

**Young Adults' View toward Energy Transition Policy:  
A Survey study from the Kaohsiung Area 2023**

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# **Young Adults' View toward Energy Transition Policy: A Survey study from the Kaohsiung Area 2023**

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Wenzao Ursuline University of Languages, 2023

## **ABSTRACT**

Since President Tsai Ing-wen took office in 2016, Taiwan started its journey of energy transition, a path rife with aggressive debates and polarities, especially concerning the long-standing issue of nuclear energy in Taiwan. Kaohsiung is not just one of the cities with the highest energy consumption, but it also continuously suffers from air pollution. Thus, energy transition plays a key role to build up people's well-being and Kaohsiung's sustainable construction and development.

This study aims to explore the perspectives of the city's youth on this crucial transition. This research employed online questionnaire frequently used by the youth, which can gather diverse views from youth of varied backgrounds.

The result showed that 94.1% of people concern about environmental issues. Although 57% feel they catch on to energy transition, only 3% answered related questions right, showing a huge knowledge gap. Confidence toward the government is low, especially regarding a guaranteed energy supply. While there's less support for phase out nuclear energy. However, people are still positively looking forward to the energy transition that brings a better, healthier and independent life.

Keywords: Energy Transition, Kaohsiung Young Adult, 2025 nuclear-free homeland, 2050 Net-Zero Emissions

# 2023 高雄青年對於能源轉型看法之研究

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## 摘要

自 2016 年蔡英文總統上任，台灣開啟了自己的能源轉型之路，這過程中充滿了激烈的爭論和兩極化，特別是台灣長期存有爭議的核能問題上。高雄不僅是台灣能源耗能最高的城市之一，也是空氣汙染最嚴重的城市。因此，能源轉型不只增進人民福祉更奠基了高雄的永續建設與發展。

本研究旨在探討該市年輕人對能源轉型的看法。本研究採用青年常用的線上問卷調查方式，以便蒐集到不同背景青年的不同觀點。

結果顯示，94.1%的人有環境問題，57% 的人認為自己了解能源轉型，但其中只有 3% 的人正確回答能源知識問題，顯示出認知差距。人們對政府的信心很低，尤其是在「能源轉型是否能帶來穩定供電」一題；對淘汰核能的支持也較低。然而，人們仍然積極期待能源轉型帶來更好、更健康和能源獨立的生活。

關鍵詞:能源轉型、高雄青年、2025 非核家園、2050 淨零碳排

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# INTRODUCTION

## Background

“Toward Net Zero Emission Society by 2050” is the target to fight against climate change in Taiwan. The key factor to change the situation is the energy sector. According to IEA(International Energy Agency), the energy sector was estimated to be responsible for two-thirds of Greenhouse Gas emissions, highlighting the emergence and importance of the energy transition<sup>1</sup>. In order to achieve the goal of limiting the rise by 2 degrees Celsius of global temperature at the end of the 21st century or even control under 1.5 degrees, energy transition needs to speed up.

Taiwan’s Energy Transition White Paper states that our national energy transition goal is “increase gas, reduce coal, extend renewable energy and abolish nuclear”. It is not the only goal we have to achieve, but we also have to address other related issues which would impact the security of energy use, including geo-political issues (2022 Russia-Ukraine war, tension arising in the Middle East, US-China conflict), international financial issues (2008 financial crisis), new energy extraction technology.....<sup>2</sup> On the other hand, Taiwan depends nearly 98% on imported energy resources, and the reliance faces huge uncertainty under the complex geopolitics, particularly between Taiwan and China. However, these factors all accentuate the

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<sup>1</sup> "Greenhouse Gas Emissions from Energy Data Explorer," 2021.

<sup>2</sup> 林韋廷, 能源轉型白皮書 (2021).

energy transition's significance.

Kaohsiung has been ranked as Taiwan's worst air quality city for over 5 years<sup>3</sup>. The worst air quality was brought mostly because of its landform condition and the massive industries and fuel electric plant. According to the Bureau of Energy report, Taiwan's energy sector is responsible for 90% of greenhouse gas emissions<sup>4</sup> and industries consumed the most energy among other sectors, these cross factors result in a circulation of long-term poor air quality. However, industry always plays a vital role in Taiwan's economy, the energy transition aims to help to improve air quality, and the competitiveness of a low-carbon economy has been seen as the trend for the future trading environment.

However, promoting energy transformation has never been an easy path. Since the promotion in 2016, there have been different voices supporting and opposing it. Judging from the referendums in 2018 and 2021, everyone has a significant gap in values for energy transition; especially the issue of whether nuclear energy should exist, has even been ridiculed as an offensive and defensive affair of the two major political parties. According to a study, Taiwan young people with higher education levels and

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<sup>3</sup> "World's Most Polluted Cities (Historical Data 2017-2022)," 2022, <https://www.iqair.com/world-most-polluted-cities?continent=59af92b13e70001c1bd78e53&country=ehscxvHR6vCD57Fru&state=&sort=-rank&page=1&perPage=50&cities=>.

<sup>4</sup> "溫室氣體排放統計," 2022.



living in urban area have relatively high anti-party sentiments<sup>5</sup>. It means that compared to other generations, young people are less likely to align with a political party and tend to have their own set of ideas. Therefore, in this situation where energy issues are the mainstream of bipartisan attack and defense, young people are less likely to be involved in political activities which eventually are associated with less willingness to vote.

Under such a situation, it would push people away from they should know and should be involved in. As a young adult studying in Kaohsiung, the author would like to document the young adults' perspective on energy transition, how they view energy transition as a key to the future energy direction of the country, and how to let Taiwan also do its part as a citizen of the earth.

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<sup>5</sup> 林聰吉, "解析台灣民眾的反政黨情緒," *選舉研究* 20 (2013).

## **Motivation**

As mentioned in the background, Kaohsiung is one of the worst air quality cities in Taiwan. I have lived in this environment for almost three years as I'm studying here. Because of the bad air quality, also of multiple electricity failures, people started to doubt the feasibility of energy transition, especially the long-term argumental topic "phasing out the nuclear power plant."

As the government and some researchers explored people's perspectives on energy transition in the whole of Taiwan, there has been no study research for Kaohsiung specifically. As one of the young adult groups, the author would like to analyze the group's core values, to observe representative of their view toward energy transition.

## **Research Purpose**

This study aims to explore how young adults in Kaohsiung view the energy transition policy and how their experience influences their views. While the target, "2025 nuclear-free homeland" is getting closer and closer, people face the growth of electricity demand, the transition target is falling behind the schedule, and lots of information is being discussed about the issue that appeared when promoting energy transition. How do those young adult's view energy transition?

On the other hand, the study also looks into Kaohsiung young adults' approach status, and why they engage in this topic or not by analyzing questionnaire. The source of the questionnaire referred to RSPRC annual report<sup>6</sup> and Lu's thesis<sup>7</sup>, as both research for people's perspectives on Energy Transition.

### **Research Question**

- How do Kaohsiung young adults look at the energy transition?
- What are the factors that influence their perspectives?

### **Contribution**

People between the ages of 18-25 will be the future workforce in the market, and their thoughts on energy transition more or less influence their future choice of profession. This research contribution is discovering what elements young adults have been influenced by, care about, and understand and what they don't, providing the government and other related sectors with this information to acknowledge and adjust the access or education on energy transition. This aims to gain overall knowledge and

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<sup>6</sup> RSPRC (Risk Society and Policy Research Center), "2020 能源轉型公眾感知度調查報告," (國立台灣大學社會科學院, 2020).

<sup>7</sup> 陸德宇, "An Exploratory Study of the Generational Differences on the Preferences of Energy Policies" (National Sun Yat-sen University 2022).

environmental literacy.

### **Limits**

The data will be only conducted in two months of summer vacation, it is hard to reach a large population for two months and the data can not be evenly distributed to each area in Kaohsiung. On the other hand, the changing of energy transition policies, other related policies, and the significant event might influence peoples' perspectives on the topic, this research only observes the data from this period.

### **Delimits**

Although energy transition included different dimensions, this research only focuses on the energy sector, especially the four main directions of energy transition. The title has delimited the population, I only address the age group of 18-25 olds as my target population, due to their comparatively diverse social status (some of them are still studying for bachelor, master degrees and some of them have already staked to work) and other unique conditions which will be discussed in the literature review section.

## LITERATURE REVIEW

### Young Adult Participation and Post-Materialism

In this research, the young adult age group is between 18-25. They are a critical study population since some of them are still studying in school and some of them have started their careers, including complex and different educational levels and occupation backgrounds. According to a study from Nielsen Norman Group, they categorized this age group into four groups: Young professionals, Graduate students, Undergraduate students, and Young adults without an undergraduate degree.<sup>8</sup> It is also the period that people start to view an issue with more complex perspectives and even assist with math and science, rather than mental visors<sup>9</sup>. But some seniors argue that young adults have strong influence under post-materialism, which emphasizes personal value or achievement rather than care about the macro-social system.

According to the Inglehart study, there are two elements to discuss post-materialism, scarcity and socialization aspects. He argued that the contemporary economic situation and social situation would impact one's value system from materialism to more spiritual value chasing. He also found that people born during the war or before the war emphasized their safety, property and other basic demands of

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<sup>8</sup> "Young Adults/Millennials as Web Users (Ages 18–25)," Nielsen Norman Group, 2016, accessed April 10, <https://www.nngroup.com/articles/young-adults-ux/>.

<sup>9</sup> NYC Justice Corps, "Stages of Adolescent and Young Adult Development (18-25)," (Youth Development Institute, 2014).

living. Nevertheless, people who were born after WWII don't have to worry about those problems, so the young hold post-materialism more than the old generation. Growing under better economic conditions and comparatively stable living quality, people started to pay attention to personal participation and dignity instead, shifting from materialism to post-materialism<sup>10</sup>.

However, young adults will be the major manpower in the near future. Young adults not only have been seen as a highly potential group for climate action but as an indicator of accountability in decision-making.<sup>11</sup> For Young Adults in Taiwan, growing up in an era where the world is comparatively stable and environmental issues have been discussed commonly, the vast amount of information is frequently updated every day, they have more basic knowledge of environmental issues than other generations. But compared to other countries, Taiwan Young Adults have low participation in environmental issues. Although they acknowledge the issue, the accessibility and approach seem not enough for them. Additionally, Taiwan was at the bottom of the post-materialist ranking. Despite Taiwan having reached a certain level of economic status, the cultural and social standards have not been fully brought to the whole society. The

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<sup>10</sup> Ronald Inglehart, "Post-Materialism in an Environment of Insecurity," *The American Political Science Review* 75 (1981).

<sup>11</sup> "Youth in Action," <https://www.un.org/en/climatechange/youth-in-action#:~:text=Young%20people%20are%20not%20only,skills%20to%20accelerate%20climate%20action.>

author highlighted the importance of young generation participation in environmental change through education, and the result showed that it can lead the society to more a sustainable environment.<sup>12</sup>

Moreover, according to a 2020 analysis report, 18-25 year old young people were most concerned about education issues. On the contrary, the economic industry ranks second from the bottom among the six major issues, and few people care about green energy within the economic industry category.<sup>13</sup> To look specifically at Kaohsiung young adults, an author also found that the young adults in Kaohsiung had comparatively low environmental literacy with other age groups.<sup>14</sup> Both research showed that their active participation in environmental and energy issues is limited, which needs to be enhanced for more involvement.

### Energy transition in Taiwan

Looking back at mankind's energy transition, it has a history of 200 years. In response to the different needs of each generation, with the development and innovation of science and technology, the primary energy supply system has undergone significant changes. From the beginning of the industrial revolution to the present transition of

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<sup>12</sup> Kuo-Hua Chen, "Transforming Environmental Values for a Younger Generation in Taiwan: A Participatory Action Approach to Curriculum Design," *Journal of Futures Studies* 23 (2019).

<sup>13</sup> 社團法人臺灣青年民主協會, *臺灣青年關注議題調查分析* (2020).

<sup>14</sup> 廖慧婕, "高雄市青年環境素養與學習需求之相關研究" (國立高雄師範大學, 2008).

adapting to climate change, human beings have been constantly looking for more efficient energy sources. At this stage, in order to avoid the destruction of the earth, human beings have widely developed renewable energy and cleaner energy.

With Economic and population growth, the demand for energy is increasing day by day. Even though the development of energy is increasingly moving in a better direction, it is not efficient enough to adapt to the following issues. According to a statistic in 2020, 13% of the world's population still has no access to electricity.<sup>15</sup> Moreover, due to unclean fuels, a lot of people suffer from unclean energy. and Taiwan relied For a long time, Taiwan has relied on coal-fired power generation as its primary way of electricity production. However, aside from causing air pollution, it has also posed long-term threats to the health of its citizens and the environmental ecology. Given these challenges, the urgency for cleaner, more accessible energy solutions becomes clear.

Taiwan is an island surrounded by sea and relies on nearly 98% of imported energy. In the face of the inability of cross-border support for electricity, geopolitics, climate change, energy shortages, these ongoing crises are the reasons why energy transition is vital for Taiwan. However, the Covid-19 pandemic again highlighted the

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<sup>15</sup> Hannah Ritchie and Max Roser, "Access to Energy," (Our World in Data, 2022).



importance of energy self-sufficiency. When the global supply chain is interrupted, the absence of imported energy and supplies leads to economic and livelihood losses.

Moreover, energy transition should not be viewed in the short term, but in the long-term planning of twenty to thirty years later. It is necessary for Taiwan to have not only the ability to be energy independent but the adaptation of sustainable energy.

Taiwan's ongoing energy transition plan was published five days after President Tsai Ing-wen took office. The vision is to promote Taiwan's total energy ratio to reach 50% gas, 30% coal, 20% renewable energy, and zero nuclear energy in 2025. Next, in the beginning of 2017, the Electricity Act was amended, dividing the electricity industry into three major sectors: power generation, transmission and distribution, and electricity sales. This opened up opportunities for green energy to join in power generation and sales. Additionally, consumers have other choices of selecting their electricity provider, although it is limited for green energy.<sup>16</sup> Nevertheless, this represents a significant advancement for the proliferation of renewable energy in Taiwan. Following Energy Development Guideline was also published in April the same year, which listed out the general points to achieve low-carbon or zero-carbon goals, emphasized on energy security, green economy, environmental sustainability, social justice, and

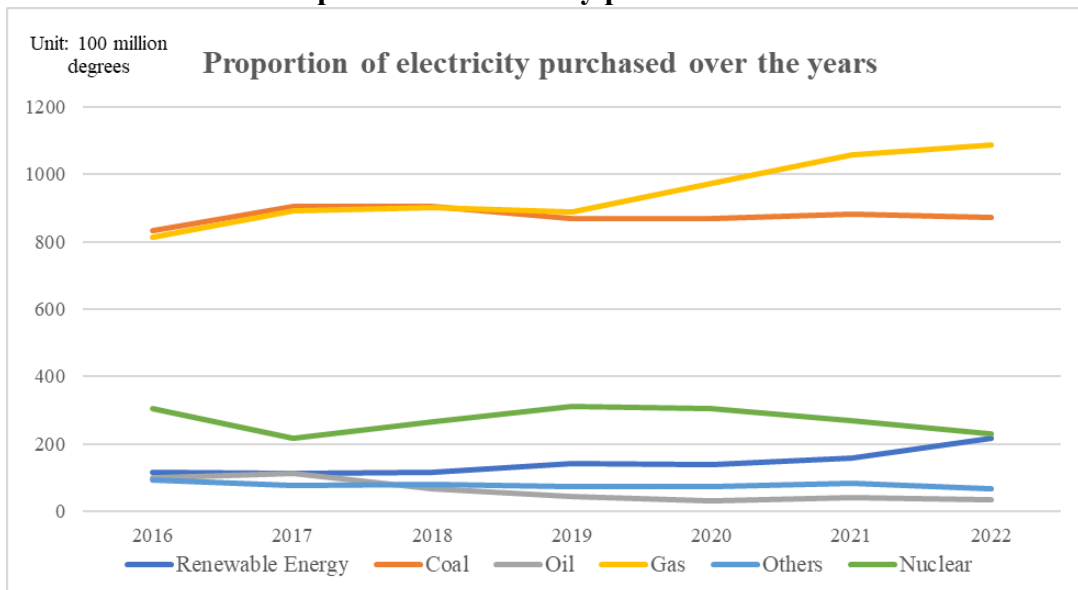
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<sup>16</sup> Ministry of Economic Affairs, "The Electricity Act " (Ministry of Economic Affairs, 2017).

complementary policy.<sup>17</sup> With detailed planning, Two-year Solar PV Promotion Plan<sup>18</sup> and Four-year Wind Power Promotion Plan<sup>19</sup> which played the fundamental role of today's renewable energy.

According to statistics from the Bureau of Energy, as of 2022, Taiwan's power generation ratio is 82.4% from thermal power, of which 42% is from coal, 38.9% from natural gas, and 1.5% from fuel oil; nuclear power accounts for 8.2%, and renewable energy 8.3%<sup>20</sup>, respectively (Table 1.). It is worth noticing that this is the first time since the promotion of energy transition that the proportion of renewable energy has surpassed nuclear power. However, in terms of thermal power generation, there hasn't been a noticeable decline.

**Table 1. Proportion of electricity purchased statistics.**



<sup>17</sup> MOEAEA, "Guideline on Energy Development," (2017).

<sup>18</sup> Executive Yuan, *Promotion of Solar Energy* (2019).

<sup>19</sup> "Four-Year Wind Power Promotion Plan," ed. Information Services (2017).

<sup>20</sup> MOEAEA, "能源統計月報," ed. 3-02 發電量 (能源統計專區 2023).

On the other hand, in European countries, despite the energy gap brought by the Ukraine-Russia conflict, climate disasters, and energy adjustments of various countries, wind and solar power have risen to 22%, surpassing natural gas and nuclear energy in 2022. Looking back at Taiwan, in June 2022, Minister of Economic Affairs Wang Meihua stated that due to a significant increase in electricity demand, the 20% green energy target set by the 2025 nuclear-free homeland policy cannot be met on schedule. It is necessary to make up for the shortfall with natural gas<sup>21</sup>. The ongoing situation tests the government's response to various situations and how to successfully achieve zero carbon emissions by 2050. Energy transition is not only limited to making energy cleaner. In addition to discussing energy, we should also discuss how to save energy, such as setting up a smart grid to allow energy to flow efficiently and be stored or the carbon capture technology. Meanwhile, economic, social and cultural aspects also should be enhanced, including investments in green energy, setting up smart meters, and raising public awareness of energy...

### Debates over Taiwan's energy transition

The energy transition has always been a contentious issue in Taiwan. Many people mock that Taiwan will run out of electricity one day and would need to “Generate power

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<sup>21</sup> 謝佳興, "2025 年綠能佔比達不到 2 成 王美花：預計 2026 年 10 月達標," 中央廣播電臺, 14, June 2022.

by love” From the highly controversial topic of nuclear energy to rooftop solar panels, the debates have never ceased. In this section, the author discusses primarily from three perspectives: environmental and ecological controversies, policy formulation, and civic engagement.

Due to Taiwan's limited land area, dense population, and diverse ecology, there have been challenges in setting up some renewable energy sources. Firstly, the most significant proportion of renewable energy comes from solar energy. To expedite the expansion of photovoltaics and comply with the government's guidelines on the coexistence of fisheries and electricity, aggressive steps were taken in Qigu, Tainan, an area with long sun exposure and the largest coverage of fish ponds. However, there was initially a lack of clear communication and negotiation with the local fishermen. The local residents had concerns and doubts about this construction, leading to conflict with the construction company<sup>22</sup>. Similar cases that endanger ecology and the environment include offshore wind farms that may threaten marine ecology and natural gas receiving stations that endanger precious algae reefs. These constructions require government legislation and approval to proceed. However, some people believe that this process is neither fair nor transparent, lacking in “energy democracy”.

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<sup>22</sup> 林雨佑, “當光電包圍漁村：七股漁電共生風波再起，居民在抗議什麼？,” *報導者*, 11, November 2022.

As mentioned in the previous section, President Tsai Ing-wen announced the energy transition plan just a few days after taking office. Such an action made people question whether the content was transparent and comprehensive. A study from Taiwan raised a critical doubt, the authors argued that the government is implementing an unjust transition. The study highlighted four main arguments: lack of comprehensive process, bypassing environmental assessment procedure, lack of target for fixing emission and underestimating fluctuation of electricity price<sup>23</sup>. This implies that when formulating this policy, there was a lack of sufficient consultation and communication with various departments. More directly, it is a top-down approach. However, we are not keen on such a situation in democratized countries. Another study on the abolition of nuclear energy also pointed out that the "Nuclear-free Homeland by 2025" policy lacks public participation. Even though the government repeatedly emphasizes the importance of public involvement, there are no substantial channels for communication. On another front, there's strong public enthusiasm in Taiwan supporting the green shift in the form of nuclear phase-out<sup>24</sup>. However, many people are more concerned about power shortages, and the overlooked procedural justice would be further magnified and

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<sup>23</sup> Anton Gao Ming-Zhi, Yeh Tsung Kuang, and Chen Jong-Shun, "An Unjust and Failed Energy Transition Strategy? Taiwan's Goal of Becoming Nuclear-Free by 2025," *Energy Strategy Reviews* 44 (2022/11/01/ 2022). <https://doi.org/https://doi.org/10.1016/j.esr.2022.100991>.

<sup>24</sup> Gillan Chi-Lun Huang and Chen Rung-Yi, "Injustices in Phasing out Nuclear Power?: Exploring Limited Public Participation and Transparency in Taiwan's Transition Away from Nuclear Energy," *Energy Research & Social Science* 71 (2021/01/01/ 2021). <https://doi.org/https://doi.org/10.1016/j.erss.2020.101808>.

scrutinized.

In the 2018 referendum, among the 10 proposals, three were related to energy issues. Specifically: the 7<sup>th</sup> (Do you agree “To reduce by 1% year by year” the electricity production from thermal power plants?), 8<sup>th</sup> (Do you agree to the establishment of an energy policy to “Stop construction and expansion of any coal-fired thermal power plants or generator units (including the Shen Ao Power Plant currently under construction)”?) and 16<sup>th</sup> (Do you agree to repeal Article 95 Paragraph 1 of the Electricity Act: “Should Nuclear-energy-based power generating facilities stop running by 2025”?), only the 16th proposal was in direct contradiction to the energy policy being promoted by the current government. Interestingly, the adoption of this proposal indicated a public inclination towards the need for nuclear power, with 54.8% of the citizens casting their votes in its favor. However, there was another referendum in 2021, one of proposals “Restarting construction on the 4th nuclear power plant”. Although more than half of the people did not agree with the proposal, it was still rejected since less than a quarter of the people were willing to vote. A decline in the public's willingness to vote indicates a decrease in public participation rates. The issue of nuclear energy has effectively become a battleground for political interests, creating a significant rift among voters. Furthermore, as mentioned in this article, the divide is also

rooted in the excessive emphasis on scientific evidence as a criterion for communication and participation<sup>25</sup>. While scientific evidence is undeniably crucial for the general public, without appropriate discussion and the popularization of knowledge, this only intensifies mutual opposition.

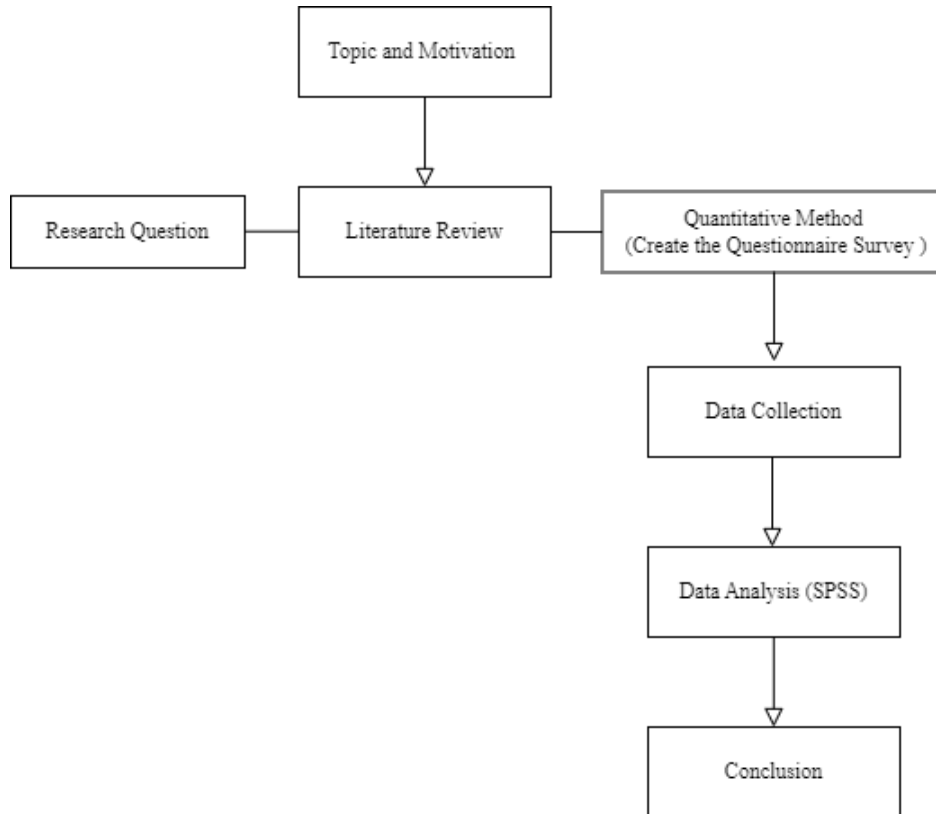
While the path towards a sustainable energy transition in Taiwan has been fraught with challenges, it also offers invaluable lessons. For a successful transition, it's crucial to blend technological advancements with ecological considerations, policy transparency, and robust public engagement. The debates, conflicts, and discussions only reiterate the democratic vibrancy of Taiwan and the shared responsibility of charting a sustainable future.

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<sup>25</sup> "台灣核能風險溝通之結構性困境," 2014, accessed 11, June, <https://rsprc.ntu.edu.tw/zh-tw/m01-3/understand-risk-society/81-technology-governance/85-taiwan-structural-dilemma-of-nuclear-risk-communication.html>.

## METHODOLOGY

### Research Process



### Research Design

The methodology in this research adopted a quantitative method and designed an online survey. Firstly, in order to enhance the validity of this research, the author did the literature review, including journal articles, thesis, government report and other sources related to public opinion on energy issues, carefully choosing the indicators to meet the needs of this research.

The survey selected mostly 5-points Likert scale responses. The option includes “strongly disagree”, “disagree”, “neutral”, “agree” and “strongly agree”. The 5-points



Likert scale not only is easy to response to but more precisely to get the level of attitude. The author delivered the questionnaire to respondents through the Internet. Not only because to overcome the differences in time and space or reaching out to people from various districts, but also because the youth aged 18-25 are digital natives, who have seen the Internet as a medium to contact or react with others, especially the social platform. Therefore, online surveys are the best method for data collection. The author sent the survey through various groups on social platforms during July to August. For the data analysis, the author employed SPSS as the tool to analyze the data.

## **Questionnaire Design**

The content of survey mainly referred to one master thesis<sup>26</sup> and one government survey<sup>27</sup>. The survey included four main sections, climate and energy knowledge/ attitude and perspective/ participation and caring/ personal information.

The first section, climate and energy knowledge are to test respondents' cognition toward ongoing energy operating circumstances. The other item tests their self-awareness on energy transition. According to TAISE 2021 survey, there are 96.3% respondents didn't acknowledge that Taiwan counted more than 95% energy from

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<sup>26</sup> 陸德宇.

<sup>27</sup> Center), "2020 能源轉型公眾感知度調查報告."

import, 23.5% thought that the first place of power generation is nuclear power<sup>28</sup> which usage had already dropped to below 10% by the end of 2022. These results have highlighted there is still room for improvement in energy knowledge.

The second section is the Attitude and viewpoint, divided into three subsections, Governance and Trust, Support on four transition pathways and Transition perceived benefit. For Governance and Trust, Tom and Per found that the satisfaction of government public services related the trust of the government. However, the strongest factors for people to trust the government are involvement, engagement and integration, since political cynicism only pushes people away from politics and social reaction.<sup>29</sup> Then, the Support for four transition pathways based on ongoing vision on energy transition to measure the level of perspective on energy transition. Last, the Transition perceived benefit. Some research highlighted the relation between perceived benefit and support on energy transition. In a Korea research, perceived benefit and risk have been used as one of main variables to test the attitude and intention for energy transition.<sup>30</sup> The other research showed the perceived benefit explained high acceptance of

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<sup>28</sup> "2021 第四屆台灣電力使用與能源轉型民意調查," 2021, <https://taise.org.tw/news-view.php?ID=2174>.

<sup>29</sup> Tom Christensen and Lægreid Per, "Trust in Government: The Relative Importance of Service Satisfaction, Political Factors, and Demography," *Taylor & Francis* 28, no. 4 (2005).

<sup>30</sup> Y.; Kim Oh, S.; Kim, S, "Searching for New Human Behavior Model in Explaining Energy Transition: Exploring the Impact of Value and Perception Factors on Inconsistency of Attitude toward Policy Support and Intention to Pay for Energy Transition," *International Journal of Environmental Research and Public Health* 19 (2022).

residential solar PV.<sup>31</sup>

The third section focuses on participation and concern. In this part, the author integrates channels of information reception, political party inclination, and communication and participation in energy issues. First, the author gathered possible sources of energy information, including commonly used news channels, social media, non-governmental environmental groups, close friends and relatives, as well as the official websites of Taiwan Power Company and the government. Second subsection asked respondents' affiliation of political parties. As political parties in Taiwan have firm stances on energy, especially on the issue of whether nuclear power should continue to exist in Taiwan. In Lee's research, it was found that the three major political parties in Taiwan have significant differences in their support for nuclear power, so the author included it as one of the variables.<sup>32</sup> Thirdly, since political participation in Taiwan is no longer limited to voting alone, in addition to questions about participation in energy issue, the author has also included questions such as: 'Have you participated in any energy-related activities (e.g. lectures, rallies, public hearings, advocacy)?' and 'I believe that during the transition process, the public has channels to express their

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<sup>31</sup> Thomas Bruckner et al., "A Meta-Analysis of Residential Pv Adoption: The Important Role of Perceived Benefits, Intentions and Antecedents in Solar Energy Acceptance," *Energy Research & Social Science* 84, no. 102339 (2022).

<sup>32</sup> CHIH-YING LEE, "Determinants of Energy Policy Preference in Taiwan" (國立臺北大學, 2022).

opinions,' in the survey design to measure the respondents' participation rate. The last part is personal information, including sexuality, education level, age, occupation, reason for staying in Kaohsiung and living district.

## DATA ANALYSIS

The survey was employed Google Form, delivered through social media

**Table 2 Frequency Distribution of Basic Information**

(N=135)

Variables		Number	Percentage%
Gender	Female	105	77.8
	Male	30	22.2
Age	18-20	32	23.7
	21-23	80	59.3
	24-25	23	17.0
Education Background	High school(and below)	5	3.7
	Undergraduate	115	85.2
	Master's degree and above	15	11.1
Career	Student	102	75.6
	Primary sector	3	2.2
	Secondary sector	3	2.2
	Tertiary sector	27	20.0
Reasons for living in Kaohsiung	Residents	59	43.7
	Relocate to Kaohsiung	3	2.2
	Study needs	63	46.7
	Employment needs	10	7.4
District	North Kaohsiung	69	51.1
	South Kaohsiung	25	18.5
	Ganeshan District and around	16	11.9
	Qishan District and around	4	3.0
	Fengshan District and around	21	15.6
Political party affiliation	DPP	17	12.6
	KMT	4	3
	Taiwan People's Party	6	4.4
	Neutral/Not considering any	108	80

In terms of gender distribution, females stand out as a significant majority, with 77.8% (N=105) of the sample, while males represent only 22.2% (N=30). Secondly, the

21-23 years old young adults are the predominant group in this research, capturing 59.3% (N=80) of the population, followed by the 18-20 years and 24-25 years age groups, accounting for 23.7% (N=32) and 17.0% (N=23) respectively. The educational background showed a big portion towards undergraduate studies, with 85.2% (N=115) in this category.

Those with a high school education (and below) form a minority at 3.7% (N=5), and those with a master's degree and above represent 11.1% (N=15) in the sample.

For the occupational profile, it is obvious that students occupied 75.6% (N=102) as a majority in the research. Following the tertiary sector, encompasses 20% (N=27) of the sample. Both the primary and secondary sectors have an equal representation of 2.2% (N=3 of each).

Diving deeper into the reasons for living in Kaohsiung, the largest group is people who have study needs, accounting for 46.7% (N=63). Following the native residents at 43.7% (N=59), notably fewer in those who've relocated to Kaohsiung at 2.2% (N=3) and those working in Kaohsiung stand at 7.4% (N=10). In terms of district of residence, North Kaohsiung holds the majority with 51.1% (69 respondents). South Kaohsiung, Ganeshan District and its surroundings, and Fengshan District and its surroundings,

counts 18.5% (N=25), 11.9% (N=16), and 15.6% (N=21) respectively. The least represented is the Qishan District and surrounding areas with 3.0% (N=4).

Lastly, on the political front, respondents' party affiliations offer significant diversity. The Democratic Progressive Party (DPP) has a representation of 12.6% (N=17), the Kuomintang (KMT) following 3% (N=4), while the Taiwan People's Party counts 4.4% (N=6) of the sample. However, A significant portion, 80% (N=108), prefer not to align with any particular political party, identifying as Neutral or not considering any affiliation.

**Table 3. Descriptive Statistics of Variables**

	N	Min.	Max.	Mean
Environmental Concern	135	1	5	4.033
Energy Issue Caring	135	1	5	2.699
Governance and Trust	135	1	5	2.867
Support for four transition pathways	135	1	5	3.500
Transition perceived benefit	135	1	5	3.794

The table presented five variables that the author would like to explore, designed on 5-points Likert scale, indicating the minimum, maximum and mean. There are two findings worthy to notice. The first is respondents are highly concerned about environmental issues, but obviously less concerned about energy issues. Second, with

three variables of attitude and viewpoints, Governance and Trust have slightly low scores.

However, environmental issues are highly engaged with energy issues. It is important for the Kaohsiung young adult to know the relation between these two issues, since energy is the primary problem that needed to solve environmental issues, more specifically, against climate change. Also, the understanding of energy transition allows young adults to support more forward-looking policies.

For the attitudinal variables, Governance and Trust got the lowest mean. It can be further explained that public didn't agree with



## Cognition of climate and energy

**Table 4 Cognition \*One Sample Test**

	Test Value = 3.00					
	T	df	Sig.(2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Environmental concerns	13.127	134	.000	1.03333	.8776	1.1890
Caring level of energy issue	-3.911	134	.000	-.30123	-.4536	-.1489

According to the table, I explored how people are concerned about the surrounding environment and the level of caring energy issues. A one-sample test showed that both are significant. For environmental concerns, the average perceived was 4.0333, with a standard deviation of 0.91464,  $t(134)=13.127$ ,  $p=0.000$ , indicating Kaohsiung young adults are highly concerned about the ongoing environmental impact. For the level of caring energy issue, the average perceived was 2.6988, with a standard deviation of 0.89487,  $t(134)=-3.911$ ,  $p=0.000$ , demonstrating that Kaohsiung young adults are relatively less concerned about energy issues.

**Table 5 Understanding\*energy knowledge correct rate Cross-tabulation**

		Correct			Total
		both wrong	both correct	One wrong	
I think I understand the energy issue well	Strongly disagree	9	0	5	14
	Disagree	17	2	25	44
	Neutral	13	2	39	54
	Agree	9	0	11	20
	Strongly agree	2	<u>1</u>	0	3
Total		50	<u>5</u>	80	135

In the energy knowledge section, the author uses “How much do you think Taiwan relies on imported energy?” and “Which type of energy do you think accounts for the largest proportion of Taiwan's electricity generation” as indicators. For the first question, “How much do you think Taiwan relies on imported energy?”, 62.2% (N=84) of respondents answered correctly, while 37.8% (N=51) answered incorrectly. For the second question, "Which type of energy do you think accounts for the largest proportion of Taiwan's electricity generation," only 6.7% (N=9) answered correctly, with 93.3% (N=126) respondents getting it wrong. By combining the results from these two questions and using cross-tabulation to present them, the responses to "I think I know the energy issue well", only 5 individuals answered both questions correctly. Among these, just one person answered both questions correctly and positively expressed that

they believe they know the energy issue well. The result highlighted the lack of energy-related knowledge among young adults in Kaohsiung.

### **Attitude and Viewpoint**

In this section, the author explores Kaohsiung Young Adult attitude and viewpoint on energy transition, including Governance and Trust, Support on four transition pathways and Transition perceived benefit. N=135

**Table 6. Attitude and Viewpoint Pearson correlation coefficient**

	Trust	Direction	Benefit
Trust	-	-	-
Direction	0.488**	-	-
Benefit	0.486**	0.667**	-

*\*\*p<0.01*

To explore the relation between Governance and Trust, Support on four transition pathways and Transition perceived benefit, I use Pearson correlation coefficient to analyze the relation between these three variables. There was a positive correlation between Trust and Direction [ $r(134) = 0.488, p < 0.01$ ] ; Positive correlation between Trust and Benefit [ $r(134) = 0.486, p < 0.01$ ] and positive correlation between Direction and Benefit [ $r(134) = 0.667, p < 0.01$ ]. if increases in one variable are associated with increases in the others.

***The correlation of public sentiment***

The table below showed the differences between two genders, males and females.

Testing three variables in Attitude and Viewpoint. As there are only two variables, the

independent sample T test was used to be the method to observe its differences.

**Table 7.Independent Sample T test\_Gender**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Significance (two-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
Trust	Assumed	7.889	0.006	1.008	133	0.315	0.182	0.181	-0.175	0.540
	Not assumed			0.804	36.431	0.427	0.182	0.227	-0.277	0.642
Benefit	Assumed	7.559	0.007	2.565	133	0.011	0.370	0.144	0.085	0.654
	Not assumed			2.010	35.912	0.052	0.370	0.184	-0.003	0.742
Direction	Assumed	6.837	0.010	0.080	133	0.936	0.011	0.134	-0.254	0.275
	Not assumed			0.059	34.427	0.953	0.011	0.180	-0.356	0.377

In table6, there are no significant differences above three variables with females and males. In other words, gender doesn't appear to have a significant impact on three variables, which is attitude toward energy transition.

**Table 8. One-way Anova\_ Educational Background**

		Total of Squares	df	Mean of Squares	F	Sig.	Post-Hoc Tukey
Trust	Between Groups	3.704	2	1.852	2.485	.087	
	Within Group	98.396	132	.745			ns
	Total	102.100	134				
Direction	Between Groups	3.170	2	1.585	3.998	.021	
	Within Group	52.330	132	.396			Undergraduate>Master's degree and above
	Total	55.500	134				
Benefit	Between Groups	5.191	2	2.595	5.490	.005	
	Within Group	62.405	132	.473			Undergraduate>Master's degree and above
	Total	67.595	134				

There are significant differences in Support on four transition pathways and Transition perceived benefit. Although the youth from 18-25 years old shared a similar generation, it still presents differences based on different educational backgrounds. Both variables, as testified by Tukey's HSD test, showed that undergraduate is higher than master's degree and above. To understand more detail, the author made a test in each variable, and the results are as follows.

**Table 9. One-way Anova\_Direction \*Educational Background**

		Total of Squares	df	Mean of Squares	F	Sig.	Post-Hoc Tukey
es1	Between Groups	5.635	2	2.817	2.670	.073	ns
	Within Group	139.299	132	1.055			
	Total	144.933	134				
es2	Between Groups	4.151	2	2.075	2.707	.070	ns
	Within Group	101.183	132	.767			
	Total	105.333	134				
es3	Between Groups	6.821	2	3.410	4.613	.012	<b>Sig.</b>
	Within Group	97.594	132	.739			
	Total	104.415	134				
es4	Between Groups	1.319	2	0.660	0.703	.497	ns
	Within Group	123.896	132	.939			
	Total	125.215	134				

In Table8, it compared the Support for four energy transition directions with educational background. The result showed es3(I support energy transition - increasing the proportion of energy use related to natural gas)( $F=(2,132)=4.613, p=0.012$ ) was significantly different between Undergraduate and above Master's degree.

**Table 10. One-way Anova\_Benefit \*Educational Background**

		Total of Squares	df	Mean of Squares	F	Sig.	Post-Hoc Tukey
eb1	Between Groups	3.383	2	1.691	1.992	.141	ns
	Within Group	112.099	132	.849			
	Total	115.481	134				
eb2	Between Groups	8.705	2	4.352	6.301	.002	<b>Sig.</b>
	Within Group	91.177	132	.691			
	Total	99.881	134				
eb3	Between Groups	6.330	2	3.165	5.076	.008	<b>Sig.</b>
	Within Group	82.307	132	.624			
	Total	88.637	134				
eb4	Between Groups	2.906	2	1.453	2.101	.126	ns
	Within Group	91.287	132	.692			
	Total	94.193	134				
eb5	Between Groups	6.875	2	3.437	3.984	.021	<b>Sig.</b>
	Within Group	113.896	132	.863			
	Total	120.770	134				

Moreover, eb2(I believe energy transition can lead to a healthier lifestyle) (F(2,132)=6.301,p=0.002), eb3(I believe energy transition can improve environmental issues) (F(2,132)=5.076,p=0.008) and eb5(I believe energy transition will have a positive impact on Taiwan's economic competitiveness in the future.) (F(2,132)=3.984,p=0.021) also significantly different from people who have Undergraduate and above Master's degree educational background.

**Table 11. One-way Anova\_ Age**

		Total of Squares	df	Mean of Squares	F	Sig.	Post-Hoc Tukey
Trust	Between Groups	4.806	2	2.403	3.260	.041	ns
	Within Group	97.294	132	.737			
	Total	102.100	134				
Direction	Between Groups	1.414	2	0.707	1.726	.182	ns
	Within Group	54.086	132	.410			
	Total	55.500	134				
Benefit	Between Groups	4.943	2	2.471	5.207	.007	21-23>18-20
	Within Group	62.653	132	.475			
	Total	67.595	134				

When comparing age with three variables, the result presented that there was a significant difference between 21-23 years old and 18-20 years old respondents. Tukey's HSD Test showed that 21-23 years old was significantly higher than 18-20 years old respondents,  $p=0.007$ . To look into what kind of variable made the result significant, the outcome is presented as below.



**Table 12. One-way Anova\_Benefit \*Age**

		Total of Squares	df	Mean of Squares	F	Sig.	Post-Hoc Tukey
eb1	Between Groups	2.150	2	1.075	1.252	.289	ns
	Within Group	113.332	132	.859			
	Total	115.481	134				
eb2	Between Groups	6.372	2	3.186	4.497	.013	<b>Sig.</b>
	Within Group	93.510	132	.708			
	Total	99.881	134				
eb3	Between Groups	2.422	2	1.211	1.854	.161	ns
	Within Group	86.215	132	.653			
	Total	88.637	134				
eb4	Between Groups	7.152	2	3.576	5.423	.005	<b>Sig.</b>
	Within Group	87.041	132	.659			
	Total	94.193	134				
eb5	Between Groups	10.597	2	5.298	6.348	.002	<b>Sig.</b>
	Within Group	110.174	132	.835			
	Total	120.770	134				

The result showed that eb2(I believe energy transition can lead to a healthier lifestyle)( $F=(2,132)=4.497, p=0.013$ ), eb4(I believe the potential fluctuations in electricity prices due to energy transition are reasonable)( $F=(2,132)=5.423, p=0.005$ ) and eb5(I believe energy transition will have a positive impact on Taiwan's economic competitiveness in the future)( $F=(2,132)=6.348, p=0.002$ ) have significant difference between 21-23 years old and 18-20 years old respondents.

**Table 13. One-way Anova\_Carrer**

		Total of Squares	df	Mean of Squares	F	Sig.	Post-Hoc Tukey
Trust	Between Groups	0.893	3	0.298	0.385	.764	
	Within Group	101.207	131	.773			ns
	Total	102.100	134				
Direction	Between Groups	1.331	3	0.444	1.073	.363	
	Within Group	54.169	131	.414			ns
	Total	55.500	134				
Benefit	Between Groups	5.494	3	1.831	3.863	.011	
	Within Group	62.102	131	.474			Student>Primary sector
	Total	67.595	134				

Comparing between Career and three attitude variables, the table showed that there was a significant difference in perceived benefit. After testifying by Tukey's HSD Test, student are higher than the primary sector ( $F=(3,131)=3.863, p=0.11$ ). To compare more detaily, the result is showed below.

**Table 14. One-way Anova\_Benefit \*Career**

		Total of Squares	df	Mean of Squares	F	Sig.	Post-Hoc Tukey
eb1	Between Groups	3.001	3	1.000	1.165	.326	ns
	Within Group	112.480	131	.859			
	Total	115.481	134				
eb2	Between Groups	10.705	3	3.568	5.242	.002	<b>Sig.</b>
	Within Group	89.176	131	.681			
	Total	99.881	134				
eb3	Between Groups	7.294	3	2.431	3.916	.010	<b>Sig.</b>
	Within Group	81.343	131	.621			
	Total	88.637	134				
eb4	Between Groups	4.026	3	1.342	1.950	.125	ns
	Within Group	90.167	131	.688			
	Total	94.193	134				
eb5	Between Groups	6.396	3	2.132	2.442	.067	ns
	Within Group	114.375	131	.873			
	Total	120.770	134				

There are two variables showed significantly different in this table, eb2(I believe energy transition can lead to a healthier lifestyle)( $F(3,131)=5.242, p=0.002$ ) and eb3(I believe energy transition can improve environmental issues)( $F(3,131)=3.916, p=0.01$ ).

**Table 15. One-way Anova\_ Reasons for Living in Kaohsiung**

		Total of Squares	df	Mean of Squares	F	Sig.	Post-Hoc Tukey
Trust	Between Groups	0.692	3	0.231	0.298	.827	
	Within Group	101.408	131	.774			ns
	Total	102.100	134				
Direction	Between Groups	1.070	3	0.357	0.858	.465	
	Within Group	54.430	131	.415			ns
	Total	55.500	134				
Benefit	Between Groups	0.616	3	0.205	0.401	.752	
	Within Group	66.980	131	.511			ns
	Total	67.595	134				

**Table 16. One-way Anova\_ District**

		Total of Squares	df	Mean of Squares	F	Sig.	Post-Hoc Tukey
Trust	Between Groups	0.414	4	0.103	0.132	.970	
	Within Group	101.686	130	.782			ns
	Total	102.100	134				
Direction	Between Groups	0.576	4	0.144	0.341	.850	
	Within Group	54.924	130	.422			ns
	Total	55.500	134				
Benefit	Between Groups	2.624	4	0.656	1.313	.269	
	Within Group	64.971	130	.500			ns
	Total	67.595	134				

There was no significance that can be found as Table14 and Table15 showed. It means that “Living in Kaohsiung” and “District” aren’t influential to three attitude variables.

**Table 17. One-way Anova\_ Political party affiliation**

		Total of Squares	df	Mean of Squares	F	Sig.	Post-Hoc Tukey
Trust	Between Groups	9.325	3	3.108	4.389	.006	DPP>TPP and Neutral/No consider
	Within Group	92.775	131	.708			
	Total	102.100	134				
Direction	Between Groups	3.768	3	1.256	3.180	.026	DPP>TPP
	Within Group	51.732	131	.395			
	Total	55.500	134				
Benefit	Between Groups	3.394	3	1.131	2.309	.079	ns
	Within Group	64.201	131	.490			
	Total	67.595	134				

Since the Democratic Progressive Party (DPP) initiated the energy transition in 2016, there have been polarized voices. In Table 16, it can be observed regarding Governance and Trust and Support for four transition pathways, compared to the opposition party or those with no party affiliation, DPP supporters have significant positive support for both variables. Especially in terms of Governance and Trust, DPP's

support is notably higher than people with no party affiliation and the TPP (Taiwan People's Party).

**Table 18. One-way Anova\_ Governance Trust\*Political party affiliation**

		Total of Squares	df	Mean of Squares	F	Sig.	Post-Hoc Tukey
ge1	Between Groups	8.882	3	2.961	3.369	.021	<b>Sig.</b>
	Within Group	115.118	131	.879			
	Total	124.000	134				
ge2	Between Groups	7.944	3	2.648	2.881	.038	<b>Sig.</b>
	Within Group	120.382	131	.919			
	Total	128.326	134				
ge3	Between Groups	17.432	3	5.811	6.364	.000	<b>Sig.</b>
	Within Group	119.605	131	.913			
	Total	137.037	134				
ge4	Between Groups	6.247	3	2.082	1.885	.135	ns
	Within Group	144.687	131	1.104			
	Total	150.933	134				

The ge1(I think the government's implementation of energy transition is sustainable and has clear long-term goals), ge2(I think the government's implementation of the energy transition is open and transparent) and ge3(I believe the government's implementation of the energy transition is proactive and has achievement.) have significant different between DPP and TPP/ DPP and people with no party affiliation ,

however, ge4(I believe the government's execution of the energy transition is without risks (implying a stable power supply and safe energy)) are not statistically significant.

**Table 19. One-way Anova\_Direction\*Political party affiliation**

		Total of Squares	df	Mean of Squares	F	Sig.	Post-Hoc Tukey
es1	Between Groups	8.372	3	2.791	2.677	.050	ns
	Within Group	136.561	131	1.042			
	Total	144.933	134				
es2	Between Groups	1.883	3	0.628	0.795	.499	ns
	Within Group	103.450	131	.790			
	Total	105.333	134				
es3	Between Groups	1.797	3	0.599	0.765	.516	ns
	Within Group	102.618	131	.783			
	Total	104.415	134				
es4	Between Groups	8.940	3	2.980	3.358	.021	<b>Sig.</b>
	Within Group	116.275	131	.888			
	Total	125.215	134				

In this table, the long-term controversial issue has been presented significantly.

With es4(I support energy transition - phasing out nuclear energy), DPP supporters have higher scores than other party supporters, especially TPP.

## CONCLUSION

The research investigated the perceptions, attitudes, and knowledge of young adults in Kaohsiung regarding various aspects, including environmental concerns, energy issues, governance, trust, and political affiliations.

In demographic distribution, the majority of respondents were females, with a significant portion being in the 21-23 age group, educational background being undergraduate. In terms of gender distribution, females make up nearly three-quarters of the total. Compared to males, females show a greater willingness to complete this questionnaire; in fact, in this study, the authors point out that females indeed exhibit a greater willingness than males to address environmental issues and participate in questionnaire surveys.<sup>33</sup> Undergraduates showcased a different perception about energy transition compared to people with a master's degree or higher, indicating that educational experiences might shape perceptions. Moreover, students displayed a distinct perspective compared to those in the primary sector. Another highlight is the awareness and knowledge on environment and energy. While environmental concerns rank high among the respondents, there's a noticeable lack of awareness and concern about energy issues.

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<sup>33</sup> Yong Li, Bairong Wang, and Orachorn Saechang, "Is Female a More Pro-Environmental Gender? Evidence from China," *International journal of environmental research and public health* 19 (2022).



Also, there is a significant knowledge gap among Kaohsiung's young adults regarding energy issues. Most respondents were unaware of the complex of Taiwan's energy dependencies and sources. In the analysis of political parties, the respondents were almost all neutral or unaffiliated, indicating that this group of young people does not have a particular political inclination. However, it showed a favorable inclination towards the government's energy transition efforts among DPP supporters. On the other hand, neutral or unaffiliated people have a high potential that might be swayed with the right information and awareness campaigns.

The research underscores the importance of targeted education and awareness campaigns, especially focused on the intricate relationship between energy issues and environmental challenges. The evident knowledge gap, especially among young adults – the future decision-makers – needs to be bridged to ensure informed choices and support for sustainable policies. Moreover, understanding the influence of political affiliations, educational backgrounds, and careers can guide more tailored and effective interventions. As Kaohsiung, and Taiwan at large, grapples with the challenges of energy transition in a changing climate, harnessing the support and understanding of its young population will be crucial.

## APPENDIX

### Survey

#### \*高雄 18-25 歲青年對台灣能源轉型的觀點：探索性研究

各位親愛的朋友，您好：

這是一份學術問卷，目的是針對「高雄 18-25 歲青年對於台灣能源轉型政策的觀點」做研究。在此耽誤您幾分鐘的時間，請依照您的認知與真實感受填寫以下問卷。

本問卷採不記名方式作答，您的回答僅供學術研究使用，絕不對外公開，請放心填寫。感謝您能在百忙之中還能填答此問卷，您的填答將使本研究更加的有貢獻，在此獻上最誠摯的謝意。

祝身體健康，平安順心！

文藻外語大學國際事務系

指導教授：傅庸 教授

學生：林友翎 敬啟

\*高雄 18-25 歲青年:本文意指凡在高雄就業、讀書及居住之 18-25 歲青年

根據國際再生能源總署的定義，能源轉型是從使用化石原料生產的能源，漸進且穩定的轉向「零碳」的過程，目標是要減少與能源相關的二氧化碳排放且達到巴黎協定之目標：「本世紀全球平均升溫必須控制在 2°C 以內，進一步朝 1.5°C 努力」

台灣因此在 2016 年推動能源轉型計畫，並朝向：「減煤、增氣、展綠、非核」這四個方向為目標前進。



## 第一部分：氣候及能源感知

1. 請問您認為台灣有多少能源是仰賴進口？

10%-30% 31%-50% 51%-70% 71%-90% 90%-100%

2. 請問您認為哪種能源占台灣最大宗發電比率？

燃煤 燃氣 燃油 再生能源 核能

3. 我覺得自己很關注能源議題

非常同意 同意 普通 不同意 非常不同意

4. 我覺得自己很了解能源議題

非常同意 同意 普通 不同意 非常不同意

5. 我經常與身邊的人討論能源議題

非常同意 同意 普通 不同意 非常不同意

6. 我已經感受到氣候變遷影響到我的生活了(如豪雨、缺水、極端氣候等等...)

非常同意 同意 普通 不同意 非常不同意

7. 我感受到相比其他縣市，高雄的空氣品質是不好的

非常同意 同意 普通 不同意 非常不同意

## 第二部分：政府治理與信任

1. 我認為政府執行能源轉型是持續且有長遠清楚目標的

非常同意 同意 普通 不同意 非常不同意

2. 我認為政府執行能源轉型是公開透明的

非常同意 同意 普通 不同意 非常不同意

3. 我認為政府執行能源轉型是積極且有成果的

非常同意 同意 普通 不同意 非常不同意

4. 我對政府現在的能源轉型執行是無虞的

非常同意 同意 普通 不同意 非常不同意

## 第三部分：轉型方向支持

1. 我支持能源轉型-增加天然氣的能源使用占比

非常同意 同意 普通 不同意 非常不同意

2. 我支持能源轉型-減少煤炭的能源使用占比

非常同意 同意 普通 不同意 非常不同意

3. 我支持能源轉型-增加再生能源的能源使用占比

非常同意 同意 普通 不同意 非常不同意

4. 我支持能源轉型-廢除掉核能的使用

非常同意 同意 普通 不同意 非常不同意

#### 第四部分：轉型效益

1. 我認為能源轉型能帶來更穩定的用電

非常同意 同意 普通 不同意 非常不同意

2. 我認為能源轉型能帶來更健康的生活

非常同意 同意 普通 不同意 非常不同意

3. 我認為能源轉型能改善環境問題

非常同意 同意 普通 不同意 非常不同意

4. 我支持因能源轉型能帶來的可能電價波動

非常同意 同意 普通 不同意 非常不同意

5. 我認為能源轉型對台灣未來的經濟競爭力會有正面影響

非常同意 同意 普通 不同意 非常不同意

## 第五部分：政黨傾向與資訊接收

1. 請問您較支持哪個政黨

民進黨 國民黨 台灣民眾黨 時代力量 親民黨 其他 中立/都無考慮

2. 我會直接翻閱或查找關於能源轉型的科學證據

非常同意 同意 普通 不同意 非常不同意

3. 我認為制定轉型的過程中，民眾是有管道可以反映意見的

非常同意 同意 普通 不同意 非常不同意

4. 請問您有參加 2018 或/及 2021 的公民投票嗎?

有 沒有

5. 請問你有沒有參加過能源相關活動(如:講座、集會遊行、公聽會、宣導)

有 沒有

6. 請問您都是從哪裡得知能源轉型的資訊的?(可複選)

電視新聞 報章雜誌 網路新聞 社交媒體 身邊的親友 政府官方資訊

台電官方資訊 民間環保團體

## 第六部分：基本資料

1. 性別:

女性 男性 其他

2. 教育程度(包含目前就讀):

高中/職(含以下) 大專院校 碩士以上

3. 年齡:

18-20 21-23 24-25

4. 職業:

學生

第一產業(農業、林業、漁業、畜牧業、採集業)

第二產業(利用各種原料進行加工、製造，如：紡織、鋼鐵、食品工業、營

造業) 第三產業(提供勞務或販賣商品的行業，如：服務業、商業、交通運

輸，政府公務人員)

5. 在高雄的原因:

在地居民 讀書 就業 遷居

6. 居住區域

北高雄 (楠梓區、左營區、鼓山區、鹽埕區、三民區)

南高雄 (前金區、新興區、苓雅區、前鎮區、小港區、旗津區)

大岡山區 (岡山區、永安區、橋頭區、梓官區、燕巢區、阿蓮區、路竹區、湖內區、茄萣區、田寮區、彌陀區)

大旗山區 (旗山區、美濃區、六龜區、杉林區、內門區、甲仙區、那瑪夏區、桃源區、茂林區)

大鳳山區 (鳳山區、大寮區、林園區、鳥松區、仁武區、大社區、大樹區)

謝謝您的撥空填寫!



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