CURRENCY RISK ASSESSMENT

1. The project cost totaling $198.18 million will be financed based on a debt to equity ratio of 65:35. The Asian Development bank (ADB) is expected to finance $120.5 million in total as the development anchor money to take the lead for financial structuring for both debt and equity of the project special purpose company, the Tangsibji Hydro Energy (THyE). ADB loans will comprise (i) $70 million from the ADB's ordinary capital resources (OCR) and (ii) $50.5 million in various resources from Asian Development Fund (ADF), including a loan and a grant of $25.25 million each. Of the $120.5 million, $70.0 million (OCR) will be used for the THyE's debt portion, and $50.5 million (ADF) for the THyE's equity portion to be injected though the Druk Green Power Corporation (DGPC).[1]

2. $50.5 million (ADF) will be routed from the government of Bhutan and it will entirely be relent to DGPC to place its equity in THyE. In such a scenario, DGPC shall bear the risk of foreign exchange fluctuations. Considering the ADF's concessional terms, and the DGPC's strong balance sheet with sufficient cash flows generated for future years, any adverse exchange rate fluctuation will be in a manageable level to DGPC. The government will pass through the ADF loan's foreign exchange risks to DGPC and make earning from relending arrangement of $25.25 million grant.

3. The $70.0 million (OCR) forms 35% of the project cost, and the debt servicing will be exposed to any foreign currency fluctuation. Since the project's revenue for THyE is in Indian rupees for the power sales to the Indian offtaker, there will be the currency mismatch risk between the revenue and debt services, in particular for the ADB OCR loan. The balance of the debt is proposed from Indian commercial banks in Indian rupees; there will be no currency risks in this portion. Therefore, the project will be exposed to foreign exchange rate fluctuations of the OCR loan in a foreign currency as a residual risk, which may impact the project return positively or negatively depending on the currency movement. To mitigate this portion (i.e., 35% of the project cost), THyE agreed with the offtaker in a power purchase agreement (PPA) that a tariff adjustment mechanism in dollar term sales and purchase may be introduced sometime in the future in case the parties mutually agree with.[2]

4. Prudent financial practice requires that foreign currency debt of the project be appropriately hedged so as to minimize the risk of losses to the project on account of fluctuations in foreign exchange rates. An appropriate currency hedging level differ from project to project, but it may be adequate to have currency hedging at the level of around 80% (this is still high end of its normal range) of the foreign debt. In this regard, the following points relating to the project are given:

(i) The impact of exchange rate fluctuations of $50.5 million (ADF) for the project shall not be considered for the purpose of this analysis as the fund is routed through the government to DGPC as equity in the project, and it is concessional.

(ii) The project has foreign currency exposure by an amount of $70 million (OCR), around 35% of the project cost. PPA also stipulates that tariff adjustment mechanism in order to be paid in dollar term may be introduced sometime in future in case the parties agree with, which may be an additional mitigation.

(iii) To address the residual risk, the OCR loan can be hedged appropriately in order to minimize the adverse impact of exchange rate fluctuations on equity return to the

[1] Financing Structure (accessible from the list of linked documents in Appendix 2).
[2] The offtaker has already been engaged in some power trading in dollar terms.

shareholders in case the risk cannot fully be mitigated in PPA with the offtaker. Since the currency hedging cost between Indian rupees and foreign currencies is currently quite expensive, it will be prudent to take an appropriate time in commercially reasonable terms and conditions especially for the purpose of long term hedging.

(iv) THyE and DGPC will be required in the loan agreement that they explore a currency hedging contract for the future once it becomes available in commercially reasonable terms and conditions. In the meantime, THyE agreed to create a foreign exchange fluctuation reserve (FEFR) to meet the loan repayment and interest payment out for the following years reflecting the currency movement at the time. Each year, according to the pre-determined formula, the FEFR will be accumulated up to a “maximum reserve amount” determined as the difference between the outstanding amount of the OCR loan in the prevailing exchange rates and that adjusted by the base year exchange rates. The pre-determined formula for each year’s accumulation will allow THyE to capture residual cash from the project, before distribution of dividends, of an amount equal to 75% of the foreign exchange fluctuation loss realized in the preceding year. Even in the case of the year with the foreign exchange fluctuation gain, 25% of such amount shall be transferred to FEFR in the following year. This cumulative reserve fund will effectively help mitigate the foreign exchange risks associated with the repayment of foreign currency denominated loans.

5. To evaluate the impacts of the currency risk, additional sensitivity analysis was carried out. Table 1 summarizes the project’s financial robustness on debt servicing under constant depreciations of the Indian rupees against the dollars. Financial analysis of the project cash flows shows that the project will generate sufficient revenues to meet the debt servicing requirement of the project even considering a very pessimistic scenario of 3.5%[3] and 7%[4] annual constant depreciations of the Indian rupee against the dollar over the tenure of the OCR Loan repayment (25 years). However, the returns to the equity shareholders of the project might be unfavorably impacted in these scenarios.

Table 1: Debt Service Coverage under Currency Depreciations

($ million)

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
In Dollar Terms Debt Servicing ($)[a]	5.7	5.6	5.5	5.4	5.2	5.1	5.0	4.9	4.8	4.6	4.5	4.4
CASE 1: In Rupee Terms (Exchange rate depreciation at 3.5% per annum)												
Ex Rate at 3.5% Depreciation p.a.[b]	76	79	82	85	88	91	94	97	101	104	108	111
Debt Servicing (Rs) at 3.5% Dep.p.a.	436	442	448	454	459	464	469	474	478	483	487	490
Excess Cash After Debt Servicing (Rs)	933	1,129	1,319	1,511	1,694	1,872	2,047	2,252	2,484	3,430	4,333	5,283
CASE 2: In Rupee Terms (Exchange rate depreciation at 7% depreciation per annum)												
Ex Rate at 7% Depreciation p.a.[2]	96	103	110	118	126	135	145	155	166	177	190	203
Debt Servicing (Rs) at 7% Dep. p.a.	551	577	604	632	662	692	723	755	788	822	857	892

[3] This is based on the depreciation of the Indian rupee with respect to the US dollar over the past 10 years.

[4] Based on the purchasing power parity theory, the 7% annual constant depreciation is assumed on an international inflation of 1.3% and a local inflation of 8.3% per annum.

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Excess Cash After Debt Servicing (Rs)	752	813	847	860	840	791	711	636	559	1,165	1,699	2,246

Dep = depreciation, Ex Rate = exchange rate, p.a. = per annum.
[a] Includes debt services to ADB OCR loan.
[b] The prevailing base exchange is taken at Rs. 60 per $1.0.
Source: Asian Development Bank estimates.

6. This analysis demonstrates that the project will be able to generate sufficient cash flows even in case there is 7% depreciation per annum of Indian rupee against the US dollar, which is the extreme scenario. In this case, the returns to the shareholders would get affected and thus it would be required to hedge the foreign currency loan to protect the equity return to the shareholders once it becomes available in commercially reasonable terms and conditions. Taking into consideration the above analysis, the following risk mitigations are appropriate:

(i) ThyE and DGPC will explore the modification of current tariff adjustment mechanism in PPA for the revenue to be paid in appropriate foreign currency to match the portion of the foreign currency loan to be exposed to any related risks as stipulated in PPA;
(ii) THyE and DGPC will explore a currency hedging contract for the future once it becomes available in commercially reasonable terms and conditions, especially for the purpose of long term hedging;
(iii) In the meantime, THyE will create FEFR to meet the loan repayment and interest payment for the following year(s) reflecting the currency movement at the time.