is it technically feasible?
  - Product quality
  - Sufficient physical space for equipment
  - Technology can work at production scale

Economic Evaluation

- Company calculates the capital costs and compounded savings associated with implementing each technically feasible option/project
- Modernization or replacement of a production or facility system often leads to:
  - Financial savings
  - Reduced business risks from environmental impacts
  - More efficient systems cost less to maintain
  - Reduces waste & costs of waste management

TUR Planning Outcomes

- "an alternative approach to environmental protection"
- Business-oriented
- Not regulatory limit-oriented
- Facilities engaging in TUR planning over time have:
  - Significant cost savings
  - Improved materials tracking
  - Decreased energy and water use
  - Improved manufacturing efficiency and product quality

Sustainability

Why Companies Care About Sustainability

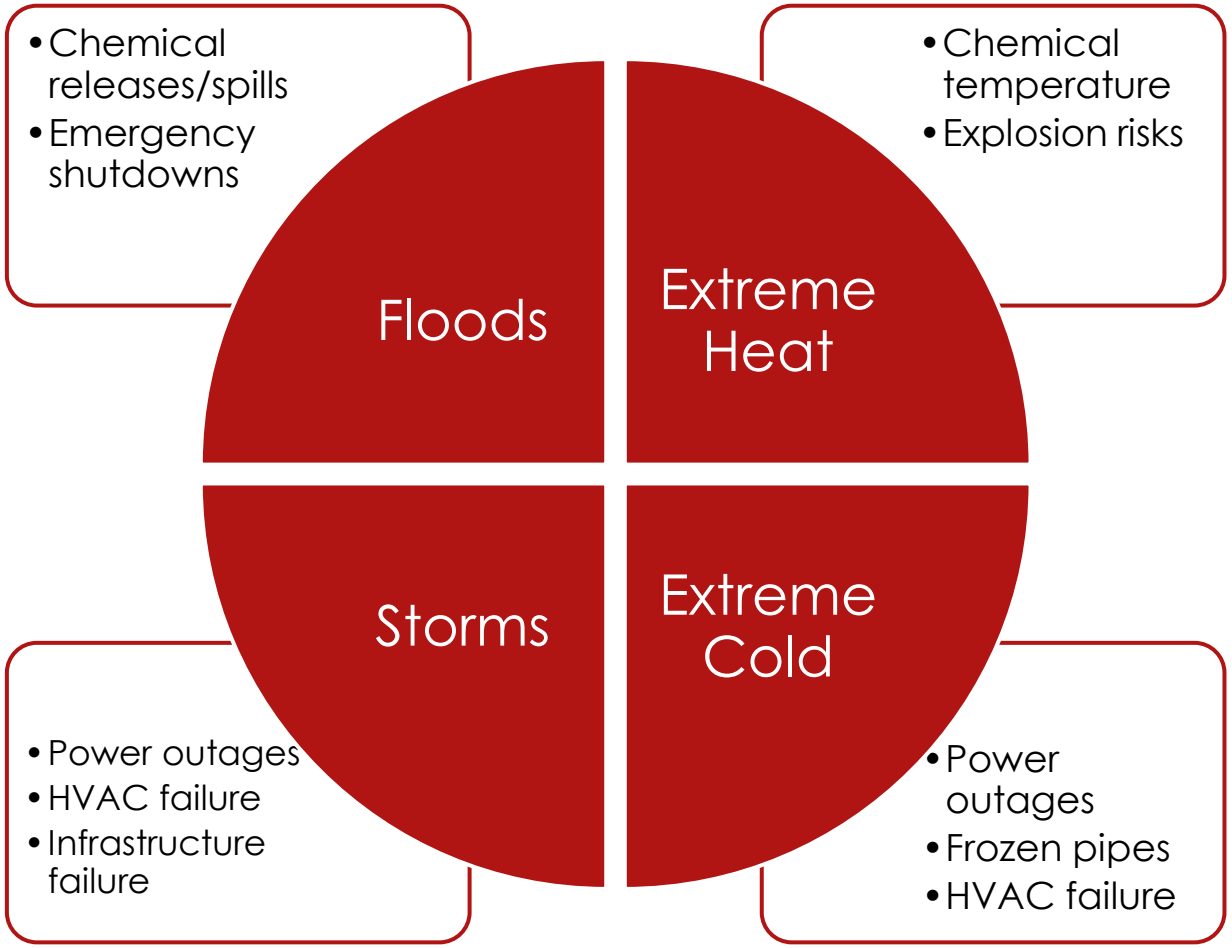
- Consumer Interests
- Employees
- Industry standard
- Cost reduction
- Supply chains
- Investors
- Regulations
- Risk mitigation
- Competitive advantage

Components of Sustainability

Environmental	• Emissions (GHG, CO_2, etc) • Waste • Energy • Water
Social	• Human rights • Community engagement • Education • Health & safety
Financial/ Governance	• Risk management • Corporate governance • Stakeholder engagement • Supply chain management

Climate Change & Preparedness

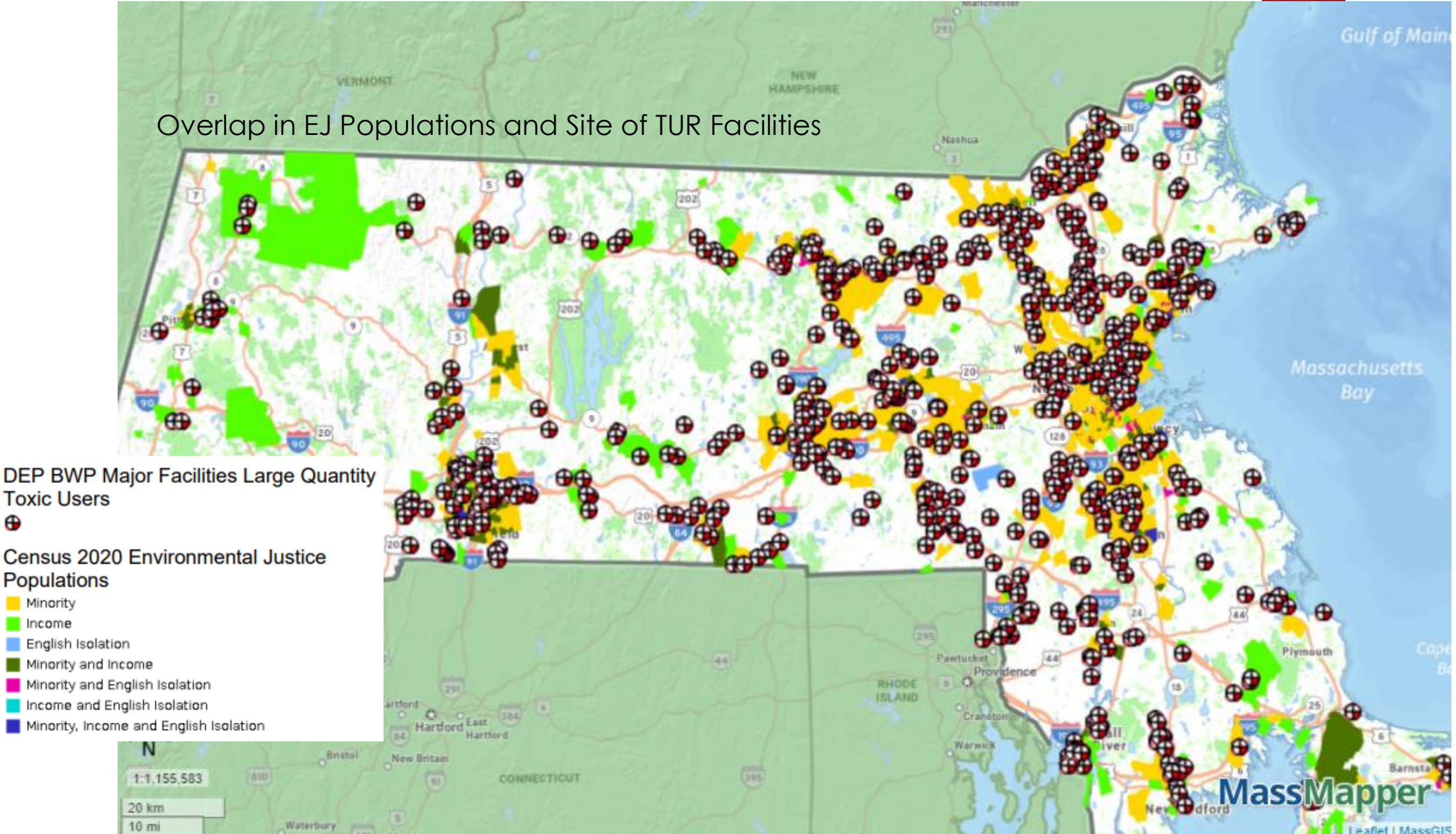
Climate change poses additional risks for facilities with toxic chemicals



Environmental Justice

- "Fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" - EPA, 2022
- Reducing impact on these communities, which experience unequal environmental harm

Overlap in EJ Populations and Site of TUR Facilities



BEWARE of Greenwashing!

ENGAGE WITH TUR & SUSTAINABILITY PLANNING IN GOOD FAITH

- A form of advertising or marketing using misinformation to persuade the pubic that an organization's products or policies are environmentally friendly
- Conveys false impression that a company or its products are environmentally conscious or friendly
- Need for transparency, targets, goals, and data
- Investor, employee, and consumer trust
- Brand reputation

On the Horizon

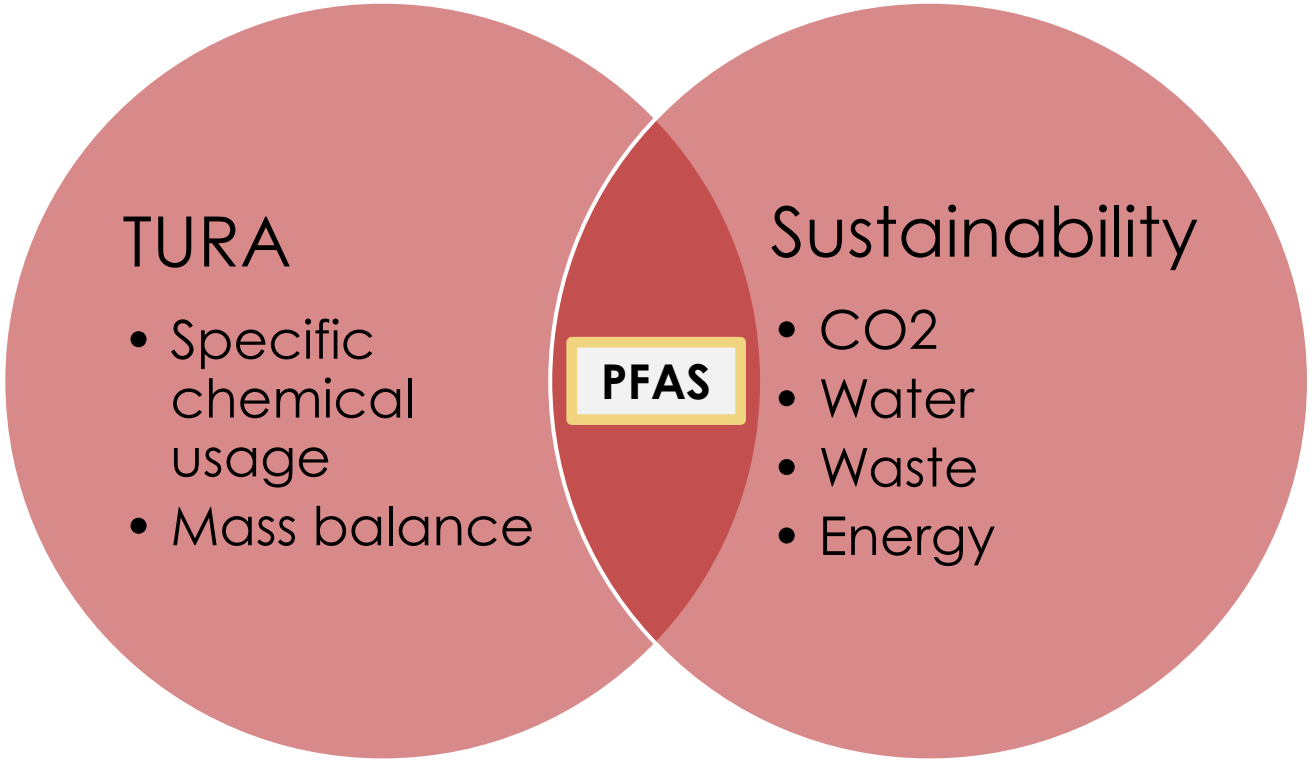
- U.S. Securities and Exchange Commission (SEC)
  - Announced in March 2022 a proposed rule to enhance standardize climate-related disclosure requirements provided by public companies for investors
- PFAS Regulations
- EPA addressing environmental justice, climate change, and PFAS in its programs and compliance regulations

Sustainability Planning/Programming

- Organizations often develop a sustainability roadmap that is regularly updated in order to track progress towards established targets/goals
- Identify what is important
  - What metrics will be tracked? What topics are important to a company?
- Determine how these metrics should be reported
- Decide how they should be calculated and standardized
- Set goals for each metric with timeline in mind (Process Metrics & Result Metrics)
- Plan actions to achieve objectives and targets
  - Establish roles and responsibilities. How are decisions made about which actions will be implemented?
- Compare over time, location, organization
  - Monitor key activities and track progress

Integrating Sustainability and TUR Planning

Overlap between TURA & Sustainability



Similar Focus

TUR Planning

- Focus on specific chemicals used at a facility

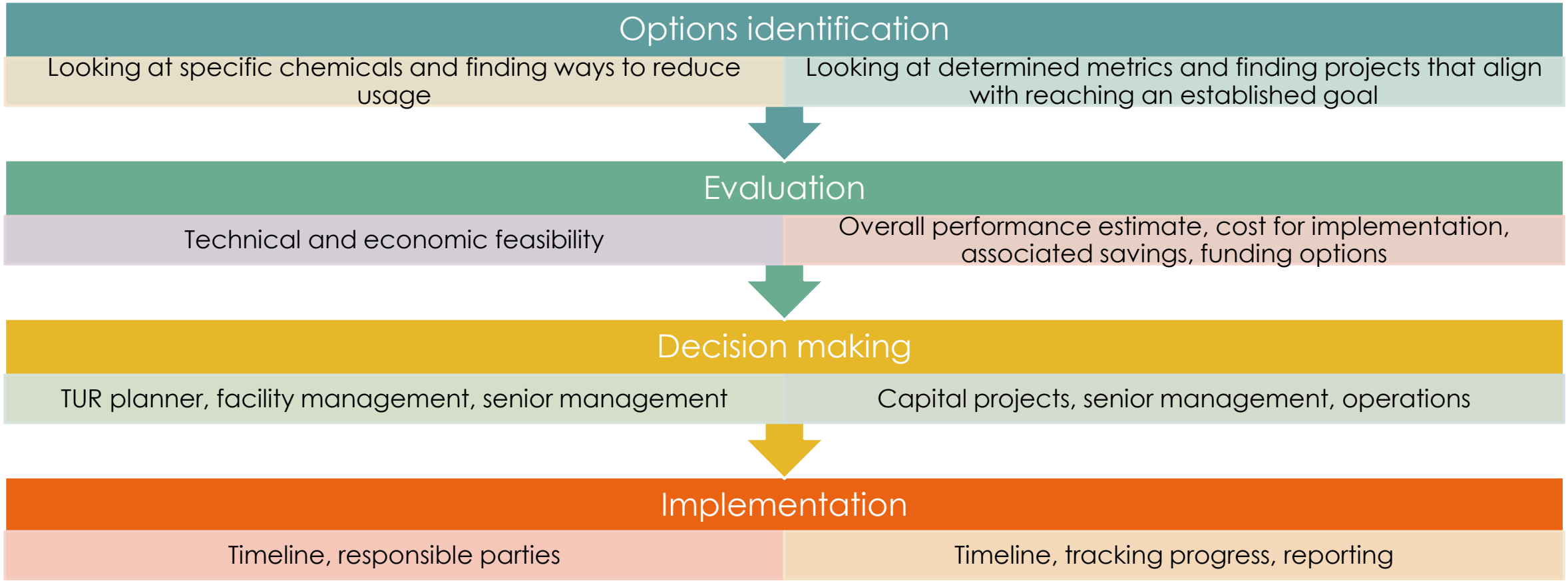
RC Plans

- Periodic focus on other resources:
  - CO2
  - Water
  - Energy (Natural Gas and Electricity)
  - Waste

Sustainability Planning

- Focus on the material ESG metrics and key performance indicators for a site
  - CO2
  - Water
  - Energy (Natural Gas and Electricity)
  - Waste
  - May include TUR Chemicals
- Social and governance
- Programs/policies

TURA Planning & Sustainability Applicability



Similar Key Principles

- Reduce waste
- Efficiency improvements
- Community engagement
- Quality data management
- Stakeholder involvement
- Transparency in reporting
- Health and Safety
- Find safer alternatives
- Increased recycling efforts

TUR Options Identification / Sustainability Approaches

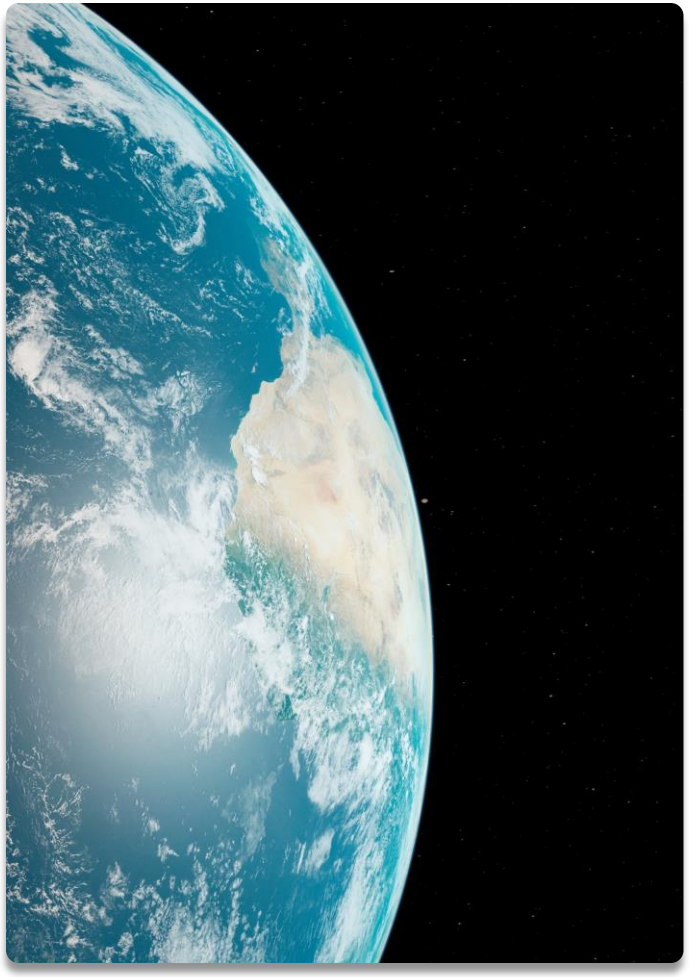
- Input Substitution
- Product Reformulation
- Product Unit Redesign/Modification
- Product Unit Modernization
- Improved operation and maintenance
- Recycling integral to the production process

Where they meet

- Collaboration between TUR and sustainability committees to make progress towards similar aligned goals
- Using sustainability to bolster TUR planning decisions

Many Methods

SAME GOAL!



Breakout Activity

Breakout

- Small groups of 4-5
- Each group focuses on one example scenario
- Group will bring their own ways of TUR planning & risk evaluation
- Instead of chemical reduction, focus on waste, water, energy, and emissions
- Why should TUR planning include sustainability? How is there already an overlap and where are there opportunities? How might TUR approach be valuable to achieving Sustainability objectives?
- 20 minutes to create a FRAMEWORK for evaluating sustainability impacts
- 10 minutes for small groups with the same scenario to compare thoughts
- 20 minutes for a whole group debrief

Breakout Guidance

- GOAL: Evaluate the sustainability of TUR option implementation
  - HOW do TUR projects impact sustainability?
  - What considerations and advantages are there for the facility?
- Consider
  - Which key metrics does your project impact?
  - How will you track and monitor project progress & success?
  - How will you evaluate feasibility, schedule, and implementation?
  - How will you evaluate costs and savings associated with project?
- Key Sustainability metrics
  - CO2/Emissions
  - Energy
  - Water
  - Waste

SCENARIO 1

- Your manufacturing company has been considering improvements to its plating operations by upgrading the plating equipment and integrating a zero-discharge wastewater treatment system
- The new efficient plating line would reduce hazardous waste generation by recovering and reusing the plating chemistry
- How has this impacted sustainability metrics?

SCENARIO 2

- Your woodworking company has previously invested in initiatives like rooftop solar array and biomass boiler.
- The company has bought a solvent recycling unit, an ultrasonic spray gun cleaner, a robotic spray line, and prioritized the use of water-based coatings to minimize the use and release to the environment of chemical.
- How will these changes affect other variables?

SCENARIO 3

- As a semiconductor company, you're concerned with the water quality and capacity used during production.
- In order to treat the incoming public water supply, chemicals are used to remove ions. To reduce the usage of these chemicals, the company is looking to more efficiently use water.
- How does the aim of reducing chemical usage affect other sustainability measures?

SCENARIO 4

- Your company is a contract packaging firm specializing in the manufacturing and distribution fulfillment of various chemicals.
- In order to reduce chemical use and toxic chemical waste, your company is focusing on improving efficiency with new equipment and process improvements.
- How will these process improvements affect other areas of sustainability?

Example framework:

Project	Timeline	Water	Waste	Energy	Greenhouse Gas Emissions (CO_2e)	Cost to Implement	Cost Savings
TUR option		X		X	X	$	$$

Post-Break out (20-30 minutes)

- Group discussions debrief
- What did groups learn from the activity?
- How is this something they can integrate into their TUR planning?
- Any ideas on how sustainability can bolster TUR decision making?

Additional Resources

- Chemical Safety and Climate Change Preparedness, OTA
- OTA Climate Change Resources for Toxics Users, OTA