

Annexure A: Questionnaire for the research.

This questionnaire is a part of the research on “**Evaluating Preparedness and Overcoming Challenges in Electricity Trading: An In-Depth Analysis Using the Analytic Hierarchy Process and a Case Study Exploration**”. It has been designed to gather the perceptions of key stakeholders working in the energy sector in Nepal regarding various issues surrounding Nepal’s efforts in trading electricity across the border. We would like to request you to contribute to this research by filling out this questionnaire. Before starting to fill it out in the next page, please go through the following details.

Below is a list of the identified barriers in cross-border energy trade in the context of Nepal. The identified barriers have been classified into four groups.

Technical Barriers (TBs)

- a) Lack of sufficient number of cross-borders interconnections (TB1)
- b) Rising domestic generation (including solar power) in India (TB2)
- c) Lack of generation capacity for fulfilling domestic demand in dry season (TB3)
- d) Lack of grid code synchronization between Nepal and its neighbours (TB4)

Financial Barriers (FBs)

- a) Relatively higher cost of hydro energy (FB1)
- b) Need for huge investment for construction of cross-border interconnection (FB2)
- c) Declining cost of renewable energy (especially solar power) in India (FB3)

Policy Barriers (PBs)

- a) No provision of cross-border ET in Electricity Act 1992 (PB1)
- b) Lack of private sector involvement in CBET (PB2)
- c) Lack of open and non-discriminatory transmission grid access for CBET (PB3)
- d) Absence of regional mechanisms (market modality) for cross-border electricity trade (PB4)
- e) Lack of domestic power sector reforms (PB5)
- f) Ambiguous policies related to CBET issued by India to control trading in the region and threat of similar policies in future (PB6)
- g) No separate supranational institution/entity responsible for CBET in South Asia sub-region (PB7)
- h) Lack of regulatory harmonization (PB8)

Socio and Geo-Political Barriers (SGBs)

- a) Internal pressure of prioritization of domestic consumptions over export (SGB1)
- b) Lack of continuity in political support for hydro project development and weak political capacity to facilitate regional electricity cooperation (SGB2)
- c) Energy security concerns and trust deficit issues (SGB3)
- d) Electricity transit facilities via India’s grid to export power from Nepal to Bangladesh (SGB4)

Note: TBs—Technical Barriers; FBs—Financial Barriers; PBs—Policy Barriers; SGBs—Socio and Geopolitical Barriers; CBET—Cross-Border Electricity Trade, ET—Electricity Trade.

How to make scores on the questionnaire? Please tick (✓)the suitable box of the tables on the next page and ahead.

Saaty's Scale	Definition
1	Equally Important (Eq. Imp.)
3	Weakly Important (W. imp.)
5	Fairly Important (F. imp.)
7	Strongly Important (S. imp.)
9	Absolutely Important (A. Imp.)
2	Intermediate value between 1 and 3
4	Intermediate value between 3 and 5
6	Intermediate value between 5 and 7
8	Intermediate value between 7 and 9

Demographic Details

1. Age

- a. 25- 39 b. 40- 50 c. 51-55 d.
Above 55

2. Number of Years of Experience in the energy sector

- a. Less than 5 Years b. 5-10 yrs c. 10-20 yrs d. 20
and above

3. Academic Qualification

- a. Bachelor b. M. SC/Master c. Ph.D running d. Ph D.
completed

4. Gender

- a. Male b. Female

5. Affiliation

- a. NEA b. IPPs c. Ministry of Energy and under this d. Government-Owned
Companies e. Donor

Directions to fill out the questionnaire:

- You will conduct a pairwise comparison of the barriers listed in the previous pages.
- For example, if, as per your understanding, TB1 is a more important barrier than TB2, then you will check mark the left side of the table below on one of the boxes with a score from 2 to 9.
- But if you consider TB2 to be a more important barrier than TB1, then you will check mark the right side of the table on one of the boxes with a score from 2 to 9.
- If, as per your understanding, TB2 and TB1 are of equal importance, then you will check mark the centre column (Equally Important) with a score of 1.
- A sample with a score of 5 is shown, implying that TB1 is **Fairly Important** compared to TB2.
- The score (2 to 9) will depend on your judgment of the importance while comparing the two factors. Please refer to the Saaty's Scale on the previous page for scoring.



1. Pairwise comparison of **Technical Barriers (TBs)**

If TB1> TB2 and so on								Criteria	Eq. Imp (1)	Criteria	If TB2>TB1 and so on							
9	8	7	6	5	4	3	2				2	3	4	5	6	7	8	9
								TB1	✓	TB1								
				✓				TB1		TB2								
								TB1		TB3								
								TB1		TB4								
								TB2	✓	TB2								



2. Pairwise comparison of Financial Barriers (FBs)

If FB1> FB2 and so on									Criteria	Eq. Imp (1)	Criteria	If FB2>FB1 and so on								
9	8	7	6	5	4	3	2	2				3	4	5	6	7	8	9		
								FB1	✓	FB1										
								FB1		FB2										
								FB1		FB3										
								FB2	✓	FB2										
								FB2		FB3										
								FB3	✓	FB3										

3. Pairwise comparison of Policy Barriers (PBs)

If PB1> PB2 and so on 									Criteria	Eq. Imp (1)	Criteria	If PB2>PB1 and so on 								
	9	8	7	6	5	4	3	2				2	3	4	5	6	7	8	9	
									PB1	✓	PB1									
									PB1		PB2									
									PB1		PB3									
									PB1		PB4									
									PB1		PB5									
									PB1		PB6									
									PB1		PB7									
									PB1		PB8									
									PB2	✓	PB2									
									PB2		PB3									
									PB2		PB4									
									PB2		PB5									
									PB2		PB4									
									PB2		PB5									

5. Pairwise comparison of **Barriers**

If TB > FB and so on 									Criteria	Eq. Imp (1)	Criteria	If TB < FB and so on 								
	9	8	7	6	5	4	3	2					2	3	4	5	6	7	8	9
									TB	✓	TB									
									TB		FB									
									TB		PB									
									TB		SGB									
									FB	✓	FB									
									FB		PB									
									FB		SGB									
									PB	✓	PB									
									PB		SGB									
									SGB	✓	SGB									

Thank You!

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