



Advancing **Cleaner** Energy

# Environmental Capital Asset Justification / Management

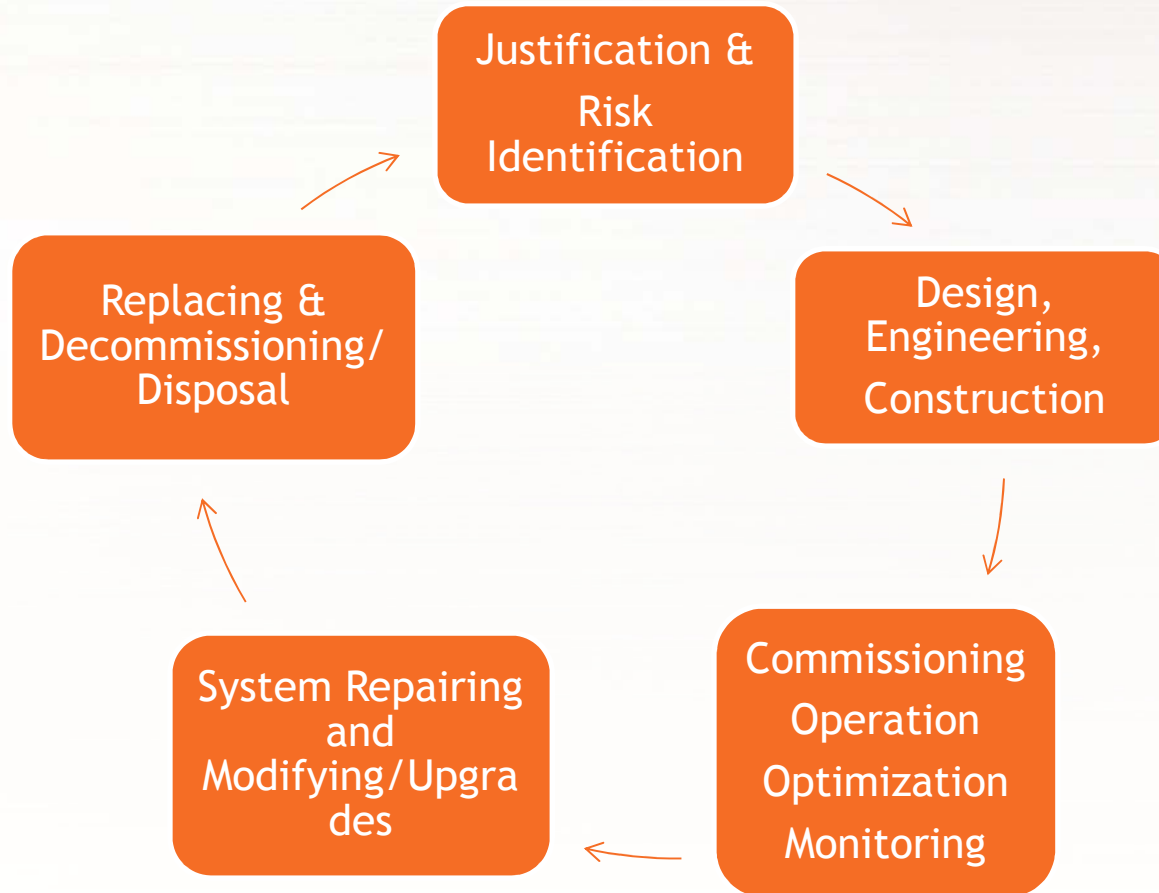
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## Asset Management defined

*Asset management is the combination of management, financial, economic, engineering, and other practices applied to physical assets with the objective of providing the required level of service in the most cost-effective manner. It includes the management of the whole life cycle of the asset as it pertains to the facility or plant.*

[http://en.wikipedia.org/wiki/Asset\\_management](http://en.wikipedia.org/wiki/Asset_management)

# Asset Management Life-Cycle Considerations



## Environmental Projects pose a challenge

- ▶ Not immune to capital project review / justification process
- ▶ Direct pay-back may not be best measure of justification nor even possible on regulation driven projects
- ▶ Environmental projects don't typically have positive cash flow
- ▶ Compliance may be a "cost of doing business" but not only justification
- ▶ Environmental project costs may spur other plant wide decisions and upgrades (trickle down effects)
- ▶ Need to consider balance of plant impacts
- ▶ Regulatory agencies are both a cost and a risk
- ▶ Alternative technologies need to figure into decision
- ▶ And ultimately, How will this project get funded?

# Planning

- ▶ Investment justification needs to be submitted to management
- ▶ Need to vet out the appropriate technologies for fit and function
- ▶ Don't forget to plan for internal resources to look after and maintain new technologies
- ▶ Weigh the technical risks and develop plans to manage the risks
- ▶ Need to incorporate total cost of ownership into your analysis
- ▶ Questions needed to be answered:
  - Could this environmental project have been avoided?
  - Are there other options? (fuel switch, operation changes, limit capacity)
  - What is the long-term plan for the facility?

## Other early considerations to be made

- ▶ Project's impact on:
  - Plant performance
  - Reliability/Availability
  - Maintenance
  - Overall O&M cost
  - Energy usage
  - Safety
  - Training for new technologies and materials

## Timing concerns

- ▶ Short timeline - IB MACT clock is ticking
- ▶ Capacity of vendors/fabricators and erectors may be based on other EPA rules (i.e. MATS, PCMACT)
- ▶ Permitting lead-times
- ▶ Balance of plant schedules
- ▶ Loss of production planning
- ▶ Internal requirements for capital project process

## Other considerations:

- ▶ What lessons can be learned from other facilities already using similar proposed technology/equipment
  - What equipment design works best
  - Best combination of technologies
  - Best sorbents/chemicals to use, etc.
- ▶ Identify and prioritize loss-elimination steps and/or technology and factor into decision
- ▶ Spending thresholds within the organization for capital projects
- ▶ Timing of compliance
- ▶ Industry capacity for engineering and equipment supply lead times, as well as construction services



## Conclusions for environmental projects

- ▶ Environmental projects need to pass internal financial analysis
- ▶ Risk assessment is key, financially and technically
- ▶ The short time table remaining for IB MACT will require quick analysis
- ▶ Total cost of Ownership is preferred method
- ▶ Alternatives need to be assessed
- ▶ Industry groups and associations such as CIBI/ICAC are good sources for best practices

# Thank You

Questions?

