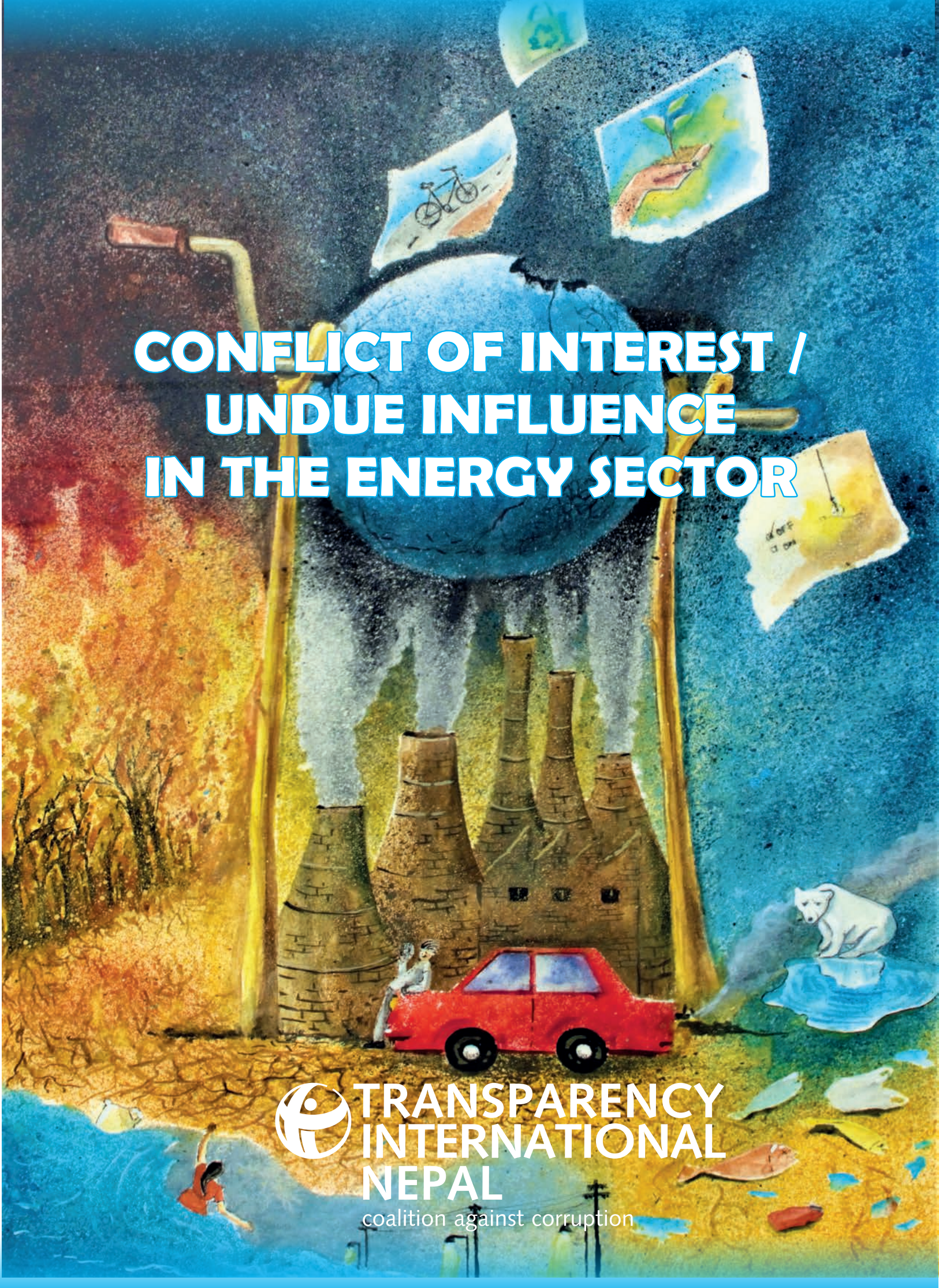




CONFLICT OF INTEREST / UNDUE INFLUENCE IN THE ENERGY SECTOR



**TRANSPARENCY
INTERNATIONAL
NEPAL**

coalition against corruption

CONFLICT OF INTEREST / UNDUE INFLUENCE IN THE ENERGY SECTOR

Report : CONFLICT OF INTEREST / UNDUE INFLUENCE IN THE ENERGY SECTOR

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FOREWORD

Transparency International (TI) Nepal, founded in 1996, is a civil society organization dedicated to increasing public accountability and curbing corruption in Nepal. It is the national chapter of the global anti-corruption movement led by Transparency International. TI-Nepal focuses on policy advocacy, research, coalition building, and public sensitization as its core areas of operation. It implements various programs that aim to promote integrity and governance on thematic and sectoral fronts, with climate change being one of them.

TI-Nepal's Climate Governance Integrity Programme (CGIP) is part of a multi-country program launched by the Transparency International Secretariat in 2023. It is designed to ensure climate finance is governed with integrity, transparency, and accountability so that the most vulnerable communities can adapt to the climate crisis. By emphasizing a bottom-up approach considering the chapter's national objectives on climate governance, the CGIP is articulated around three outcomes: climate policy (so that policy-making processes relating to climate action are more transparent, accountable, and inclusive), climate action (so that there is improved accountability, integrity, and oversight of climate-related action globally and locally), and climate justice (so that there are improved justice outcomes for victims of environmental crime and corruption). Embedded in all these actions is a special emphasis on under-represented groups, including women, rural populations, poor households, and young people, who are disproportionately affected by corruption in climate change.

This TI-Nepal study titled 'Conflict of Interest (Col)/Undue Influence in the Energy Sector', under the CGIP highlights prevailing Col scenarios and provides necessary policy recommendations to mitigate such situations. The study has been possible through financial support from the Waverly Street Foundation under Transparency International's Climate Governance Integrity Programme (CGIP).

TI-Nepal acknowledges the efforts made by consultant researcher, Ms. Sheela Sharma, to prepare this report on an important topic. Guidance received from member (Senior Environmental and Social Safeguard Expert) Dr. Anusuya Joshi is highly appreciated.

The report benefited from consultations held with senior officials of the Ministry of Energy, Water Resources and Irrigation; Water and Energy Commission Secretariat (WECS); GCF Readiness Project at the Alternative Energy Promotion Center; Least Developed Countries (LDCs) office at the UNFCCC. We thank individuals, organizations, and government offices, who provided their valuable time during meetings and workshops.

Padmini Pradhananga
President
Transparency International (TI) Nepal

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Lastly, I appreciate Mr. Manjeet Dhakal, Advisor to the Least Developed Counties (LDCs) Chair at the UNFCCC, who have contributed their valuable support towards completion of the work. Thank you all for your commitment to excellence and for making this research endeavor a rewarding experience.

ABBREVIATIONS

ADB	Asian Development Bank
AEPC	Alternative Energy Promotion Center
BES	Brief Environmental Study
CC	Climate Change
CCFU	Climate Change Finance Unit
CO ₂	Carbon dioxide
ColS	Conflict of Interests
EA	Environmental Assessment
EIA	Environmental Impact Assessment
GCF	Green Climate Fund
GHGs	Greenhouse gases
GLOFs	Glacial Lake Outburst Floods
GoN	Government of Nepal
IEE	Initial Environmental Examination
IPCC	Intergovernmental Panel on Climate Change
MoEWRI	Ministry of Energy, Water resources & Irrigation
MoF	Ministry of Finance
MoFE	Ministry of Forests and Environment
NEA	Nepal Electricity Authority
NPC	National Planning Commission
RETs	Renewable Energy Technologies
SDG	Sustainable Development Goal
UN	United Nations
UNFCCC	the United Nations Framework Convention on Climate Change
WBG	the World Bank Group
WECS	Water & Energy Commission Secretariate

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EXECUTIVE SUMMARY

Energy sector plays a vital role for economic development and foster economic growth of the country. The substantial expansions in the economy have led to the rapid increase in energy consumption. Although, consumption of energy lever to achieve sustainable development, unsustainable usage of energy sources deteriorates global environment. This includes overexploitation of resources, especially renewable resources and pollution due to greenhouse gases emission (GHGs).

Emissions of greenhouse gases and unsustainable human activity have contributed significantly to climate change acceleration. Thus, long-term risk mitigation and adaptation strategies are vital to lowering the likelihood of a climate calamity in the future. Although, Nepal's contribution to global climate change is insignificant but it is one of the most vulnerable countries in terms of the impacts. Due to the wide-ranging effects of climate change in Nepal, collaboration and consideration are required in a number of domains, including development planning, policy, and governance.

To regulate the energy sector and to achieve carbon neutral society, the Nepal government has formulated and issued number of policies, sectoral-policies, acts, rules, laws, and plans. Also, Nepal has been a party of a number of multilateral and bilateral agreements such UNFCCC under which Paris Agreement. Nepal has adopted a Net-zero carbon emission approach to transition towards greener energy and also to address the impacts of climate change. The initiatives encompass the promotion of electric vehicles, electric cooking stoves, renewable energy, and forest conservation. Tax adjustments on, EVs, particularly the reduction in taxes on larger cars, highlight inconsistencies in government actions. These changes may undermine efforts to promote EV adoption and achieve sustainability goals. Also, challenges exist in transitioning to electric appliances, such as induction stoves and heaters, include high upfront costs and reliability issues related to electricity supply.

As the nature of energy production, delivery, and consumption is complex and interconnected, conflicts of interest or undue influences has been a recurrent problem in energy-related initiatives and sectors. Even elected business person as policymakers at all level of government has also introduced conflicts of interest. Such conflicts of interest/undue influence can jeopardize the integrity and legitimacy of decision-making in both national and international legal forums. Additionally, the government's decision to install petroleum pipelines and also making changes in EVs taxes shows that government's vision of energy transitioning can be compromised if not addressed comprehensively. Thus, it's critical to comprehend conflicts of interest in order to identify possible obstacles to Nepal's continuous attempts to combat climate change and transition to renewable energy sources.

Maintaining transparency and good governance in energy and climate change regulatory, requires a multifaceted approach, including enhancing transparency, aligning policies with sustainability goals, promoting renewable energy adoption, and strengthening coordination mechanisms to mitigate conflicts of interest and advance Nepal's energy sector towards a sustainable future.

कार्यकारी सारांश

देशको आर्थिक विकास र प्रवर्द्धनका लागि ऊर्जा क्षेत्रले महत्वपूर्ण भूमिका रहन्छ। अर्थतन्त्रमा भएको उल्लेखनीय विस्तारले ऊर्जा खपतमा तीव्र वृद्धि भएको छ। यद्यपि, दिगो विकास हासिल गर्न ऊर्जाको खपत, ऊर्जा स्रोतहरूको दिगो निरन्तर प्रयोगले विश्वव्यापी वातावरणलाई बिगाउँछ। यसमा स्रोतहरूको अत्यधिक दोहन, विशेषगरी नवीकरणीय स्रोतहरू र हरितगृह ग्यास उत्सर्जनको कारण प्रदूषण समावेश छ।

हरितगृह ग्यासको उत्सर्जन र दिगो मानव गतिविधिले जलवायु परिवर्तनको गतिमा महत्वपूर्ण योगदान पुऱ्याएको छ। तसर्थ, दीर्घकालीन जोखिम न्यूनीकरण र अनुकूलनका रणनीतिहरू भविष्यमा जलवायु प्रकोपको सम्भावनालाई कम गर्न महत्वपूर्ण रहन्छन्। विश्व जलवायु परिवर्तनमा नेपालको योगदान नगण्य भए पनि प्रभावका हिसाबले सबैभन्दा जोखिममा रहेका मुलुकहरूमध्येको एक हो। नेपालमा जलवायु परिवर्तनको व्यापक प्रभावका कारण विकास योजना, नीति र सुशासनलगायत धेरै क्षेत्रमा सहकार्य र विचार आवश्यक रहेको छ।

ऊर्जा क्षेत्रको नियमन र कार्बनरहित समाज हासिल गर्न नेपाल सरकारले विभिन्न नीति, क्षेत्रगत नीति, ऐन, नियम, कानून र योजना तर्जुमा गरी जारी गरेको छ। साथै, नेपाल बहुपक्षीय र द्विपक्षीय सम्झौताहरूमा पनि सामेल छ, जस्तै UNFCCC अन्तर्गत पेरिस सम्झौता। नेपालले हरित ऊर्जालाई प्रवर्द्धन गर्न र जलवायु परिवर्तनका असरहरूलाई सम्बोधन गर्न शून्य कार्बन उत्सर्जन गर्ने दृष्टिकोण अपनाएको छ। यसले विभिन्न पहलहरू समेटेछ। जस्तै: विद्युतीय सवारीसाधन, विद्युतीय खाना पकाउने चुलो, नवीकरणीय ऊर्जा र वन संरक्षण। विद्युतीय सवारीसाधनमा कर समायोजन, विशेषगरी ठूला कारहरूमा कर कटौती, सरकारी कार्यहरूमा असमानता लाई सम्बोधन गर्दछ। यी परिवर्तनहरूले EV ग्रहण प्रवर्द्धन र दिगोपन लक्ष्यहरू प्राप्त गर्ने प्रयासहरूलाई कमजोर पार्न सक्छ। साथै, Induction Stove र हिटरजस्ता विद्युतीय उपकरणहरूमा संक्रमण गर्नमा चुनौतीहरू अवस्थित छन्, जसमा उच्च अग्रिम लागत र बिजुली आपूर्तिसँग सम्बन्धित विश्वसनीयताका समस्याहरू समावेश छन्।

ऊर्जा उत्पादन, वितरण र उपभोगको प्रकृति जटिल र अन्तरसम्बन्धित भएकाले ऊर्जासम्बन्धी पहल र क्षेत्रहरूमा स्वार्थको द्वन्द्व वा अनुचित प्रभाव बारम्बार हुने समस्या रहेको छ। सरकारका सबै तहमा नीति-निर्माताका रूपमा निर्वाचित व्यापारीहरूले पनि स्वार्थको द्वन्द्व ल्याएका छन्। त्यस्ता स्वार्थको द्वन्द्व, अनावश्यक प्रभावले राष्ट्रिय र अन्तर्राष्ट्रिय कानुनी फोरमहरूमा निर्णय गर्ने अखण्डता र वैधतालाई खतरामा पार्न सक्छ। साथै, पेट्रोलियम पाइपलाइनहरू जडान गर्ने सरकारको निर्णय र विद्युतीय करमा पनि परिवर्तन गर्ने सरकारको ऊर्जा संक्रमणको दृष्टिकोणलाई व्यापकरूपमा सम्बोधन नगरेमा सम्झौता हुनसक्छ भन्ने देखाउँछ। तसर्थ, जलवायु परिवर्तनसँग लड्न र नवीकरणीय ऊर्जा स्रोतहरूमा संक्रमणको लागि नेपालको निरन्तर प्रयासमा सम्भावित अवरोधहरू पहिचान गर्न स्वार्थको द्वन्द्व बुझ्न महत्वपूर्ण छ।

ऊर्जा र जलवायु परिवर्तन नियामकमा पारदर्शिता र सुशासन कायम गर्न, पारदर्शिता अभिवृद्धि, नीतिहरू दिगोताका लक्ष्यहरूसँग पडिक्तबद्ध गर्ने, नवीकरणीय ऊर्जा अपनाउने प्रवर्द्धन र स्वार्थको द्वन्द्व न्यूनीकरण गर्न र नेपालको ऊर्जा क्षेत्रलाई अगाडि बढाउन समन्वय संयन्त्रलाई सुदृढ गर्नेलगायत बहुआयामिक दृष्टिकोणको आवश्यकता छ।

1. BACKGROUND

Energy, though fundamentally a physical variable, plays a crucial role in almost every facet of a social world, including survival of (AEPC, 2013). It also plays a vital role for economic development and foster economic growth of the country and the whole region. The substantial expansions in the economy have led to the rapid increase in energy consumption. Although, consumption of energy lever to achieve sustainable development, unsustainable usage of energy sources deteriorates global environment. This includes overexploitation of resources, especially renewable resources and pollution due to greenhouse gases emission (Bilgen, 2014).

Globally, the consumption of energy has been increased not just due to increased industrial consumption but due to energy consumption by the domestic or the residential sector (Kavgic, et al., 2010) . This has created huge demand on its production and supply thereby expanding energy sectors. There is, however, concerns on environmental pollution at local, regional and global scales due to emission of greenhouse gases (GHGs). According to UN Climate Action, fossil fuels such as coal, oil and gas are the largest contributor to global climate change, accounting for over 75% of the global greenhouse gases (GHGs) emissions and nearly 90% of all carbon dioxide (CO₂) emissions.

As per the Intergovernmental Panel on Climate Change (IPCC) report, global increase of CO₂ is due to fossil fuel use. Beside residential sectors, the transport sector or the vehicles predominantly uses fossil energy which contributes to GHGs emissions. It accounts for 26% of global carbon emission and is still in rise (Chapman, 2007). There is a continuous growth in such vehicles due to fuel being easily available, ease of use, have a high energy density and less costly (MacLean, Lave, & and Griffin, 2004). It has therefore contributed to increases in carbon emissions that ultimately causes change in atmospheric concentrations of GHGs, aerosols as well as change in land cover and solar radiation which potentially alters the energy balance of the climate system (IPCC, 2007). But there is myriad of alternatives to fossil fuels, more sustainable and cleaner, of which electric vehicles are one of them (MacLean, Lave, & and Griffin, 2004).

The energy sector does contribute for global climate change but it is also the most vulnerable sector to the impacts of climate change. Such as impact on hydropower plants where potential impact is in their electricity productivity due to extreme climatic conditions, uncertain precipitation regime, glacial retreat and glacial lake outburst floods (GLOFS) (WBG, 2022). GLOFS are considered to be the major risk factor in many hydro-power projects in Nepal as well so while assessing risk, such factors are also taken into consideration as per the Guidelines for Study of Hydropower Projects (2018). Different study shows that over 80% of property damage resulting from natural catastrophes may be attributed to climate-related risks, including landslides, floods, and GLOF (MoFE, 2018). Therefore, long-term measures in mitigating risk and adapting mechanisms is quintessential to reduce the risk of climate disaster in future.

Therefore, replacing fossil energy with sustainable and green source of energy such as wind, solar, biomass can help reducing GHGs in the atmosphere (Bana & Utnik-Bana, 2022). But there are always possibility of influence industry groups, businesses or influential people in the energy sector that impede or delay such transitioning which could affect climate-related policies to favors some energy sources more than others. Transition from fossil energy to renewable energy not only requires mandatory provisions to put pressure to develop cleaner energy technologies but also requires research and large-scale investments in renewable energy sector. For that reason, billions of dollars are spent annually in order to mitigate climate risks through reducing carbon emissions and the impacts in a global level. But, due to such lobbying or the undue influences, it is difficult to achieve the projected reforms as well as hinder plans.

In the context of Nepal, although the contribution to global climate change is only around 0.027% of total global emissions (MoPE, 2016), it is among the countries that are most vulnerable to climate change and its effects (IPCC, 2007) (WBG & ADB, 2021) (GoN, 2020). Such effects include severe water-induced disasters and extreme hydro-meteorological events, such as drought, floods, landslides, displacement of people, food shortages, affliction of climate-sensitive infectious diseases (Bhandari, Bi, Sherchand, Dhimal, & and Hanson-Easey, 2020). Such disasters are expected to increase in the Asian region due to projected changes in the hydrological cycle and its effects are maximum in communities with low adaptive capacity (WBG & ADB, 2021).

Nepal has also set the target of Net-zero carbon emission by 2045, which would be 5 year earlier than the global target. Different mechanisms have been adopted to meet the target such as decarbonization of transport sector, promotion of renewable energy (solar, hydro-electricity, biomass) for all the purposes and total electrification. The promotion of EVs is reflected in different sectoral policies and plans related to transport, climate and energy. Simultaneously, the target of total electrification is in progress which will support in switching to e-vehicles and also e-cooking in residential sector. These targets are aligned with Paris agreement and are submitted as a second nationally determined contribution (NDC) (GoN, 2020). Energy sector and sub-sectors are those that emits GHGs but are also highly impacted in return by the change in climatic conditions. In order to address the risk and to mitigate the impacts, sustainable financial support is needed not limiting the inter-sectoral coordination (MoF, 2017).

This is due to energy sector being a viable sector where nature of energy production, distribution, and consumption being a complex and interconnected so conflict of interests (COIs)/ undue influences are persistent. Such COIs/undue influence arises when more than two parties have conflicting interests, which can compromise the legitimacy and integrity of decision-making in both national and international legal forums (Dabacher, Stilwell, & McGee, 2019) (Anne Peters , 2012). Initiatives such as carbon pricing or emissions trading systems may be the focus of lobbying activities. Sectors that emit large amounts of greenhouse gases can oppose policies that increase their operational expenses. These involves actors of three societal spheres, namely, politics, civil society and the market (Eichenauer & Gailing, 2022). Managing and preventing such COIs and undue influence plays a pivotal role in ensuring good governance and decision-making (Dabacher, Stilwell, & McGee, 2019). So, gaining a clear understanding of COIs is essential for identifying possible impediments to ongoing efforts to address climate change and transition to renewable sources of energy in Nepal.

2. OBJECTIVE OF THE STUDY

The overall objective of the study is to understand the existing conflict of interest in policies related to energy sector of Nepal.

The specific objectives are outlined below:

- I. To understand the present scenario of energy consumption and supply in Nepal;
- II. To identify if any conflicts of interest exist while implementing the energy related policy;
- III. To reflect about existing Conflict of Interests and undue influences and existing policies and strategies to mitigate such trends; and
- IV. To provide recommendation to the policy makers to strengthen rules or code of conduct for promoting responsible and sustainable energy practices in Nepal.

3. SCOPE OF THE STUDY

- Review policies, laws, acts, regulations, strategies, plans related to energy, especially alternative energy;
- Assess the latest energy consumption scenario in Nepal and compare between previous years
- Assess the current status of electric vehicles and usage of e-cooking in Nepal
- Analyze existing conflict of interest and undue influences in the energy sectors and sub-sectors
- Interact with relevant stakeholders and personals on understanding the present status, issues, gaps and challenges in the energy sector
- Provide policy recommendations to improve efficacy and transparency.

4. METHODOLOGY

The study was based on secondary research study such as literature reviews of energy related international research papers; and national Policies, plans, Acts, rules, regulations, and more. As Nepal is a party to different multilateral and bilateral agreements related climate and energy, international frameworks were also taken into consideration. Beside these, annual progress reports of relevant entities such as Alternative Energy Promotion Centre (AEPIC), Nepal Electricity Authority (NEA) or data from Nepal Oil Corporation were reviewed to know the present status of their projects and more. News articles from different portals were also accessed to understand the present situation of EVs and contradiction of policy in actual implementation phase.

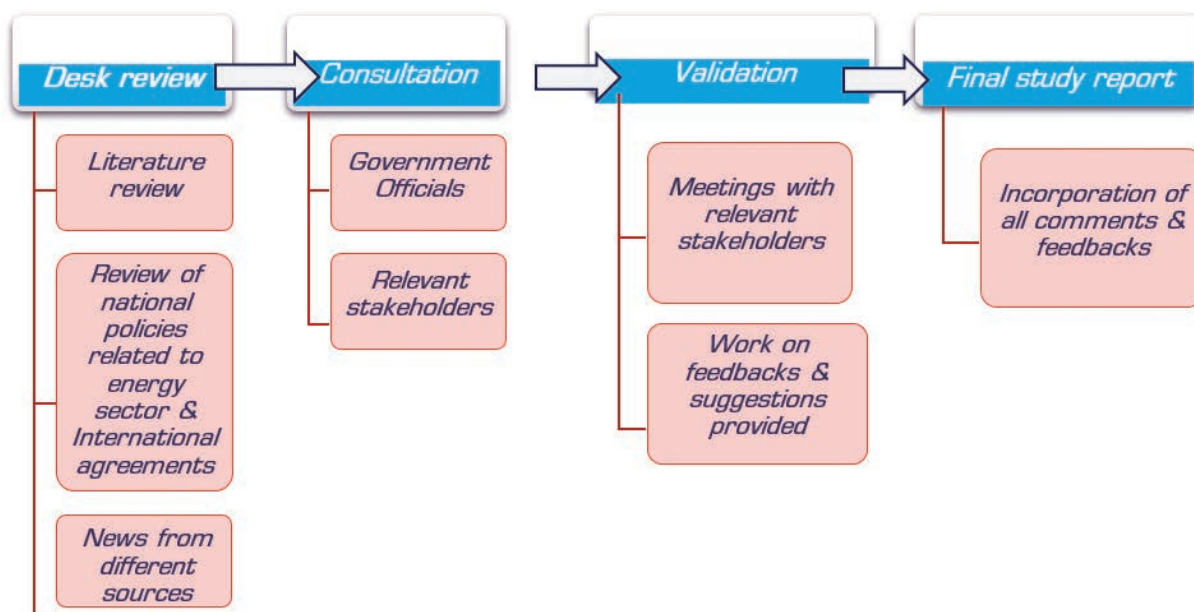


Figure 1: Methodology of the Study

Additionally, news articles published in national daily and online news portal were also reviewed which were based primarily on electric vehicle, their issues like taxation and more. Key informant interviews were conducted with government officials and representatives from INGOs (Annex). Information and suggestions were also drawn from a workshop organized by Transparency International Nepal (TIA) on 4th December, 2023 and through validation meeting on 15th January, 2024. Additional comments were also received through consultation with Executive team members of Transparency International Nepal on 7th March, 2024. Feedbacks and comments received from all these meetings were then incorporated in the report, finalized and then submitted by 20th March, 2025.

5. OVERVIEW OF ENERGY CONTEXT IN NEPAL

I. OVERALL ENERGY CONSUMPTION SCENARIO

In Nepal, latest (FY 2078/79) report on energy consumption (2022 AD) shows that it has reached 640 PJ, which is slightly more as compared to the year before i.e. 626 PJ (WECS, 2023). Traditional energy sources (fuelwood, agricultural residue & animal waste) still dominate the total energy consumption by 64.17%. Also, Nepal is predominantly dependent in commercial energy (28.53%) such as petroleum products, coal, biogas after traditional source of energy. While the usage of renewable energy seems to contribute less share but overall renewable energy including hydropower is in rise and that is 7.48% (Figure 2).

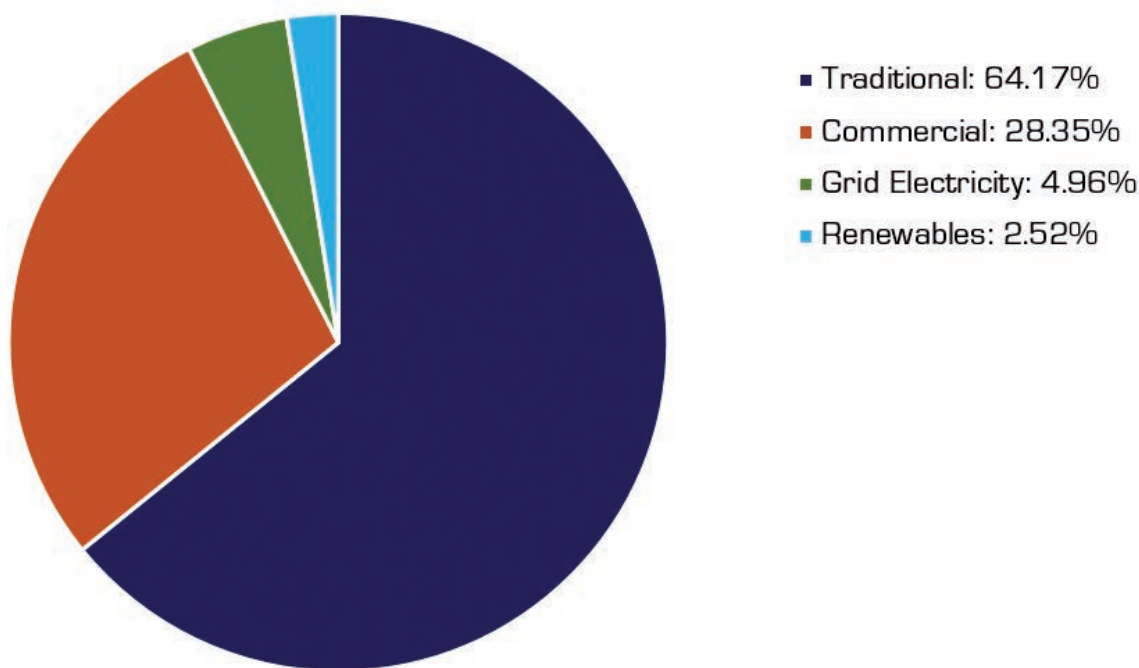


Figure 2: Overall energy consumption in 2022

As per the Hydropower Development Policy (2001), hydropower generation has not yet been fully utilized as a renewable energy source yet, despite its plenty of potential. So, it is expected to increase this rate as the government has the target of 100% electrification by 2050 which also addresses on achieving Sustainable Development Goal 7 (Annex). The national electrification status shows that 95% of population has access to electricity and it is still in progress. As compared to the last fiscal year, total electricity generation has increased by 21.7%. Out of total 2,666 MW electricity generated, hydroelectricity contributed 2,449 MW while that solar plant, sugarcane mills cogeneration produced 75.04 MW and 6 MW respectively (MoF, 2023).

In order to achieve the target, NEA has developed 8 projects having capacity of 943.1 MW and 11 planned and proposed projects that hold potential to enhance generation capacity of 3450 MW. Also, the Government of Nepal has been actively promoting the implementation of biogas plants of various capacities, including 2 cubic meters, 4 cubic meters, 6 cubic meters, and 8 cubic meters, specifically for domestic use. Since FY 2075/76, there has been only a slight increase in biogas installations and by 2078/79, there has been a cumulative of 439,547 installations. Beside these, about 355 large biogas plants has also been installed (WECS, 2023).

II. SECTORAL ENERGY CONSUMPTION

In terms of sectoral consumption of energy, the largest percentage of energy is consumed by residential sector (60.59%) followed by industrial (22.17%) and transportations (10.49%) (Figure 3). Although, more than 60% of population are engaged in agricultural activities, they do not practice energy intensive activities so the requirement of energy is less as expected. Transportation sector is largely reliant in fossil fuel and now the government has promoted Electric Vehicles (EVs) to decrease the dependency on fossil fuels.

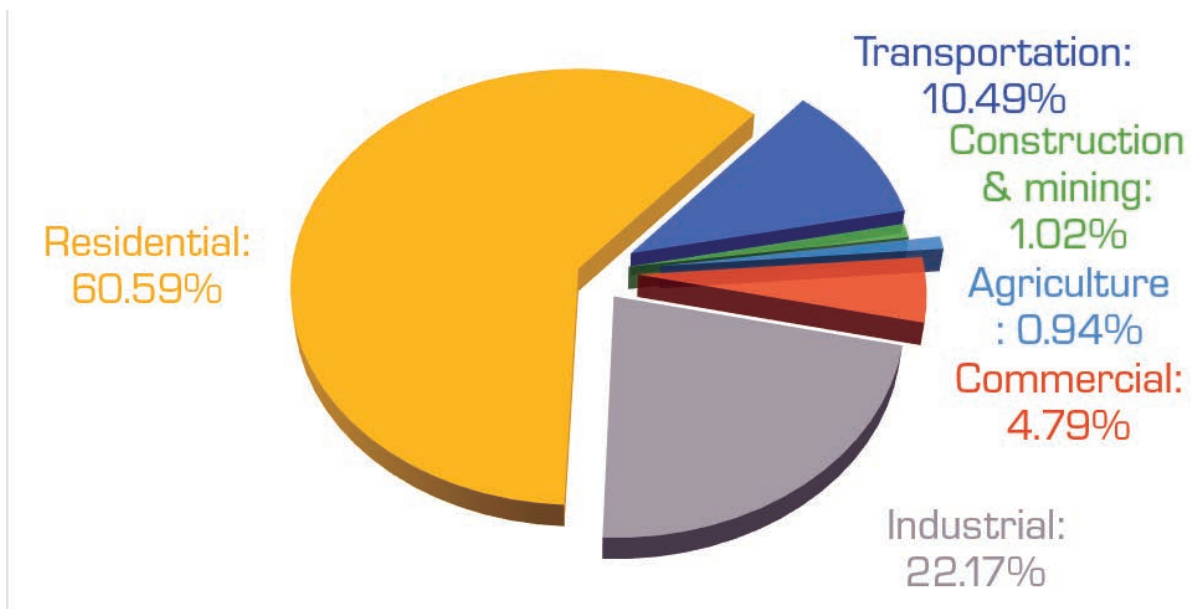


Figure 3: Energy consumption shares of different sectors in 2022

Among the largest energy consumer, the residential sector consumes largely traditional energy such as firewood, cow dung, leaves, etc. Traditional sources are followed by LPG usage where it accounts for 44% of households using it as a cooking fuel where use of electricity is less than 1% (NSO, 2023). Although, the Nepal Planning Commission developed a roadmap to achieve SDGs where one of the targets is to limiting the usage of LPG to less than 40% and promote electric cooking (100%) by 2030, its usage has doubled in the last 10 years.

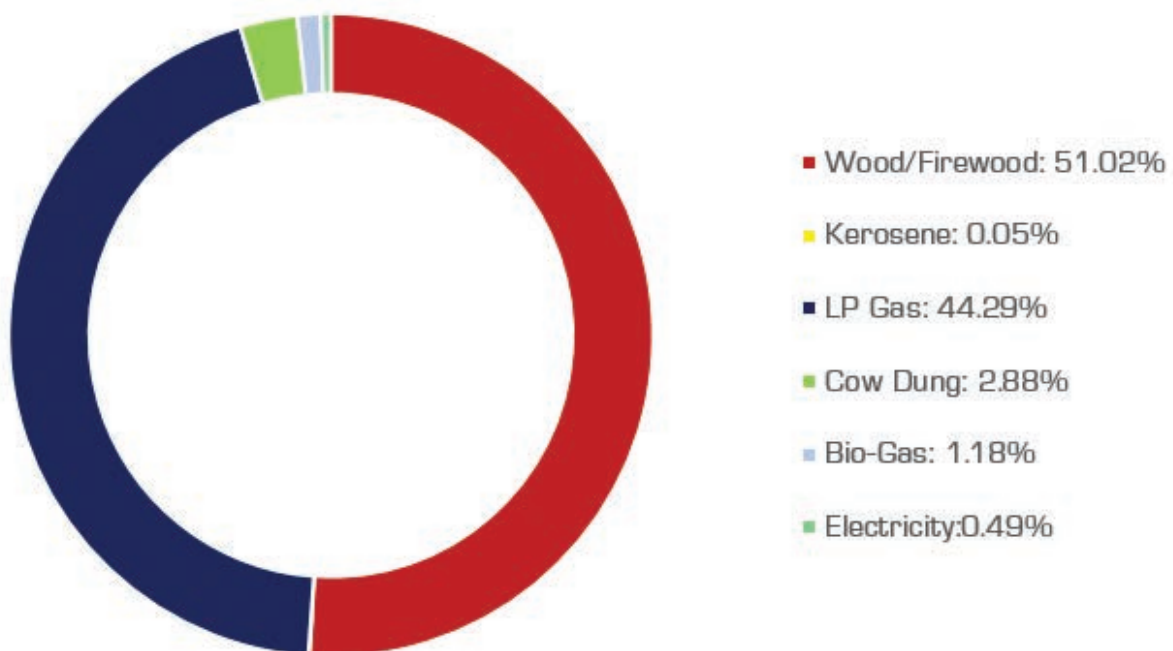


Figure 4: Households Using Types of Fuels for Cooking Purposes (NSO, 2023)

III. OVERALL PETROLEUM PRODUCTS IMPORTS

The table below clearly shows the gradual increase in the petroleum products (in kilolitres except LPG) import particularly petrol, diesel and LPG in the 10 years. This shows that there is still the demand of fossil fuels which undoubtedly contradicts the government's policy of net-zero emission by 2045, five year earlier than the global target. Energy synopsis report, 2023 states that there is an increase in petroleum imports by 15.2% annually. These petroleum products are the primary energy source for the transportation sector which ranks third in terms of energy consumption, that is 67.1 PJ of energy. While only 0.02% electric usage is covered by transportation sector.

Table 1: Petroleum products import data of 10 years (Nepal Oil Corporation)

Fiscal Year	Petrol (KL)	Diesel (KL)	Kerosene (KL)	Aviation Turbine Fuel	Light Diesel (KL)	Furnace (KL)	LPG (Metric Tonnes) (KL)z	Mineral Turpen-tine
2078/79	736276	1723557	17340	157128	-	0	536028	0
2077/78	591700	1696202	23584	72264	0	0	477752	0
2076/77	512128	1473536	18924	137424	0	0	449063	0
2075/76	566827	1714917	25004	200108	0	0	429609	0
2074/75	488675	1588869	22337	197220	0	0	370560	0
2073/74	407270	1319873	19607	164836	0	36	312928	0
2072/73	240386	785685	14194	83819	0	77	214194	0
2071/72	287473	921714	19653	141404	0	883	258299	0
2070/71	253381	808567	18409	125678	0	2172	232660	0
2069/70	223087	721203	24065	115896	260	2456	207038	0

IV. OTHER ALTERNATIVE ENERGY SOURCES

On 17th January, 2024 cabinet meeting has passed the policy to allow the production and use of green hydrogen¹. It is considered to be the cleanest energy source that can support in replacing conventional source and also aid in reducing the impact of climate change. Even global leaders have agreed on its potential to use in place of fossil fuels. It has already been in use in heavy industries across the globe. Nepal will have at least 10,000 megawatts of hydropower by 2030, with a need of about 7,000 megawatts, according to reports from governmental and commercial groups. By 2040, the overall capacity is anticipated to reach 39,000 megawatts. Therefore, excess hydropower might be used to create green hydrogen at a cost that is competitive. By 2050, it's predicted that the price per kg of green hydrogen produced would be less than \$1².

¹ https://myrepublica.nagariknetwork.com/news/cabinet-approves-policy-to-facilitate-green-hydrogen-production-and-utilization/#/google_vignette

² <https://kathmandupost.com/columns/2023/01/11/nepal-s-green-hydrogen-potential>

6. NATIONAL AND INTERNATIONAL REGULATORY FRAMEWORK PROMOTING RENEWABLE ENERGY

I. NATIONAL POLICIES PROMOTING RENEWABLE ENERGY

The Constitution of Nepal, 2015: The Constitution defines that each person shall have the right to live in a healthy and clean environment (Clause 1 of Article 30). The victim of environmental pollution and degradation shall have the right to be compensated by the pollutant as provided for by law (Clause 2 of Article 30). It prescribes for the State to give priority to the protection of the environment and prevention of its further damage due to physical development activities. Proceeding from, and conformable to, the Constitution, the Government of Nepal has passed a series of environmental laws, policies and implementing regulations and standards.

Among these, the basic legislation that provides the framework within which environmental assessment is carried out in Nepal. Article 51 (f) 3 of the constitution of Nepal has mentioned “ensuring reliable and affordable energy supply and proper utilization of energy by generation and development of renewable energy for the fulfillment of citizen’s basic needs”. It has also provided a provision of energy promotion to all three tiers of the government.

Energy Sector Vision, 2050: It aims at reducing the dependency on petroleum products and increasing the use of hydropower as the main source to meet long-term energy demands. It has target of power capacity of 4,100 MW, 11,500 MW, and 31,000 MW by 2020, 2030, and 2050, respectively. It is projected that the energy industry will need to contribute 2.4% of the nation's Gross Domestic Product to meet these targets.

White paper 2075, Ministry of Electricity, Water Resources and Irrigation: The document aims to increase the generation of hydropower and renewable energy in ten years, prepare the nation's transition to sustainable development, and increase per capita electricity consumption from 700 kWh to 1500 kWh in the next ten years. By 2021, MOEWRI aimed to produce 3000 MW of hydropower; during the next five years, it expected to increase generating capacity by 5000 MW, and in ten years, by 15,000 MW. Additionally, it projects that within the next ten years, domestic demand would rise to 10,000 MW.

The 15th Periodic Plan: This Plan targets to increase the per capita electricity consumption from 245 kWh in 2018/19 to 700 kWh in 2023/24. It expects that 35,000 megawatts of hydroelectricity and 5000 megawatts of alternative energy will be generated during this time to raise the expected target which will have a major economic impact.

Second Nationally Determined Contributions (NDC) 2020: Nepal government submitted enhanced Nationally Determined Contribution for the period 2021-2030 under the Paris Agreement on December 2020. It aligns with Articles 4.2 and 4.11 of the Paris Agreement, Decision 1/CP.21 paragraphs 23 and 24, and other relevant provisions. It covers both adaptation and mitigation actions of different sectors: agriculture, forest, energy, and transport.

The key targets include increasing energy generation from approximately 1,400 MW to 15,000 MW, with 5-10% coming from mini and micro-hydropower, solar, wind, and bio-energy. It targeted 100% electrification that is access to electricity by all the population and also targets 15%

energy demand be supplied from clean energy resources. There are targets also set by the NDC where it aims at 90% sales of EVs by 2030, development of 200 km of electricity rail network to support mass transportation of goods. Also, the focus is on raising electric cookstove usage to 25% of households by 2025 in the residential sector, installing improved cookstoves in rural areas, and promoting household and institutional biogas plants (GoN, 2020).

Hydropower Development Policy: This policy is based on the Electricity Act, 1992. This policy provides guidelines for tariff structure, appropriate technology selection and provide licensing and approval process for hydropower projects. This policy emphasizes the involvement of the private sector for the development of hydropower projects. The involvement of the private sector is essential in bridging the gap of additional capital and expertise.

Rural Energy Policy: It was promulgated to contribute to rural poverty reduction and environmental conservation by ensuring access to clean, reliable and appropriate energy in the rural areas. A strategy has been implemented to encourage community organizations and the commercial sector to disperse electricity by generating up to 1000 kW of power in rural regions. Furthermore, it also states about subsidy arrangements based on geographical condition, population, and available resources.

Renewable Energy Subsidy Policy: It focuses on gradually replacing subsidy by credit in the long-term. Similarly, it also focuses on further scaling up of Renewable Energy Technologies and achieving the objectives of the UN's "Sustainable Development Goals" and "Sustainable Energy for All". It envisions to achieve universal access to clean, reliable and affordable renewable energy solutions by 2030. In order to achieve this goal, it has adopted 4 different strategies to reduce dependence on traditional and imported energy by increasing access to renewable energy for improving the livelihoods of people and create employment opportunities especially in the rural areas.

Electricity Act: The legislation lays forth the goals for encouraging the effective production, transmission, distribution, and use of electricity for a range of uses, including commercial, industrial, and residential. It states about procedures to obtain license and also mentions about imposing penalties for those who intentionally causes harm on any electricity generation plant, transmission center, transmission line, distribution line, or other related structure.

National Energy Efficiency Strategy: It was formulated to ensure the access to affordable, reliable and sustainable energy as well as to promote sustainable production and usage. It aims at double the average annual energy efficiency rate from 0.8% to 1.68% by 2030 AD. It has been prepared to promote energy conservation, demand-side energy management, and energy efficiency. The primary focus is on modern and improved energy sources, such as hydropower, solar, wind, coal, natural gas, LPG, and other petroleum products, with the exception of biomass energy, also known as traditional energy.

National Energy Efficiency Strategy: It promotes energy efficiency by effectively implementing, energy efficiency programs through establishing policy, legal and institutional frameworks. Additionally, this strategy also addresses demand side management of energy, energy conservation, for the sustainable development of primarily modern and improved energy sources including hydropower, solar energy, wind energy, coal, natural gas, LPG and other petroleum products except biomass

energy (which is also called traditional energy). Its target is to double the energy efficiency improvement rate from 0.84% in 2000-2015 to 1.68% in 2030.

Environment Protection Rules (EPR) 1997: It defines the implementing rules and regulations of the Brief Environmental Study (BES)/ Initial Environmental Examination (IEE)/ Environmental Impact Assessment process (EIA), elaborating the provisions in the EPA. The preparation, review and approval of BES, IEE and EIA reports are dealt with in Rules 3 to 7 and 10 to 14. Schedules 1, 2 and 3 list down the projects of activities that are required BES, IEE and EIA, respectively. It clearly mentions about environmental study has to be done even if the hydropower generation is less than 1 MW but miss to state the same for other projects that are solar energy project and wind energy.

Furthermore, in the current budget speech (fiscal year 2080/81), it is stated that the promotion of green energy utilization will discourage the use of conventional energy sources and imported fossil fuels, aiming to achieve the goal of net zero carbon emissions by 2045. The adoption of clean and affordable technologies such as biogas, biodiesel, ethanol, solar energy, electric stoves, and improved stoves will be encouraged. Furthermore, the expansion of charging stations and facilitation of private sector financing to promote the use of electric vehicles will be done. Special climate projects will be launched in 43 local governments as the government believes that every monsoon affects nearly 2 million people in the country (MoF, 2023).

II. INTERNATIONAL POLICIES PROMOTING RENEWABLE ENERGY

As Nepal is party to various bilateral and multilateral agreements and initiatives related to climate change and renewable energy promotion, implementing agencies follows international policy framework as well. The following are the key international agreements and initiatives:

United Nations Framework Convention on Climate Change (UNFCCC): Nepal is party to the principal international agreement on climate change, the UNFCCC. The long-term strategy on energy and also climate change is to achieve carbon neutrality by 2050.

Paris Agreement: It is the international agreement/treaty adopted in 2015 under the UNFCCC which Nepal is a signatory party. It aims to limit global warming below 2 degrees Celsius above pre-industrial levels as per this Agreement. It acknowledges the need of emission reduction measures should be through national policies and carbon trading. As part of its Paris Agreement obligations, Nepal have to submit its Nationally Determined Contributions (NDCs), which sets specific targets and actions for reducing greenhouse gas emissions and adaptations mentioned above.

Sustainable Development Goals (SDGs): Nepal is dedicated to the SDGs, which include Goal 7 that is 'Affordable and Clean Energy' and Goal 13 (Climate Action), even if they are not specifically related to climate change. Also, as Nepal is also member of International Solar Alliance (ISA), it seeks to advance solar energy and lessen reliance on fossil fuels.

National target and goals:

- Increase in proportion of population with access to electricity to 99% in 2030
- Increase in per capita electricity consumption to 1,027 kWh in 2025 and 1,500 kWh

in 2030 Increase in installed capacity of hydropower from 782 MW to 10,260 MW in 2025 and 15,000 MW in 2030

- Increase in share of electric vehicle in public transport from 1% in 2020 to 35% in 2025 and 50% in 2050.

7. CONFLICT OF INTEREST AND UNDUE INFLUENCES IN ENERGY SECTOR IN NEPAL

Conflict of Interests and undue influences persist in Nepal's energy sector and climate change initiatives due to the intricate nature of energy production, distribution, and consumption in energy sub-sectors. Some of them are listed as follows:

- I. Contradictory policies and bureaucratic changes play a significant role in generating conflicts of interest in the energy sector. Despite Nepal's commitment to multilateral agreements on emission reduction, it continues to import fossil fuels, indicating a discrepancy between green energy goals and revenue-driven import practices. For instance, import data over a decade reveals a consistent increase in demand for fossil fuels.
- II. Elected business individuals serving as policymakers at all levels of government—federal, provincial, and local—introduce conflicts of interest. Their backgrounds in industries such as hydropower investment and construction raise concerns about biased decision-making favoring economic interests over environmental, social, and cultural considerations during policy formulation.
- III. The National Determined Contributions (NDC) aim to achieve significant electric vehicle (EV) sales by 2025, with targets set at 25% for all private passenger vehicles and 20% for public passenger vehicles. However, the current EVs share remains minimal, standing at only 1%. This is also due to the fact that to operate EVs in an effective way, it requires access to certain infrastructures such as charging stations, parking areas, and more. Due to the lack of such infrastructures around couple of Sajha buses (EVs) are stranded in different places inside Kathmandu valley.

Overall, there are around 15,000 EVs operating in the country but challenges exist in promoting EVs due to contradiction in government's initiatives. Also, cases were also recorded in Lumbini Province where EVs received from Asian Development Bank were stranded and unused for around 2 years due to legal hurdles such as acquiring the operation permit and also due to lack of operation modality .

- IV. Despite government plans to install and expand charging stations to promote EVs, simultaneous initiatives to start new petroleum pipelines raise concerns about conflicting priorities. Clear prioritization aligned with national and international commitments is essential to avoid policy contradictions. The government has signed an agreement with India to start two multi-billion new petroleum pipelines by this fiscal year. Agreement between India and Nepal was made last year for cross-border pipeline construction namely, Amlekhgunj (Bara)-Lothara (Chitwan) and Siliguri (India)-Charali (Jhapa) pipelines and one terminal in grant assistant. Additionally, they also have set the foundation

for the Motihari-Amlekhgunj Oil Pipeline Phase 2 project. This discrepancy suggests potential conflicts of interest influenced by government revenue from fossil fuel import duties.

- V. Recent government decisions to increase taxes on electric automobiles while reducing taxes on larger vehicles has undermined the decarbonization objectives. For example, taxes on EVs between 100 and 200 kilowatts have been reduced, while taxes on smaller EVs have been increased. Such actions hinder the transition to renewable energy and disregard environmental laws and sustainability goals.

Table 2: Old and New Tax rate of EVs in Nepal

EV Capacity	Customs duty – 2022/23 (%)	Customs duty - 2023/24 (%)	Excise duty – 2022/23 (%)	Excise duty – 2023/24 (%)
50 KW	10	10	0	0
50 – 100 KW	10	15	0	10
100 – 200 KW	30	20	30	20
200-300	45	40	45	45
300 KW and above	60	60-80	60	60

Source: Electric Vehicles Tax in Nepal 2023, Department of Transport Management

Even, the government has raised customs and excise taxes on electric automobiles between 50 and 100 kilowatts by 5% and 10%, respectively, in accordance with the current budget (Table 2). Cars falling into such category will now be subject to 10% excise charge and 15% customs tax. These automobiles were exempt from excise duty in the past. Businesses claim that 100-kilowatt capacity automobiles would cost 20 to 22 percent more due to the higher tax rate. This clearly shows how the government has effectively prevented the population from converting to renewable energy at a time when Nepal is expected to have an excess of electricity year-round by raising the levy on entry-level battery-powered cars.

- VI. Transitioning to electric appliances also contribute in achieving Net-zero carbon emission but there exist challenges. As electrical appliances include high upfront costs and reliability issues related to electricity supply for people especially of rural and remote areas. Challenges need to be addressed and required infrastructure such as providing required appliances along with induction stoves and upgrading voltage required to have proper usage of these stoves should be done.
- VII. Construction of hydroelectricity project with capacity less than 1 MW located inside forest area, Ramsar sites, conservation area, and buffer zone should conduct Environmental Assessment according to EPR which is mentioned in the Schedule 1, Ka (14). However, EPR doesn't mention any clauses for the solar or wind energy project under 1 MW located inside forest area, Ramsar sites, conservation area, and buffer zone. Although, in practice BES is required for solar and wind energy project less than 1 MW located inside forest area, Ramsar sites, conservation area, and buffer zone. Possibility might always be there to have undue influences as mandatory provision for solar and wind energy project has not been mentioned there.

There is a gap in EPR as it does not mention about mandatory provision of environmental study, i.e. BES for solar energy and wind energy project located inside forest areas or in conservation/buffer area. But at the same time hydroelectricity project having capacity of less than 1 MW have been mentioned under Schedule 1 (14). Although, in practice BES is required for all energy project less than 1 MW, possibility might always be there to have undue influences as mandatory provision for solar and wind energy project has not been mentioned there.

Addressing the aforementioned issues and to shift Nepal's energy sector toward a more sustainable future, a comprehensive approach that mitigates conflicts of interest and promotes the adoption of renewable energy sources, policy alignment with sustainability goals, and strengthened coordination mechanisms are required.

8. CONCLUSION & RECOMMENDATIONS

I. Conclusion:

The comprehensive analysis of Nepal's energy sector reveals multifaceted challenges and conflicts of interest. These conflicts, stemming from policy contradictions, economic influences, and bureaucratic decisions, hinder the country's transition to sustainable energy practices and impede progress towards climate goals.

- Business interests wield significant influence over climate-related regulations, potentially delaying the adoption of greener alternatives. Transparency and accountability in policy development and implementation are paramount to mitigate undue influences and ensure a fair transition to sustainable energy sources.
- Nepal's continued reliance on imported fossil fuels despite efforts to curb carbon emissions underscores the need for decisive policies to decarbonize the transportation sector and promote renewable energy sources like micro-hydro, solar PV, biogas, and improved cooking stoves. Prioritizing investment in hydropower, solar, and wind energy can reduce dependency on imported fuels and foster a greener future. Such contradictory work is against Nepal's commitment to achieve Net-zero carbon emission that can jeopardize the vehicle decarbonization target reflected in National Determined Contributions (NDCs).
- Also, as the concessions has not been provided for electric public transportation in the current budget. Reducing the tax on electric micro-buses will enable the market to thrive helping small business owners, and finance electric buses to facilitate the quick transition to renewable energy sources.
- There has been a noticeable increase in the amount of energy used by households particularly when it comes to cooking. The proportion of households utilizing electricity for cooking has increased but still households using LPGs are increasing every year.
- Policies encouraging electrification and the deployment of electric technology across sectors have to be given top priority by the Nepali government. By placing a strong emphasis on sustainable energy, the nation will be able to satisfy its expanding energy needs, sustainably and also contributing towards achieving carbon neutral society.

- The discrepancy between policy goals and actions, such as promoting electric vehicles while planning new petroleum pipelines, highlights the importance of aligning policies with national targets and international commitments. Clarity and consistency in policy implementation are essential to avoid confusion and ensure progress towards sustainability.
- To address conflicts of interest and ensure effective renewable energy development, restructuring, coordination, and capacity building at all government levels are necessary. Additionally, advocacy efforts and technical support coordination among development partners can strengthen national energy conflict resolution systems and facilitate policy implementation.

In summary, Nepal must prioritize transparency, policy coherence, and capacity building to overcome conflicts of interest and advance towards a sustainable energy future in alignment with national development goals and international climate commitments. Continued collaboration and support from stakeholders and development partners are vital for sustained progress in this endeavor.

II. Recommendations:

Transparency and Conflict of Interest Policies: As the number of business owners of different sectors (such as hydropower investors, industrialist, etc.) are in policy making level, there is a persistent possibility of COIs/undue influences in energy and/or climate-related regulations. It ultimately impedes or delays the transition to greener alternatives so, a clear guidelines and declaration is of utmost necessity.

The issue should be raised and advocated at all three tiers of government: Federal, Provincial and local to implement such guidelines.

Prioritization of Decarbonization Policies: Considering the commitments towards Net-zero carbon emission policy, priority should be towards policies aimed at promoting renewable energy. This include decarbonizing the transportation sector, promoting e-cooking and also lobby to invest significantly in not just hydropower but in solar energy, and wind energy.

Robust co-ordination and communication should be established between relevant ministries like MoF, MOEWRI and MOFE to work together in achieving the same goal. Before establishing this, series of discussions and dialogues have to be exchanged through meetings to understand the gaps or loopholes. Such activities can be facilitated by relevant stakeholders working in the energy sector.

Electric Vehicle Infrastructure: Expand the infrastructure for EVs, including charging stations and parking facilities, to encourage their adoption. Provide incentives and concessions for electric public transportation to accelerate the transition to zero-emission vehicles.

Co-ordination should be established between all the private motor companies who have been importing EVs to understand their opinions and requirements. Relevant ministries including local government, NPC, and EVs sector along with NEA should involve in discussions on development plans on how to expand EVs in more effective ways in future. This is because there are still hurdles in acquiring permit to operate EVs, less parking facilities and limited charging stations.

Policy Consistency: Ensure policy coherence by aligning government initiatives with national targets and international commitments. Address contradictions between policies, such as promoting EVs while investing in petroleum infrastructure, to provide clarity and consistency in the transition to sustainable energy.

Advocacy should be done in Federal level to prioritize national priority based on the commitment made. This can be only possible through discussion between policy-makers and representatives of ministries (MOEWRI, MoF, MoFE), NPC, NEA, and AEPC. Regular meetings, discussions and sharing opinions or communications have to be initiated.

Also, MOFE should be informed to add BES for solar and wind energy project also in EPR to make consistency in policy.

Integration of Climate Change Priorities: Integrate climate change priorities into national development plans and budgetary processes which would ultimately support in transitioning to greener economy.

Capacity Building and Coordination: Initiatives should be taken to strengthen coordination mechanisms and capacity building efforts at all levels of government to support effective renewable energy development. Organize series of meetings and discourses to foster collaboration among government agencies, development partners, and stakeholders to enhance policy implementation and address conflicts of interest.

Advocacy and Technical Support: Continue advocacy efforts and coordination of technical support among different development partners to bolster national energy conflict resolution systems. Foster shared learning and harmonized messaging to support enabling policies and capacity-building initiatives for sustainable energy practices.

Research: There should be regular research on EVs, e-cooking appliances, persistent challenges if any so as to understand the environment and support in decision making in future. Private research institutions should be encouraged to carry out regular research and submit the findings to the relevant governmental entities.

9. REFERENCES

- AEPC. (2013). *A Year in Review NYF 2069/70 (July 2012-July 2016). Making Renewable Energy Mainstream Supply to Rural Areas of Nepal*. Lalitpur: Alternative Energy Promotion Centre, Ministry of Science, Technology & Energy. Government of Nepal. .
- Anne Peters. (2012). Conflict of Interest as a Cross-cutting Problem of Governance. In A. Peters, & L. Handschin, *Conflict of Interest in Global, Public and Corporate Governance* (p. 487). Cambridge University Press.
- Bana, J., & Utnik-Bana, K. (2022). Using Timber as a Renewable Resource for Energy Production in Sustainable Forest Management. *Energies*, 15 (6), 2264.
- Bhandari, D., Bi, P., Sherchand, J. B., Dhimal, M., & and Hanson-Easey, S. (2020). Climate Change and Infectious Disease Research in Nepal: Are the Available Prerequisites Supportive Enough to Researchers? *Acta Tropica*, 204. doi:<https://doi.org/10.1016/j.actatropica.2020.105337>
- Bilgen, S. (2014). Structure and Environmental Impact of Global Energy Consumption. *Renewable and Sustainable Energy Reviews*, 890-902.
- Chapman, L. (2007). Transport and Climate Change: A Review. *Journal of Transport Geography*, 354-367.
- Dabacher, B. M., Stilwell, M. T., & McGee, J. S. (2019). Clearing the Air: Avoiding Conflicts of Interest Within the United Nations Framework Convention on Climate Change. *Journal of Environmental Law*, 1-29.
- Eichenauer, E., & Gailing, L. (2022). What Triggers Protest?—Understanding Local Conflict Dynamics in Renewable Energy Development. *Land*, 11, 1700.
- GoN. (2020). *Second Nationally Determined Contribution*. Kathmandu: Government of Nepal.
- GoN. (2020). *Second Nationally Determined Contribution*. Kathmandu: Government of Nepal.
- IPCC. (2007). *Climate Change 2007: Synthesis Report. contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R. and Reisinger, A. (eds.)]*. Geneva, Switzerland.: Intergovernmental Panel on Climate Change.
- Kavgic, M., Mavrogianni, A., Mumovic, D., Summerfield, A., Stevanovic, Z., & Djurovic-Petrovic, M. (2010). A review of bottom-up building stock models for energy consumption in the residential sector. *Building and Environment*, 45, 1683-1697.
- MacLean, H. L., Lave, L. B., & and Griffin, W. M. (2004). Alternative Transport Fuels for the Future. *International Journal of Vehicle Design*, 27-49.
- MoF. (2017). *Climate Change Financing Framework: A roadmap to systematically strengthen climate change mainstreaming into planning and budgeting*. Kathmandu: Ministry of Finance. Government of Nepal.
- MoF. (2023). *Budget Speech of the fiscal year 2080/81*. Kathmandu: Ministry of Finance, the Government of Nepal.
- MoF. (2023). *Economic Survey 2079/80*. Kathmandu: Ministry of Finance, Government of Nepal.

- MoFE. (2018). *Nepal's National Adaptation Plan (NAP) Process: Reflecting on Lessons Learned and the Way Forward*. Kathmandu: Ministry of Forests and Environment.
- MOFE. (2021). *Assessment of Electric Cooking Targets for Nepal's 2020 Nationally Determined Contributions (NDC)*. Kathmandu: Ministry of Forests and Environment, the Government of Nepal.
- MoPE. (2016). *Nationally Determined Contributions*. Kathmandu: Ministry of Population & Environment. Government of Nepal.
- NSO. (2023). *National Population & Housing Census 2021*. Kathmandu: National Statistics Office, Office of the Prime Minister and Council of Ministers, Government of Nepal.
- WBG & ADB. (2021). *Climate Risk Country Profile: Nepal*. Washington D.C. & Manila: The World Bank Group and the Asian Development Bank.
- WBG. (2022). *Country Climate and Development Report*. Washington DC: the World Bank Group.
- WECS. (2023). *Energy Synopsis Report 2023 FY 2078/79*. Kathmandu: Water & Energy Commission Secretariat, Government of Nepal.

ANNEX

ANNEX 1: KEY INFORMANT INTERVIEWS (KII) LIST

Mr. Gopal Prasad Sigdel	Secretary at Ministry of Energy, Water Resources & Irrigation
Dr. Maheshwor Shrestha	Joint Secretary at Water & Energy Commission Secretariat (WECS)
Dr. Anusuya Joshi	Senior Environmental and Social Safeguard Expert-AEPC
Mr. Mukti Bikram Chhetri	Green Climate Fund Readiness Project Manager at Alternative Energy Promotion Center
Mr. Manjeet Dhakal	Advisor to the Least Developed Countries (LDCs) Chair at the UNFCCC



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