CHEMISTRY THAT MATTERS™

COP 24 SHOWCASE MATERIAL

PRESENTATION-3: MEGA PROJECTS SUSTAINABILITY OPTIMIZATION AND DEVELOPMENT

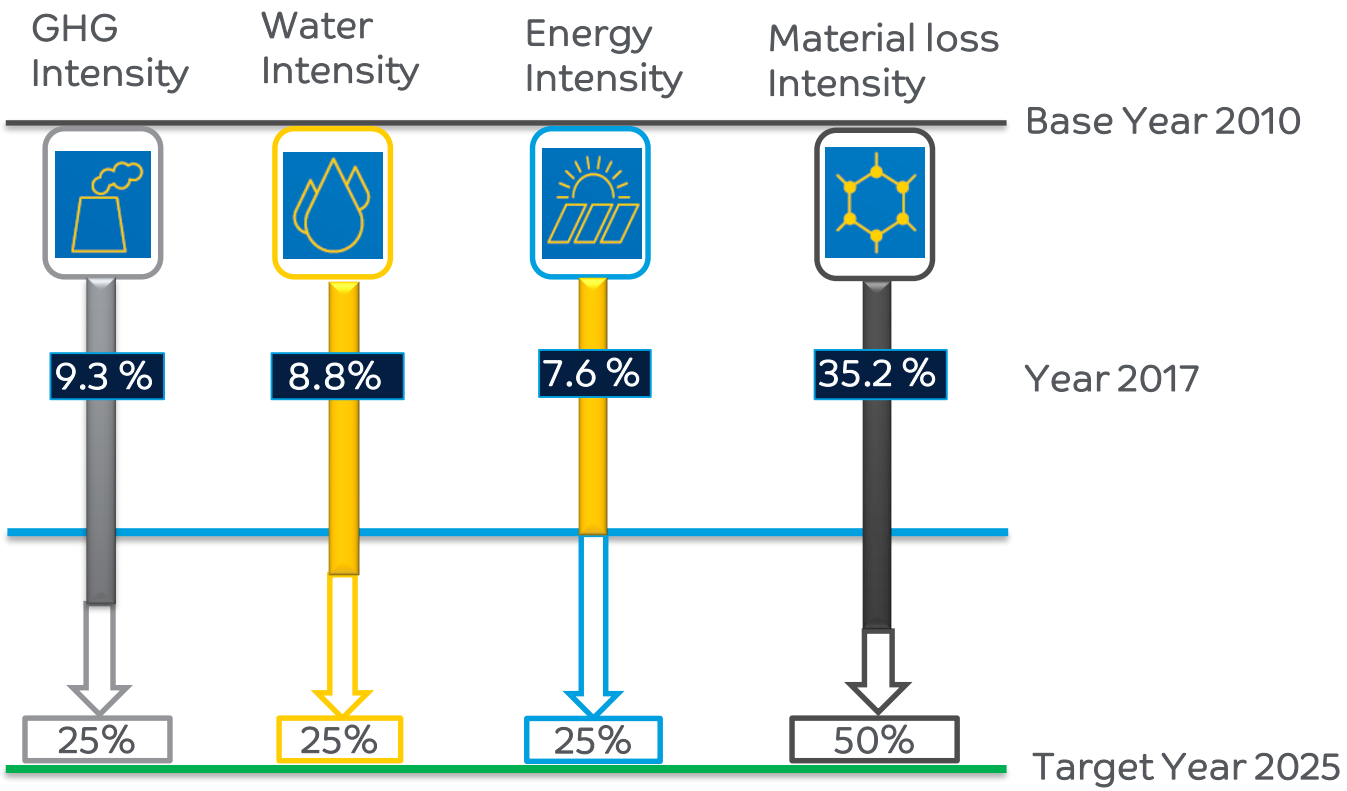
MEGA PROJECTS AWARENESS AND OPTIMIZATION

Managing SABIC Assets by Designing, Facilitating and supporting the

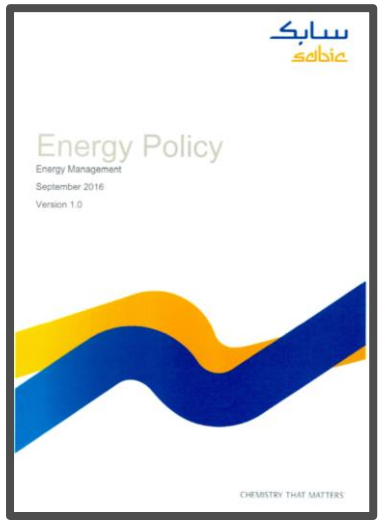
Development, Improvement & Execution of new projects to achieve

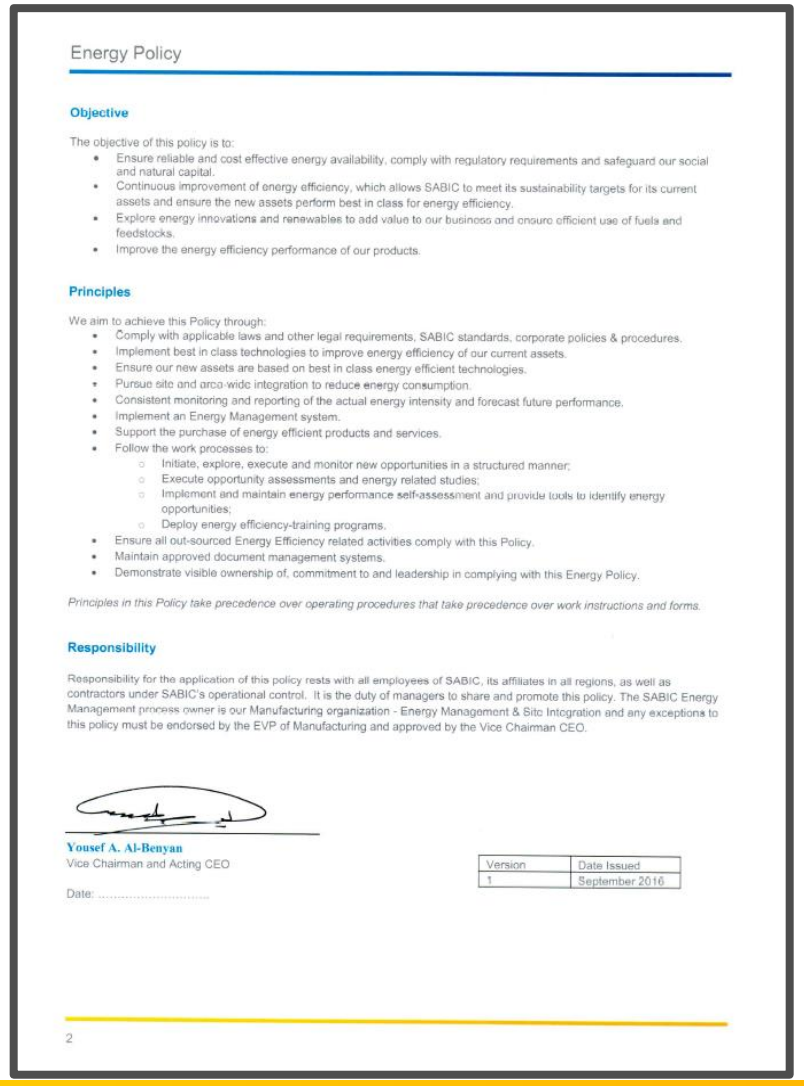
SABIC Sustainability Corporate Goals by 2025

SABIC PLANT SUSTAINABILITY KPIS



SABIC ENERGY POLICY





Energy Policy

Objective

The objective of this policy is to:

- Ensure reliable and cost effective energy availability, comply with regulatory requirements and safeguard our social and natural capital.
- Continuous improvement of energy efficiency, which allows SABIC to meet its sustainability targets for its current assets and ensure the new assets perform best in class for energy efficiency.
- Explore energy innovations and renewables to add value to our business and ensure efficient use of fuels and feedstocks.
- Improve the energy efficiency performance of our products.

Principles

We aim to achieve this Policy through:

- Comply with applicable laws and other legal requirements, SABIC standards, corporate policies & procedures.
- Implement best in class technologies to improve energy efficiency of our current assets.
- Ensure our new assets are based on best in class energy efficient technologies.
- Pursue site and area-wide integration to reduce energy consumption.
- Consistent monitoring and reporting of the actual energy intensity and forecast future performance.
- Implement an Energy Management system.
- Support the purchase of energy efficient products and services.
- Follow the work processes to:
  - Initiate, explore, execute and monitor new opportunities in a structured manner;
  - Execute opportunity assessments and energy related studies;
  - Implement and maintain energy performance self-assessment and provide tools to identify energy opportunities;
  - Deploy energy efficiency-training programs.
- Ensure all out-sourced Energy Efficiency related activities comply with this Policy.
- Maintain approved document management systems.
- Demonstrate visible ownership of, commitment to and leadership in complying with this Energy Policy.

Principles in this Policy take precedence over operating procedures that take precedence over work instructions and forms.

Responsibility

Responsibility for the application of this policy rests with all employees of SABIC, its affiliates in all regions, as well as contractors under SABIC's operational control. It is the duty of managers to share and promote this policy. The SABIC Energy Management process owner is our Manufacturing organization - Energy Management & Site Integration and any exceptions to this policy must be endorsed by the EVP of Manufacturing and approved by the Vice Chairman CEO.

Yousef A. Al-Benyan
Vice Chairman and Acting CEO

Date: .....

Version	Date Issued
1	September 2016

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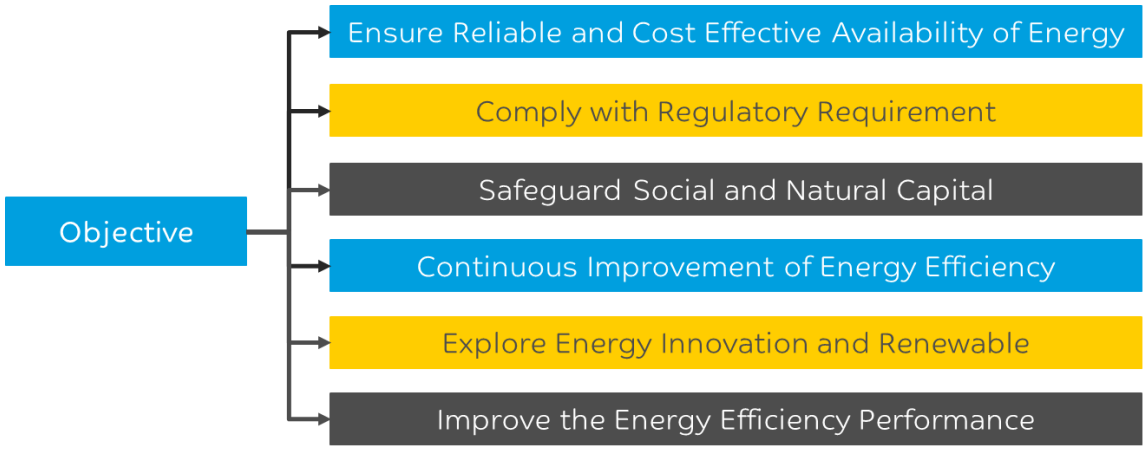
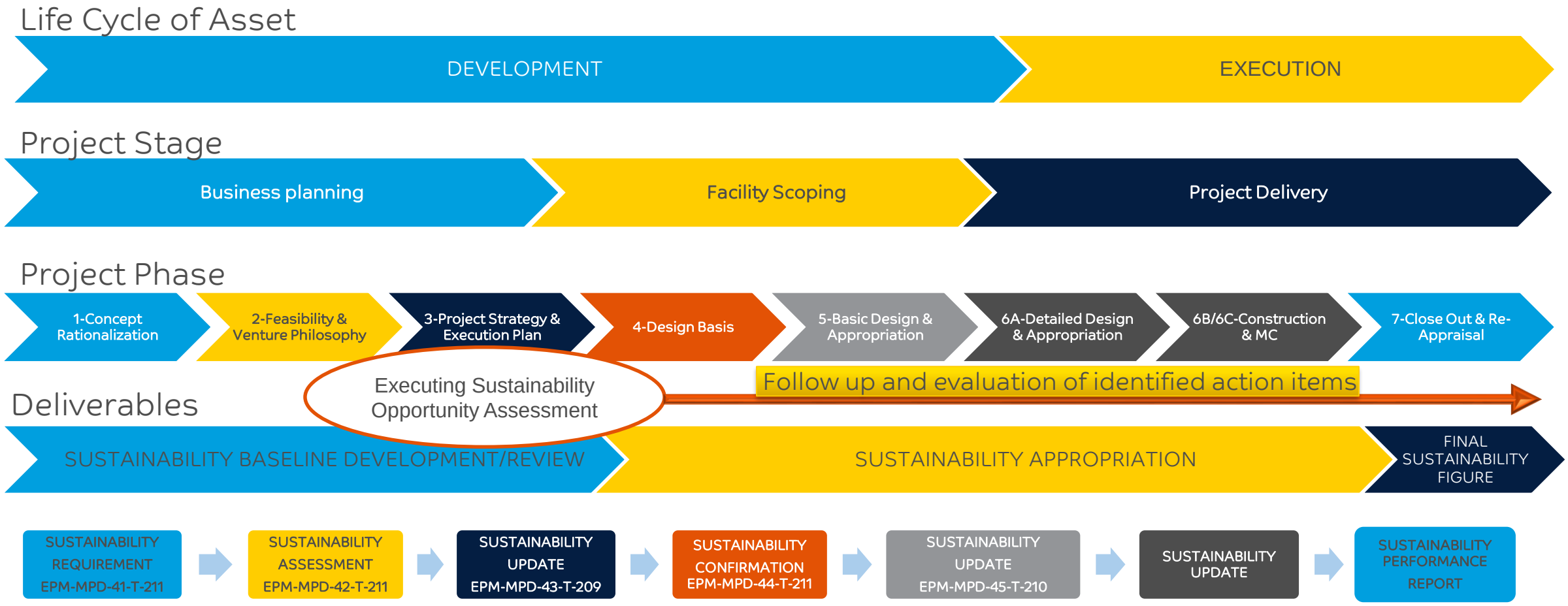
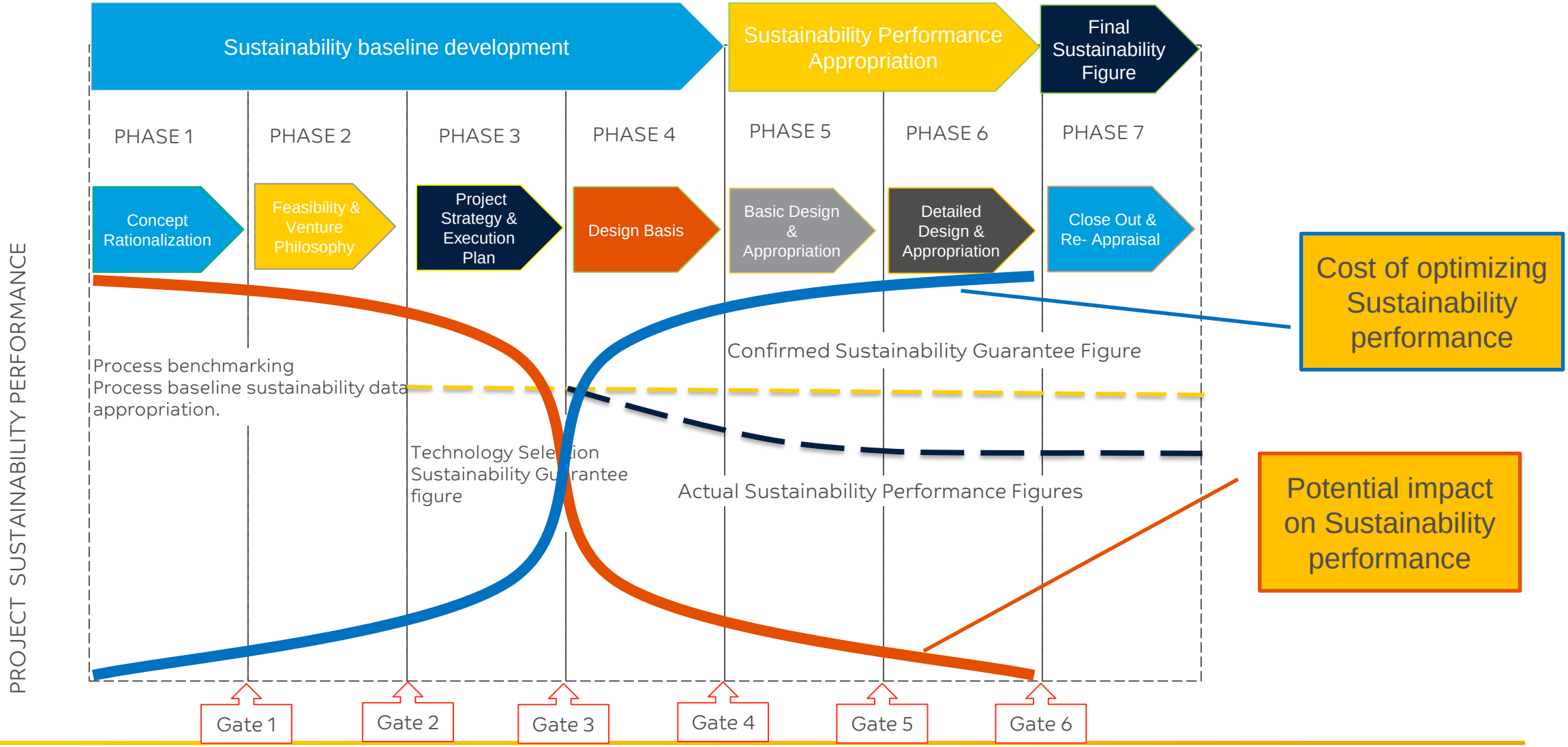
"Mega projects: The sustainability functions (CSD, EM&SI, E&PM PED) need to firmly hold to their process and do the needful to ensure the new assets meet sustainability criteria and avoid negative impact on SABIC 2025 sustainability targets (technology selection, integration,...). Waivers can only be given by the CEO (in the council) when not meeting these criteria. If project team wants to waive certain sustainability aspects, it needs to be brought through Sustainability council."



COMPLIANCE TO SABIC'S SUSTAINABILITY PROJECT FLOW



SUSTAINABILITY PERFORMANCE APPROPRIATION AND MONITORING



SEEP NEW PLANT REQUIREMENTS

Conceptual Design

New plants are to be designed at the average of the 1st quartile of the latest available benchmark.

Submit minimum energy performance standards.

Energy Assessment

Conduct an energy assessment study of the new plant detailed design to ensure compliance with minimum energy performance standards before procurement.

Operational Energy Efficiency

After the performance guarantee test, the plant is given a grace period of 2 years in which it has to operate at a maximum margin of 5% of the design value.

OBJECTIVE OF EXECUTING PHASE 3 SUSTAINABILITY OPPORTUNITY ASSESSMENTS

The objective of a phase 3 Sustainability Opportunity Assessment on projects:

- To challenge and identify opportunities to improve sustainability impact and efficiencies of process and energy performance of the project.
- To ensure plant or project are built according to world class energy efficiency standards.
- To ensure projects is in line with SABIC's energy policy.
- To ensure the best feasible integration ranging from proper equipment selection of new plants or projects with respect to energy, heat, water and material losses, including the utilities required.
- To evaluate the integration between ISBL and OSBL which is critical in this phase.
- Opportunity Assessment report is agreed and signed by all Stakeholders.

PHASE 3: IMPACTING BEFORE DESIGN IS FROZEN THROUGH INTEGRATION AND OPPORTUNITY ASSESSMENT

Ensuring Best Available Designs

	REQUIRE INPUT DATA AND INFORMATION
	Technology Evaluation, comparison against benchmarks (or BAT) for selected technology
	Sustainability Base year 2010 data and current Sustainability footprint (RIP, DBN, Expansion project)
	Energy Intensity data with reference to SEEC
	Sustainability Guarantee Figure
SOA	Project scope and description
SOA	Preliminary PFD, with relevant P, T, flow, duties
SOA	Process Block Diagram
SOA	Process and technology description
SOA	Proposed Plant Capacity and raw materials. For existing plants: Nameplate and current capacity and efficiency (RIP, DBN, Expansion project)
SOA	Plot plan
SOA	Utilities

Phase 3

Sustainability Opportunity Assessment

Facilitator
EM&SI - Manufacturing
Participants
SBUTM, Licensor, SBU/AFFILIATE Process Team, CSD, SE,EPM PES and EPM Mega Project

OUTPUT FROM SOA AND SUSTAINABILITY REPORT
List of identified Energy efficiency and Sustainability improvements and commitment to be included in project
Action plan by project team on evaluating and incorporating the opportunities
Sustainability Update Report EPM-MPD-43T-3B2, SABIC Enterprise Portfolio Management Tools and 4 KPI's uploaded in KPI Tools
Estimate sustainability footprint due to project and estimate agreed preliminary sustainability footprint referring to ISBL.
Sustainability Preliminary Figure
Sustainability Footprint data from current plant/affiliate/SBU – ISBL & OSBL.
1st Quartile - SEEC –CONCEPTUAL DESIGN ENERGY ESTIMATE
SEEC Submission according to EPM-MPD-33-P-005

SOA = Sustainability Opportunity Assessment

Planning and preparation and sharing of required information is the responsibility of TM/project owner

COMPLIANCE TO SEEC REQUIREMENTS PROCESS FLOW

PROJECT PHASE

1-Concept Rationalization → 2-Feasibility & Venture Philosophy → 3-Project Strategy & Execution Plan → 4-Design Basis → 5-Basic Design & Appropriation → 6A-Detailed Design & Appropriation → 6B/6C-Construction & MC → 7-Close Out & Re-Appraisal

SEEC PROCESS

Sustainability Pre-Assessment → Technology Sustainability Assessment → Compliance to SEEC requirements EPM-MPD-33-P-005 → Compliance to SEEC requirements EPM-MPD-33-P-005 → Compliance to SEEC requirements EPM-MPD-33-P-005 → Compliance to SEEC requirements EPM-MPD-33-P-005 → PLANT PERFORMANCE REPORT

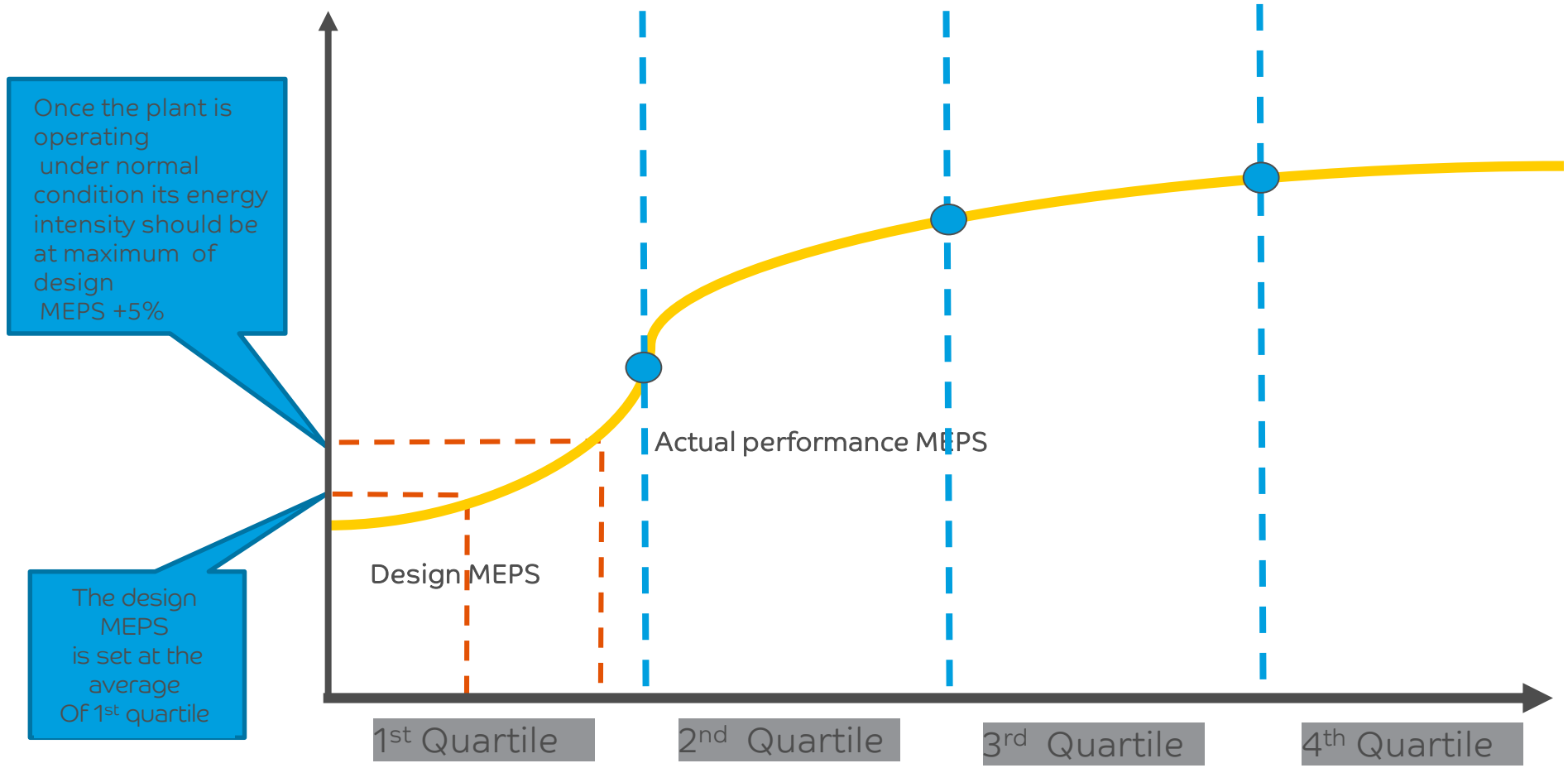
SEEC SUBMISSION

SEEC: 1st SUBMISSION OF CONCEPTUAL DESIGN ENERGY INTENSITY ESTIMATE

SEEC: 2nd SUBMISSION OF PROCESS ENERGY DESIGN REVIEW → Minimum Energy Performance Standard (MEPS)

SEEP NEW PLANT FRAMEWORK AND REQUIREMENTS

Benchmark of international comparable plant energy intensity




THANK YOU