

# Taskforce for Climate-related Financial Disclosures (TCFD)



Member of  
Dow Jones  
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## Climate Risk Assessment

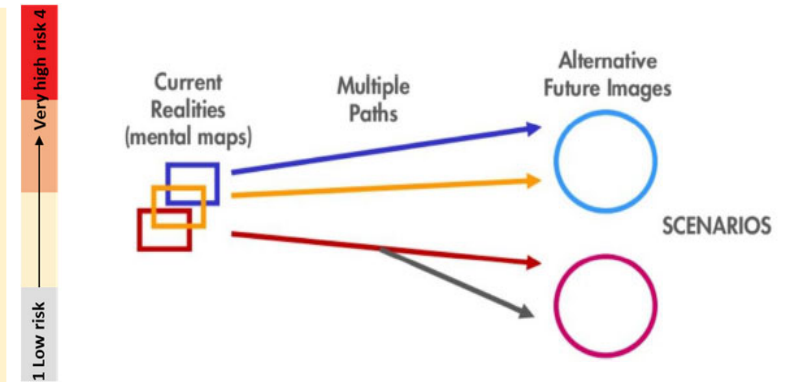
- Follow the TCFD's guidelines that split climate-related risks and opportunities into four main areas, these align with the Transition Scenario (Market, Technology, Policy, Legal and Reputation) and Physical Scenario (Physical risks)
- Risks and opportunities were evaluated for impacts only, the likelihood of impacts has not yet been considered since the timeframe of impacts is very long term and it is difficult to accurately evaluate the likelihood.

### Physical Risks

THAI NDC assumption  
RCP 8.5 assumption

- For Physical impacts comparisons were made between the baseline scenario (Thailand NDC) and the physical scenario RCP 8.5 that is the leading physical scenario.

PHYSICAL RISKS		THAI NDC ASSESSMENT			IPCC RCP 8.5 Assessment for Physical Risk		
		IRPC GROUP - NDC			IRPC - 2DS		
		2020	2030	2040	2020	2030	2040
Acute	Extreme weather events (e.g. floods, drought, hurricane)	1	1	1	1	2	3
Chronic	Implication to cost of freshwater, implication of increased temperature	1	1	2	1	2	3



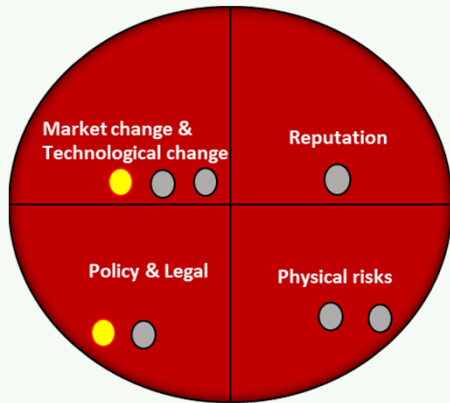
### Transition Risks

THAI NDC assumption  
2DS assumption

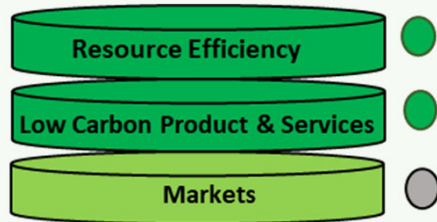
- To assess the Transition Risks, we compared the transition impacts under the baseline scenario (Thailand NDC) and the transition scenario (2DS) for transition risk and opportunities. The 2DS scenario were selected due to the popularity of 2DS and the availability of data. The qualitative judgement under the 2DS scenario were adjusted based on reports from IEA such as the World Energy Outlook.

TRANSITION RISKS		THAI NDC ASSESSMENT			IEA 2DS ASSESSMENT		
		IRPC GROUP - NDC			IRPC - 2DS		
		2020	2030	2040	2020	2030	2040
Policy and Legal Policy developments to limit GHG emissions or promote adaption	Carbon pricing and reporting obligations (i.e. likely cap and trade in Thailand) <b>Worst Case</b>	1	2	3	2	3	4
	Carbon pricing and reporting obligations (i.e. likely cap and trade in Thailand) <b>Probable Case</b>	1	1	1	1	2	2
Market Shift in supply and demand	Changing customer behavior (e.g. shift to mass transportation and EV, work at home)	1	3	3	1	3	4

- Under the 2DS the two most materials risks in 2040 are carbon pricing and changing customer behavior.
  - Under carbon pricing, two scenarios have been made: a worst case scenario in the case that IRPC does not mitigate emissions and a probable case scenario where IRPC is able to mitigate emissions.
  - Under changing customer behavior, the main risks are shift from use of virgin plastics to recycle plastics, reduced demand for plastics due to increased efficiency and change in market demand due to regulations from the Ministry of National Resources and Environment regarding banning 7 types of plastics production in Thailand



Evaluating the Significance of each Risk



Evaluating the Significance of each Opportunities  
Qualitative Analysis

Qualitative judgment using reports from IEA such as the world Energy Outlook

## Quantitative Risks

Baseline assumption  
2DS assumption

- Changing customer behavior (e.g. shift to mass transportation and EV, work at home)



The main assumptions, the customer shift from use of virgin plastics to recycle plastics in the future and The MONRE ban 7 types of plastics production in Thailand. IRPC would be impact by decreased demand for virgin plastics and increase demand for recycled plastics.

Impact Under 2DS Compared to Baseline Case	2030	2040
Financial Impact to % of Revenue	-1.51%	-4.40%

**Assumptions:** Baseline 13% of all plastics are recycled in 2013 (IEA WEO 2015). Under 2DS this will expand to 30% in 2040. This will directly impact sales (e.g. 30% impact to sales of recycled). Impact only to recyclable plastics sold by IRPC.

## Quantitative Opportunities

Baseline assumption  
2DS assumption

- Low Carbon Product & Services



IRPC planing business growth to the expansion of low emission goods and services: PPC for Electric Vehicles. Under reference assumption data that rapid increase in demand for EV from 304 million EVs in 2040 in baseline scenario to 900 million EVs in 2040 in 2DS.

Impact Under 2DS Compared to Baseline Case	2030	2040
Financial Impact to % of Revenue	+0.71%	+0.55%

