

# Internal Scanning



## Strategic & Growth

- Strategic project investment
- Business innovation accelerate
- Speed of R&D innovation
- Portfolio management

## Commercial

- Market competitiveness
- Major production shift to specialty
- Products availability and quality

## Operation

- Safety, Occupation Health and Environment
- Community complaint
- Plant reliability and unplanned shutdown
- Energy efficiency and cast competitiveness

## HR management

- People readiness for new business
- Employee expense
- Aging employee population structure
- Competency develop program

## Financial

- Credit rating
- Liquidity
- ETC from PTT group

## IT/Digitalization

- Cyber attack
- Cyber security awareness

## Compliance

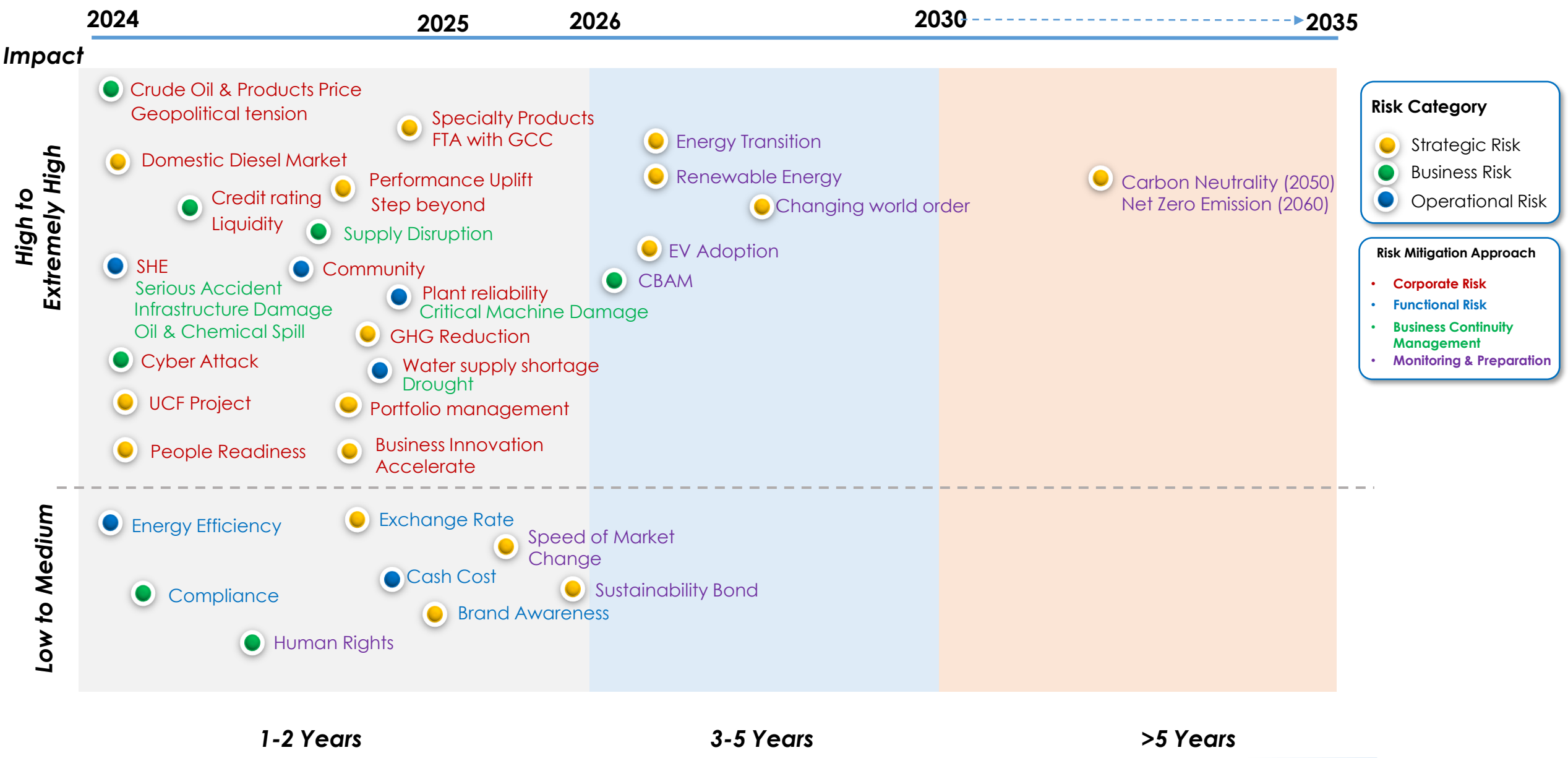
- Information leakage
- Compliance Policy
- Communication

# Strategic Objective Mapping to Corporate KPI 2024

Business Growth  
Material and Energy  
Sustainability  
Driver  
Enablers

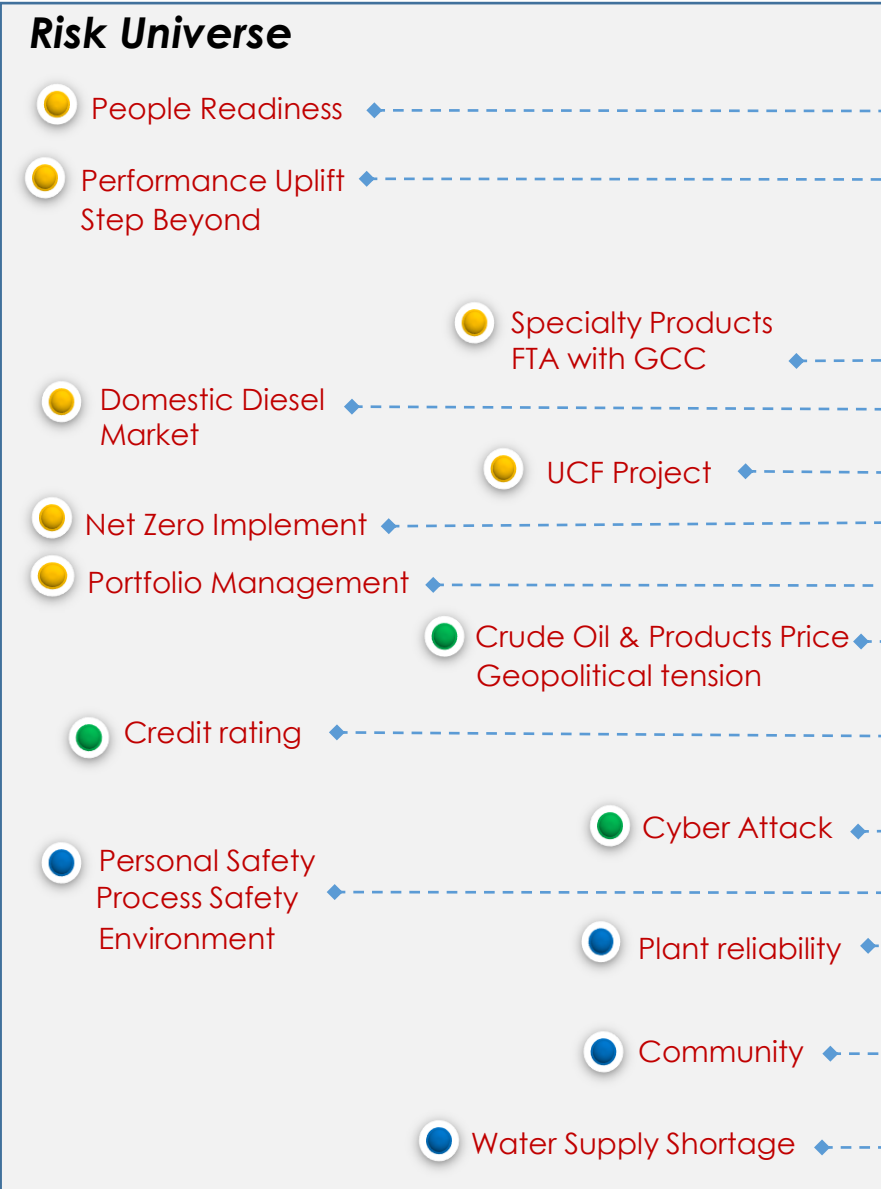
Strategic Objective	BSC	Corporate KPI 2024	Blue color: New KPI	Corporate Risk 2024
Core	Internal Process 40%	Operational Availability	5%	Plant Reliability Risk
		TRIR	5%	SHE Risk
		Core Uplift	5%	UCF Project Risk
		Domestic Diesel	10%	Petroleum Domestic Risk
		Specialty Product Volume	10%	Specialty Product Risk
Commercial Excellence				
Adjacent & Step Beyond		Adjacent & Step Beyond	5%	Adjacent & Step Beyond Risk
Sustainability	Stakeholder 10%	GHG Reduction	5%	GHG Reduction Risk
		Stakeholder Satisfaction (Customer, Community, Employee, Investor and Supplier)	5%	Water management Risk
				Community Risk
Climate Change				
Circular Economy				
Creating Shared Value				
Strengthen Financial Performance	Financial 40%	EBITDA	25%	Price Volatility Risk
		SOS Achievement (Performance uplift, Lean, Transformation, OPEX Control and Subsidiary Portfolio and Asset Management)	15%	Financial Risk
				Subsidiary Management Risk
Organization Transformation	Learning & Growth 10%	Business Innovation Accelerating Project	5%	Strengthen Project Risk
				People Enabler Risk
Digital Transformation		Cyber Security Awareness	5%	BIA Project Risk
				Cyber Security Risk

# Risk Universe 2024



# Relative of Corporate Risk 2024 and 2023

● Strategic Risk  
 ● Business Risk  
 ● Operational Risk



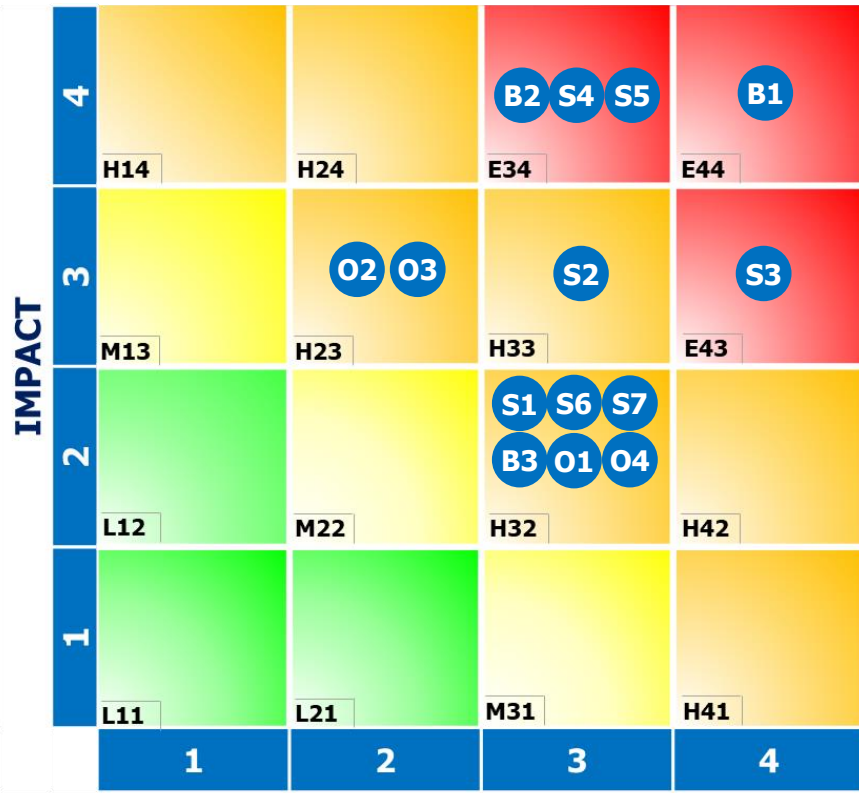
Corporate Risks 2024	Level of Risk	
	Start	Target
S1. People Enabler Risk	H32	M22
S2. Strengthen Project Risk	H33	M22
S3. Strategic Project Risk S3.1 Adjacent and Step Beyond Project Risk S3.2 BIA Project Risk	E43	M22
S4. Specialty product Risk	E34	H23
S5. Petroleum Domestic Risk S5.1 Commercial Risk S5.2 UCF Project Risk	E34	H33
S6. GHG Reduction Risk	H32	M22
S7. Subsidiary management Risk	H32	M22 <sup>New</sup>
B1. Price Volatility Risk	E44	E34
B2. Financial Risk (Liquidity Risk)	E34	M31
B3. Cybersecurity Risk	H32	M22
O1. SHE Risk	H32	M22
O2. Plant Reliability Risk	H23	M13
O3. Community Risk	H23	M22
O4. Water Management Risk	H32	M22

Corporate Risks 2023	Level of Risk	
	Start	End (est.)
S1. People Enable Risk	H32	M22
S2. Strategic Project Risk S2.1 Strengthen Project S2.2 Adjacent and Step Out Business	E43	E43
S3. Specialty product risk	E34	H23
S4. Petroleum Domestic Risk	E34	H33
S5. UCF Project Risk	H33	H32
S6. GHG Reduction Risk	H32	M22
B1. Price Volatility Risk	E44	E44
B2. Financial Risk B2.1 Liquidity Risk B2.2 FX Risk	E34	H24
B3. Cybersecurity Risk	H33	H23
O1. SHE risk	H33	H32
O2. Plant Reliability Risk	H23	M13
O3. Community Risk O3.1 Community Risk O3.2 Social Risk	H23	M22
O4. Water Management Risk	H23	M13

# CORPORATE RISK PROFILE 2024

Total 14 Risks  
 Extreme 5 Risks  
 High 9 Risks

Risk Profile 2024



Risk Level : ■ Low ■ Medium ■ High ■ Extreme

Corporate Risks 2024		Level of Risk	
		Start	Target
Strategic Risk	S1. People Enabler Risk	H32	M22
	S2. Strengthen Project Risk	H33	M22
	S3. Strategic Project Risk S3.1 Adjacent and Step Beyond Project Risk S3.2 BIA Project Risk	E43	M22
	S4. Specialty product Risk	E34	H23
	S5. Petroleum Domestic Risk S5.1 Commercial Risk S5.2 UCF Project Risk	E34	H33
	S6. GHG Reduction Risk	H32	M22
	S7. Subsidiary Management Risk	H32	M22
Business Risk	B1. Price Volatility Risk	E44	E34
	B2. Financial Risk	E34	M31
	B3. Cybersecurity Risk	H32	M22
Operational Risk	O1. SHE Risk	H32	M22
	O2. Plant Reliability Risk	H23	M13
	O3. Community Risk	H23	M22
	O4. Water Management Risk	H32	M22

## Identify Risk Topic 2024

- Residual Risk 2023
- Environment scanning
- Internal Analysis
- Strategy Objective
- PTT Group
- BOD concerned



	Risk item	Risk Event	Risk Level		KPI	Rationale
			Start	Target		
S6	<b>GHG Reduction Risk</b>	<b>Y2023</b> <ul style="list-style-type: none"> <li>• The development of a clear and concrete policy, along with the establishment of a working committee, has been delayed.</li> <li>• The efficiency of data collection, monitoring, and reporting is still lacking.</li> <li>• Employees lack the necessary knowledge and are not complying.</li> <li>• The current projects are inadequate to support the reduction of greenhouse gas emissions.</li> <li>• The project is falling behind schedule.</li> </ul>	H32	M22	<ul style="list-style-type: none"> <li>• GHG Emission (MtCO2e/year)</li> <li>• (Target: GHG emission as aggressive plan )</li> </ul>	
	<b>STS 2024</b> <ul style="list-style-type: none"> <li>• GHG Reduction 0.1xx Mio tonCO2e in 2024</li> </ul>	<b>Y2024</b> <ul style="list-style-type: none"> <li>• The project is falling behind schedule.</li> <li>• The energy reduction project is not meeting its targets.The reforestation project is not meeting its targets.</li> <li>• There is insufficient budget</li> </ul>	xx	xx	GHG Reduction (0.14 MtCO2e, review target)	

# We implemented climate management with ERA the beginning, focusing on energy conservation and studying reforestation



2023



2024



2050

2060

3C

**Climate change strategy**

- 17 Energy efficiency projects implemented, reduce 44,000 MTCO<sub>2</sub>eq
- Solar floating developing
- CFP list by SKUs and roadmap
- Forestation

- Energy efficiency projects implemented, reduce [TBC] MTCO<sub>2</sub>eq
- Solar Roof 50 MW
- Solar 100 MW and Wind 50 MW
- Forestation

- The project in the pipeline aims to implement a plan to reduce CO<sub>2</sub> emissions to Carbon neutral and Net Zero

**Circular economy strategy**

- TPV, TPS and green ABS study
- Sorting polymer waste by product
- Autofit project
- Boonrod project (potential 10 MB)

- CE trading business (study and find out more potential customer) / Plastic recycle partnership
- Collab campaign with educational institutions, Rayong community
- Under waste management 4,000 MT

- Battery
- W2E

**Creating shared value strategy**

- DJSI
- SET Award
- Human right
- Social activity

- DJSI
- SET Award
- Human right
- Social activity

- TBC



# IRPC has set the main levers for Net Zero Transition in 2060 as follows :

	Major levers	GHG reduction potential <sup>1</sup>	Potential solutions
Eco-Operation & Technology (Net Zero Lab)	Energy efficiency	~10%	<ul style="list-style-type: none"> <li>Advanced analytics (AA) to further optimize set points and APC</li> <li>Extensive capability development and change management program to reach EII top quartile and zero routine flaring target</li> </ul>
	Blue / Green H2	~20%	<ul style="list-style-type: none"> <li>Liaise with government to support low carbon initiatives</li> <li>Partnership with GPSC / EGAT for RES</li> </ul>
	Renewables	~20%	<ul style="list-style-type: none"> <li>Switching operations to renewable energy and alternative fuels: divest coal to NG, solar power, biofuels</li> <li>Seek out opportunity in solar / wind business</li> <li>Partnership with GPSC / EGAT,</li> </ul>
Reshape portfolios	New stream product & Circular economy	~10%	<ul style="list-style-type: none"> <li>Portfolio adjustment : Increase new-stream 70% by 2030 including Hygiene &amp; Life Science, Advanced Material, Sustainable Business</li> <li>Circular economy target</li> </ul>
Absorption and offset	Forestation	~10%	<ul style="list-style-type: none"> <li>The creation of stakeholder engagement and social impact through community forest development</li> </ul>
	CCUS	~30%	<ul style="list-style-type: none"> <li>Partner with PTTEP to secure CCS capacity and gain economies of scale in capture technology acquisition</li> </ul>

1. Reduction potential against the baseline

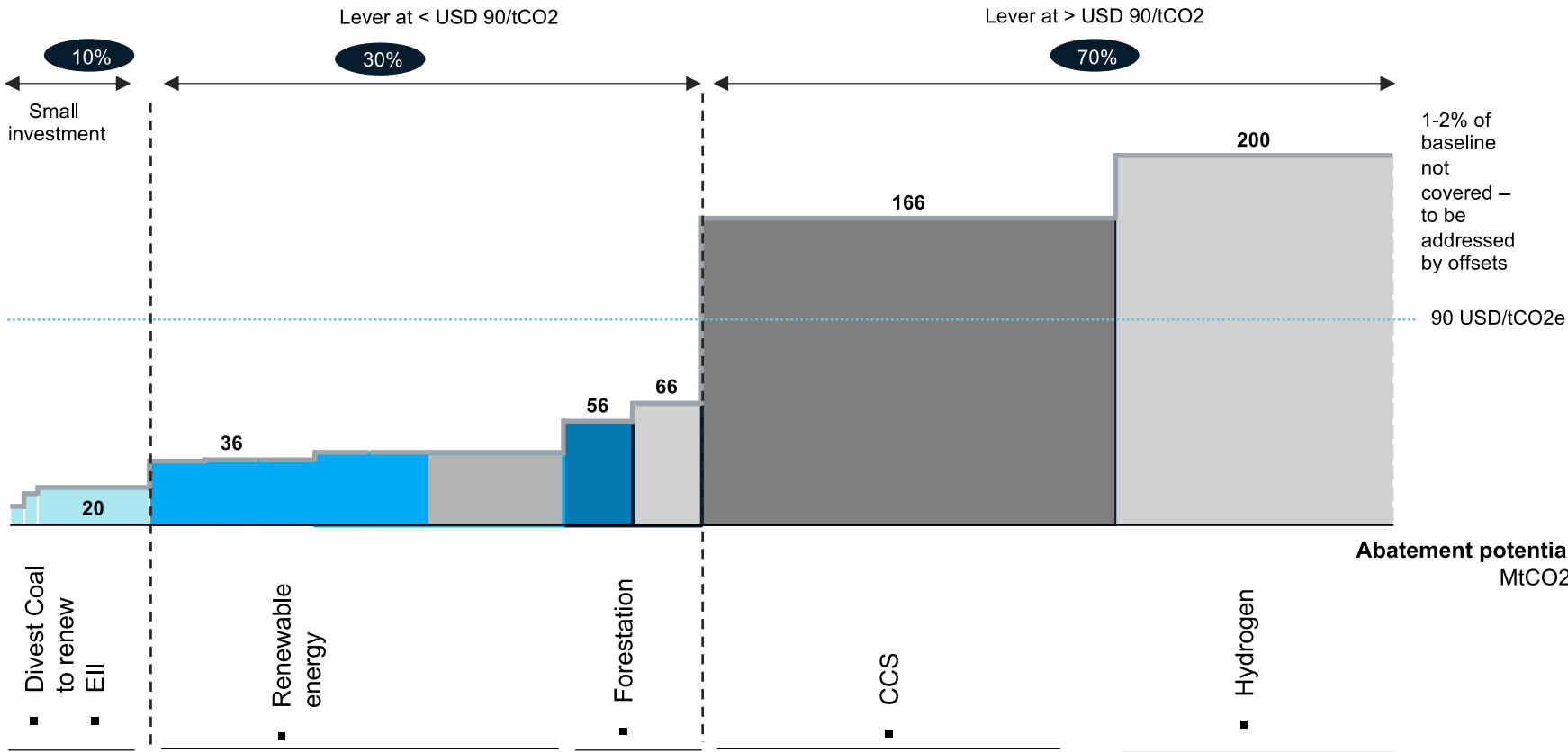
# We expect few positive NPV opportunities, with many levers costing more than \$50-90/ton

Abatement cost, USD/tCO<sub>2e</sub>

% % of total emissions reduction in 2060

- Energy
- Renewable
- Absorption
- Under study

Carbon captured plan ≈ 70% or 3.0 MtCo<sub>2e</sub>

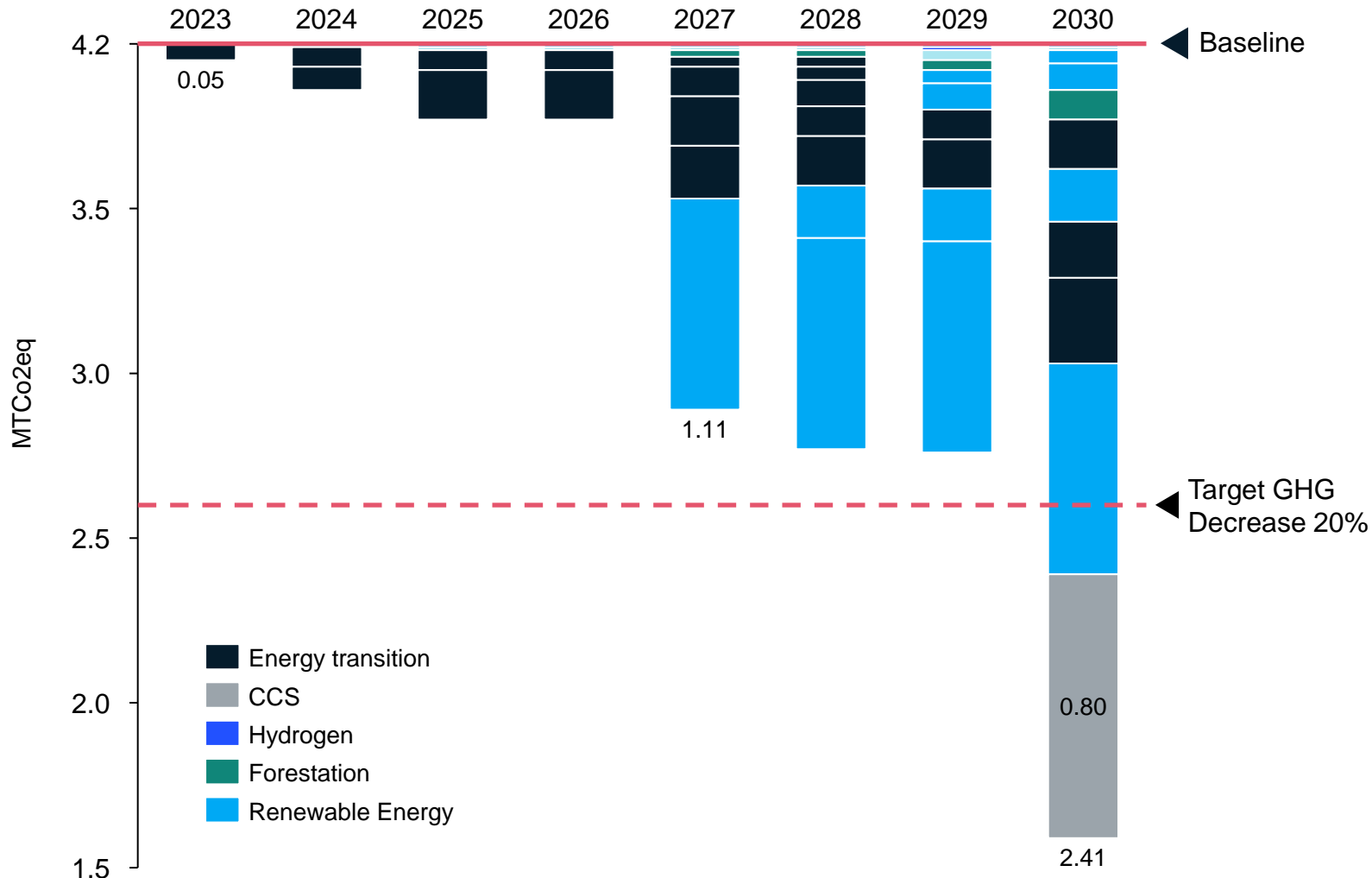


## Decarbonization levers

- ~10% Small investment
  - EII
  - Divest Coal
- ~40% Less than \$90/ton CO<sub>2</sub>
  - Solar Floating
  - SEA or Abroad Renewable Energy
  - Forestation
- ~50% More than \$90/ton CO<sub>2</sub>
  - CCS
  - Hydrogen

# Initiatives pipeline 2023-2030

Total on hand initiatives for GHG reduction target to 20% reduction in 2030



## Key messages

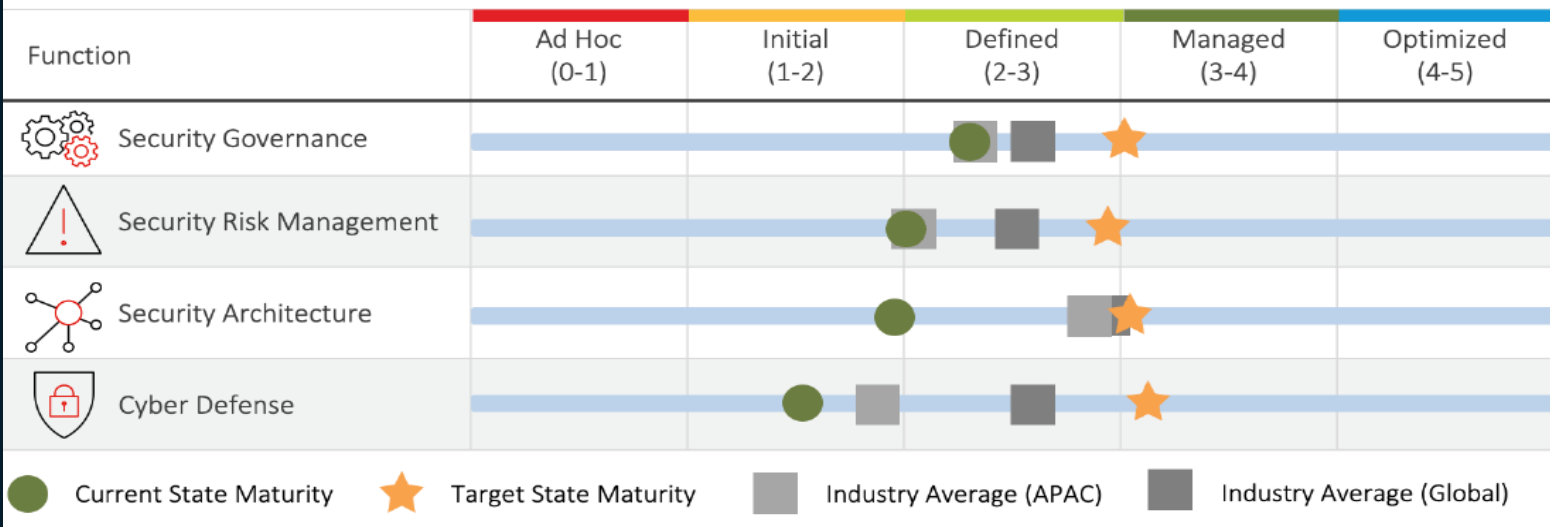
- The target for GHG reduction in **2023-2026 is planned to be 7%** from the baseline.
- The amount of GHG reduction will **significantly decrease in 2027** because the main efficiency improvement projects will be undertaken during the turn-around period. The primary factors for this decrease come from improving energy efficiency and renewable energy.
- In 2027 IRPC need to reduce more than 1.1 MTCO<sub>2</sub>e (-13% from baseline)
- Next step : Continue and tracking project progress in pipeline and follow up long term strategy in 2030

	Risk item	Risk Event	Risk Level		KPI	Rationale
			Start	Target		
B3	Cyber security Risk	<b>Y2023</b> <ul style="list-style-type: none"> <li>The cybersecurity system is either not reliable or does not cover all aspects according to international standards.</li> <li>Systems that operate on the Internet are susceptible to attacks.</li> <li>Employees have been tricked into providing information that can be used to gain access to the system and launch attacks.</li> </ul>	H33	H23	<ul style="list-style-type: none"> <li>Frequency of cyberattacks</li> </ul>	
	Cyber security Risk	<b>Y2024</b> <ul style="list-style-type: none"> <li>The system was compromised through a phishing email.</li> <li>Employees lack knowledge and awareness about cybersecurity threats.</li> <li>The roadmap implementation is behind schedule.</li> <li>Budget constraints</li> <li>The organization needs to be restructured to better support security initiatives.</li> </ul>	H32	M22	Cyber Security/ Digital Strategy Achievement (Score/ %Achievement) Zero cyber attack	

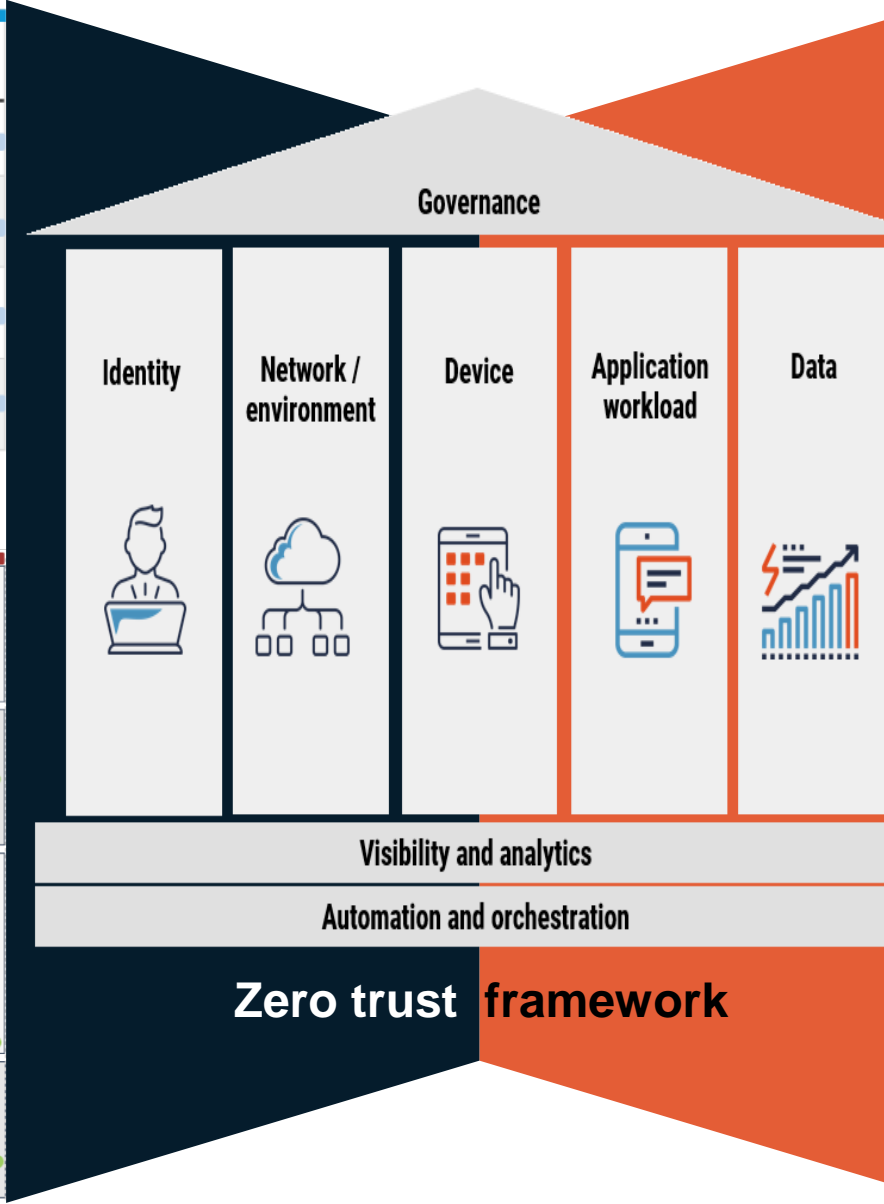
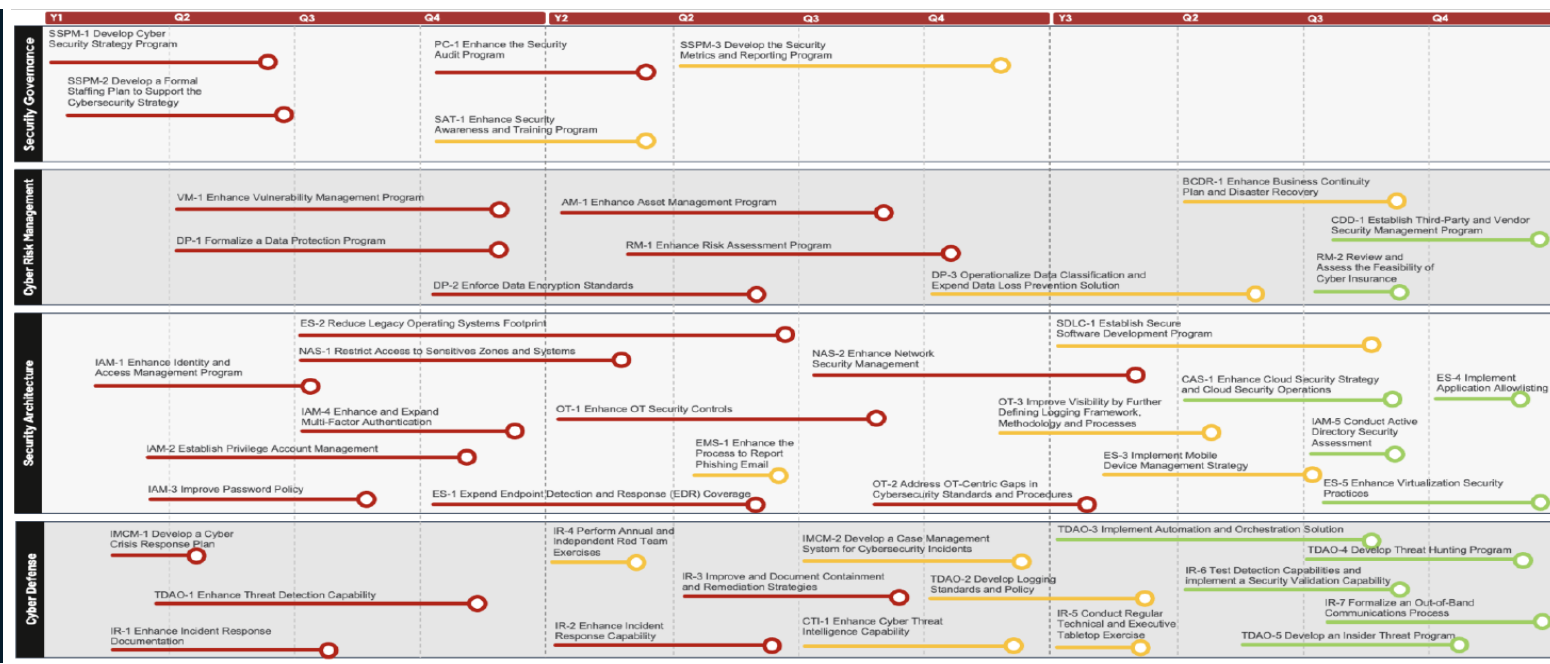
# (D) Cyber Security : Future state of IRPC based on Zero trust framework

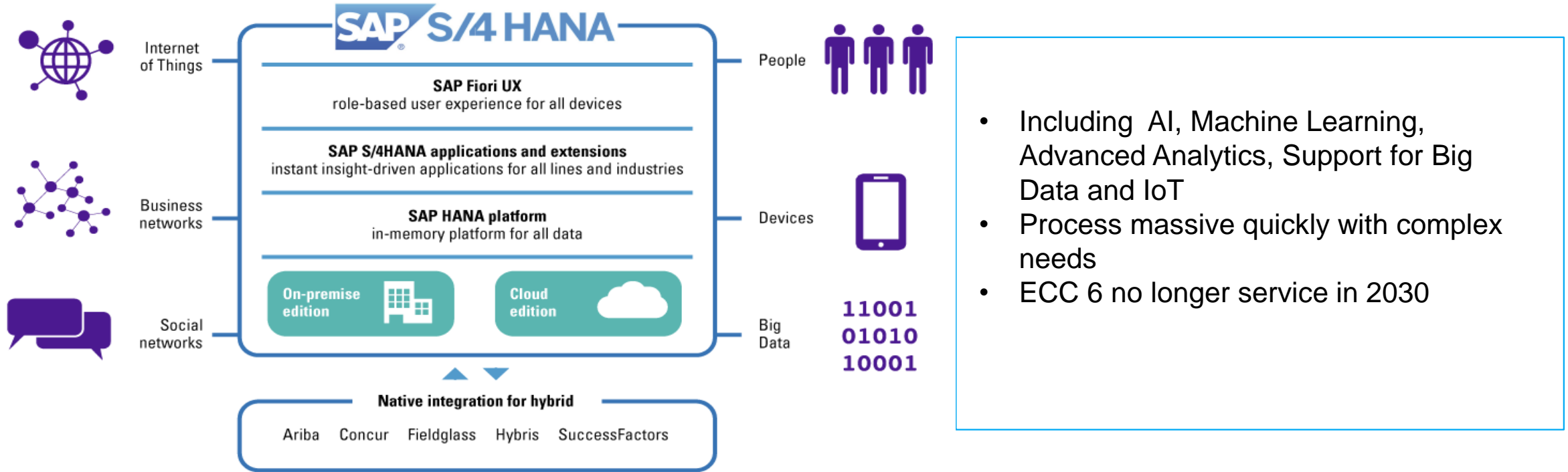


Industry Benchmark Per Capability



Cyber Security Roadmap





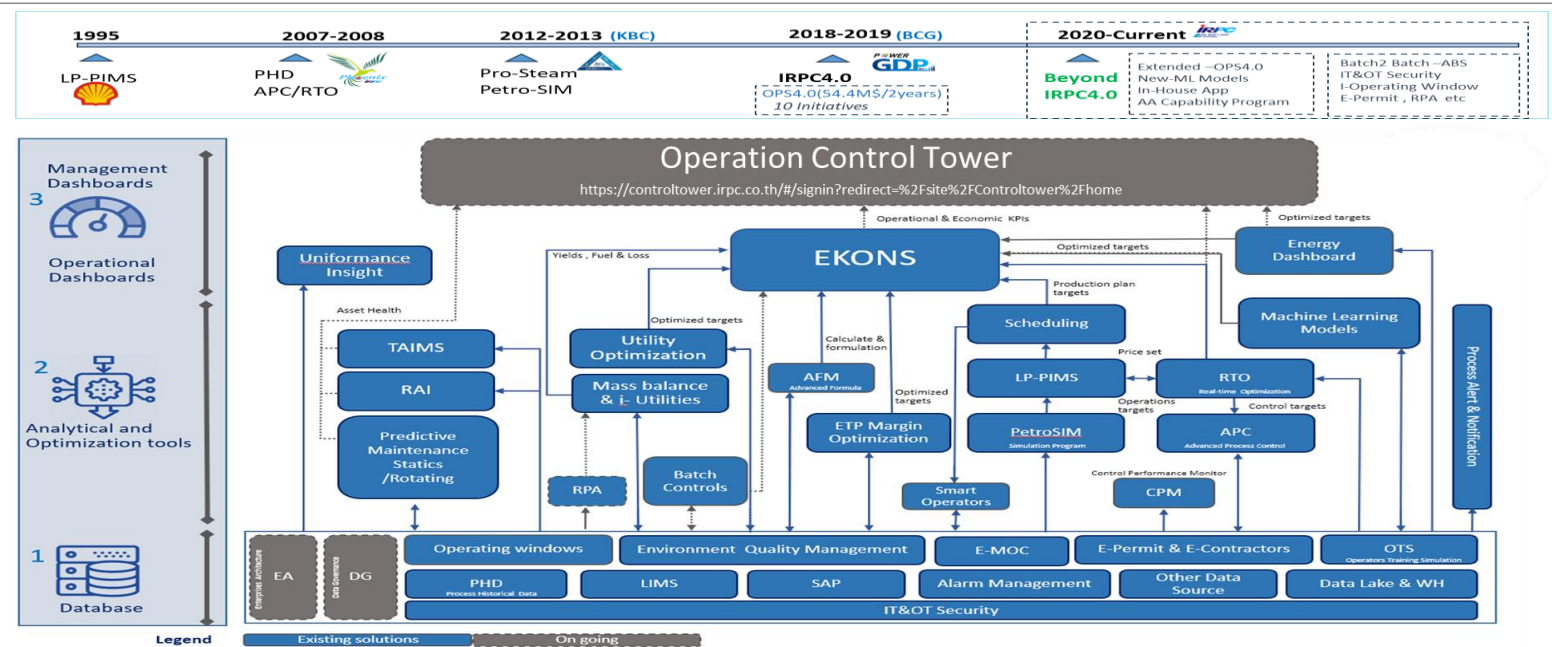
- Including AI, Machine Learning, Advanced Analytics, Support for Big Data and IoT
- Process massive quickly with complex needs
- ECC 6 no longer service in 2030

Implementation Plan	2026	2027	2028	2029 Onwards	Total (MB)
Description	Project requirement & TOR for implementation	Vendor Selection Implementation 16 Months		License Fee	
		April : Implement	Q3 Go-Live		
Capex(MB)	40	360			400
Opex(MB) License Fee + Back up		70	150+40	150+40	

	Risk item	Risk Event	Risk Level		KPI	Rationale
			Start	Target		
O4	<b>Water management Risk</b>	<b>Y2023</b> <ul style="list-style-type: none"> <li>An accident or insufficient maintenance</li> <li>The water distribution system and IP water treatment plant upgrade project is not progressing as planned</li> </ul>	H23	M13	<ul style="list-style-type: none"> <li>There is sufficient water supply for production and consumption in the industrial park (89,668 m3/d)</li> </ul>	
	<b>STS 2024</b> <ul style="list-style-type: none"> <li>Balance Water Supply &amp; Demand 86,000 M3/day</li> <li>Water Recycle &gt;15%</li> <li>No complain from community about water conflict</li> </ul>	<b>Y2024</b> <ul style="list-style-type: none"> <li>Drought</li> <li>Irrigation department reduces water withdrawal quota</li> <li>Aging water pipelines are malfunctioning.</li> <li>Water treatment plant capacity is limited due to reservoir constraints.</li> <li>3Rs project (Actual recycling rate: 15%)</li> <li>Plans to reduce natural water withdrawal</li> </ul>	H23	M13		

## Operational Sustainability

### D Smart Operation Enabler



### E Climate Change

2024	2025	2026	2027 - 2030
Reduce Emission Scope1 : Energy efficiency improvement			
Reduce Emission Scope2 : Transform to renewable energy (Floating solar)			

### F Water Crisis Management

- Increase reservoir capacity 3.26 to 4.0 Mm<sup>3</sup>
- Ground water supply 55,000 m<sup>3</sup>/d (275 stations)
- Increase 40"-WP pipeline 96,000 to 108,000 m<sup>3</sup>/d
- Increase IP filtration plant 24,000 to 96,000 m<sup>3</sup>/d (Water on demand/Self rely)
- Recycle wastewater 2,000 m<sup>3</sup>/d



# Relative of Corporate Risk 2023 and 2024

## Key Point for Corporate Risk 2024

- Accelerate business ecosystem
- Develop talents for special project
- Shift to high specialty product portfolio
- Path to support net zero emission
- Protect value under price volatility from VUCA
- Secure cyber attack
- Performance Core Uplift
- Drought conditions

	Corporate Risks 2023	Level of Risk	
		Start	Target
Strategic Risk	S1. People Enabler Risk	H32	M22
	S2. Strategic Project Risk	H33	M31
	S3. Specialty product Risk	E34	H23
	S4. Petroleum Domestic Risk	H24	H23
	S5. UCF Project Risk	H33	H33
	S6. GHG Reduction Risk	H32	M22
Business Risk	B1. Price Volatility Risk	E44	H23
	B2. Financial Risk	E34	H33
	B3. Cyber security Risk	H33	M22
Operational Risk	O1. SHE Risk	H23	M13
	O2. Plant Reliability Risk	H23	M13
	O3. Community Risk	H23	M22
	O4. Water Management Risk	H32	M22

	Corporate Risks 2024	Level of Risk	
		Start	Target
Strategic Risk	S1. People Enabler Risk	H32	
	S2. Strategic Project Risk		
	S3. Specialty product Risk		
	S4. Petroleum Domestic Risk		
	S6. GHG Reduction Risk		
	Business Risk	B1. Price Volatility Risk	
B2.2 FX Risk			
B3. Cyber security Risk			
B4. Subsidiary management Risk			
Operational Risk	O1. SHE Risk		
	O2. Plant Reliability Risk		
	O3. Community Risk (only community)		
	O4. Water Management Risk		

