

國立清華大學 107 學年度碩士班考試入學試題

系所班組別：科技法律研究所碩士班 甲組(科技專業組)

考試科目（代碼）：文獻評析(含中文文獻及英文文獻)(4602)

共_11_頁，第_1_頁 *請在【答案卷、卡】作答

一. 請閱讀下列一則英文新聞後，以中文回答下列問題：(30%)

- (一) 為何 **FiT** 可以有效促進離岸風電之發展？(5%)
- (二) 可否列出本篇新聞中，廠商所提到的台灣未來離岸風電的發展瓶頸為何？(15%)
- (三) 為何離岸風電發展，會對於台灣當地經濟發展有所幫助？(10%)

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Vast Potential in Taiwan for Offshore Wind Power

BY TIMOTHY FERRYON OCTOBER 19, 2017

Source: <https://topics.amcham.com.tw/2017/10/vast-potential-in-taiwan-for-offshore-wind-power/>

The government is moving cautiously – some developers think too cautiously – in promoting what could become a major new industrial sector.

Offshore wind-power development is a huge undertaking.

Enormous turbines fixed on gigantic masts rise 150 meters above the sea, with foundations reaching 50 meters into the waters below. The generating capacity of each turbine is as much as 9 megawatts (MW), compared to an average of 2MW for onshore wind-power turbines.

Such projects also involve enormous amounts of money and equal amounts of risk, especially in Taiwan, where much of the basic data such as comprehensive wind-speed measurements has not yet been compiled, and where the rules of the regulatory game continue to shift and evolve.

Even so, offshore wind developers are concerned that Taiwan is stymying the growth of the industry by aiming too small.

Changhua County's coastal waters are Taiwan's richest in terms of wind resources – with bountiful winds and shallow depths of 50 meters or less (the maximum for offshore wind turbines) extending some 50 kilometers into the Taiwan Strait.

Wind-power developers say that despite the existence of 10 gigawatts (GW) – 10,000MW – of potential wind-power capacity in these waters, Taiwan's Bureau of Energy (BOE) declared recently that the Taiwan Power Co. (Taipower) would build out only 3.5GW of grid connection in Changhua.

Taiwan is aiming for some 3GW of offshore wind-power installed capacity by 2025, according to officials at the BOE, although the BOE website sets this goal for 2030. To generate interest from developers and investors in building these gigantic machines, Taiwan has acted in accordance with conventional wisdom by offering a healthy feed-in-tariff (FiT) of over NT\$6 per kilowatt hour (kWh). FiTs are a policy mechanism to attract investors by offering a return above prevailing electricity prices through long-term Power Purchase

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Agreements (PPA). These agreements guarantee renewable-energy developers a steady long-term source of revenue to compensate for high initial investment costs.

“The FiT has proven to be the right thing in Europe and that is why we are where we are now in the UK and in Germany,” says Matthias Bausenwein, Danish firm DONG Energy’s Asia Pacific general manager. Denmark is one of the pioneers of offshore wind, and DONG, which has developed offshore wind projects throughout Europe, is now looking to expand into the Asian market. “A strong FiT has given the industry the time to build up the necessary volume and scale so that costs can be reduced over time, and then we get a good result,” says Bausenwein.

However, one possible unintended consequence of a high FiT may be motivation for BOE to limit the amount of grid connections available for offshore wind power to prevent Taiwan from overachieving on its targets for this expensive, intermittent form of energy. Industry insiders regard that approach as a misguided step that may constrain development.

“European experience shows that if you allocate only 3 or 4 GW to the grid, then you will not get 3 or 4 GW of offshore wind power; you will get maybe 2.5 GW,” says Bausenwein. “If you allocate 6 GW, you will maybe get only 4 GW by 2025.”

The reason is that the complexities and costs of developing offshore wind are so high that many projects fail to be completed. Offshore wind projects typically take as long as a decade to complete; until they are feeding power into the grid, they are spending large sums of money, leaving open the risk of failure. Adding to the failure rate are the strict requirements in Taiwan regulating offshore wind development in terms of environmental impact, project financing, localization of the supply chain, and many other aspects.

Grid connection is challenging because most power transmission grids were designed to bring power from central power stations to customers. In locations distant from the central power stations, the grid deploys smaller cables and transmission lines. Since renewables are largely distributed generation, however, they feed large amounts of electricity at the thin ends of the grid tentacles, necessitating reinforcement to handle this influx. Offshore wind developers typically construct the connections from the turbine to the onshore substations, where they then tie into the grid.

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Yushan Energy founder and CEO Ian Hatton, a veteran of the offshore oil and gas industry in the North Sea and founder of Eclipse Energy, developer of the Ormonde Offshore Wind Project in the U.K., says that Taiwan needs to invest in this grid capacity now. “Offshore wind is going to provide the major chunk of Taiwan’s power in the future, so you’ve got to facilitate that coming in a timely fashion,” he says.

In a joint venture with Canadian firm Northland Power, Yushan recently won environmental-impact approval from Taiwan’s Environmental Protection Administration for two offshore wind projects with a potential for 1GW of capacity.

Bausenwein says that offshore wind power development requires a certain scale in order to drive the creation of a domestic industry. Higher targets lead to more business and investment opportunities for local players, while more development leads to more experience, with ensuing lower risks and costs.

“It is highly recommended to keep the pipeline opened up not only in terms of grid but in terms of targets in order to drive investment,” says Bausenwein. “We need to have a volume that allows for competition.”

The decision to decrease the grid-connection capacity also reflects another concern among developers: that Taiwan continues to change the rules of the game.

According to insiders, wind-power developers have been working for the past two years under the assumption that the stated 4GW capacity goal was actually a starting point for upwards of 8GW of installed capacity, but the 3.5GW grid connection capability now seems to set this as a cap. “This may scare investors because they will see that there is another element in place now that was not there” previously, says Bausenwein.

Some amount of rules adjustment is necessary and expected, say developers. The recent expansion of shipping lanes in the Taiwan Strait and consequent reduction in the amount of available area for offshore wind development is an example of an adjustment better made sooner rather than later.

Yet other decisions, such as the one on grid capacity, have taken the industry by surprise. “There have been some frustrations with goal posts moving,” admits Hatton. “But this is a brand new industry – they have not had an oil and gas industry here to lead the way – so it’s

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actually working out reasonably well. Still, there will be things that need addressing.”

French offshore wind developer EOLFI, which has been in Taiwan since 2013 and is currently bidding on a number of projects, noted in email correspondence that “it is of paramount interest to maintain stability in term of policy regulation to maintain, if not increase, the level of investment confidence in the market” and “not scare investors away.”

At the same time, Bausenwein also stresses the positive side of the ledger. “We have a good framework,” he says. “It has attracted investors, it’s transparent, and it’s clear what the milestones are.”

Assessing economic benefits

Offshore wind projects are awarded based on the quality of the bid and the qualifications and experience of the bidders. A big part of that calculation is how much will they invest into the local economy. “It’s about maximizing economic benefit for Taiwan, and that really comes down to costs and balance,” says Yushan’s Hatton.

Taiwan is strong in many of the support industries needed to supply wind-power projects, including electronics, steel, and shipbuilding, and is seen as able to develop the capacity to handle the construction, operations, and maintenance of offshore wind farms.

Taiwan already has substantial onshore wind power, generating both power and jobs in maintenance and operations. Photo: Timothy Ferry

But some major equipment will need to be imported, particularly the turbines themselves, which are made by such experienced international players as Siemens, Enercon, Mitsubishi, and GE. Expertise counts. “You don’t want to spend a lot of money offering this feed-in tariff and then have these things not work,” says Hatton.

Another challenge is the environmental impact assessment (EIA), which has proven to be a difficult barrier for offshore wind-power developers. Yushan’s project, as well as a smaller one off the coast of Taoyuan, are two of the few that have passed an EIA.

The Taiwan Strait is a heavily trafficked waterway with a fragile ecosystem, and the EPA is closely scrutinizing how offshore wind development will affect the ecology.

Protection of the white Formosan humpback dolphin is a particular concern, as this is a

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critically endangered subspecies of the Chinese white dolphin, with perhaps only 70 creatures still alive. When pile-driving was being carried out to build the foundations of the Formosa-1 pilot wind-power project off the coast of Miaoli, environmental NGOs protested the impact of the noise on the sensitive hearing of marine mammals that depend on echolocation for survival.

Formosa-1 is a near-shore project, closer to the habitats of the Formosa humpback dolphins, while the Yushan projects – as well as the seven projects that DONG is planning – are all 50 kilometers out in the Taiwan Strait.

The actual impact of offshore wind development on marine ecosystems remains a subject of debate. Offshore wind developers say the foundations create an environment similar to a reef. Referencing his experiences in the UK and the Gulf of Mexico, Hatton says that “biodiversity tends to increase with this sort of development.”

Marine biologists say that while the reef-effect is well documented, the overall impact remains unclear, due largely to the paucity of baseline data in marine waters now supporting offshore wind.

Offshore wind-power has been deployed for two decades in Europe and long-term data is slowly accumulating. Research seems to indicate that while the construction phase can have negative impacts on marine mammals and fish due to the noise and disturbance of the silt, the longer term effect is uncertain. Some gains have been observed in habitat building, but there are also negative consequences due to turbine noise and the generation of an electromagnetic field.

As an impact on Taiwan’s fishing fleets operating in the Taiwan Strait can certainly be anticipated, provisions for a fishermen’s support fund is now included in each bid.

To lower the environmental impact, the use of floating offshore wind turbines is being proposed for the Taiwan Strait. They can also exploit waters deeper than 50 meters, where 60% of Taiwan’s wind resources lie.

EOLFI Greater China’s Taihai Taoyuan (WIN) Offshore Wind Power project, which will have total installed capacity of 500MW, will make Taiwan “the world’s first country to deploy a commercial-scale floating offshore wind project,” the company told *TOPICS* via

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email. The project was officially registered by the BOE on September 1 and is now entering the EIA review process. EOLFI says it expects EIA approval by the end of the year.

A major factor in getting the offshore wind industry going in Taiwan will be financing, as these capital-heavy infrastructure projects require massive funding at the early stages before they start generating revenue. Roughly 60-70% of a wind farm's life-cycle costs are accrued in the upfront capex investment, according to experts. While international banks such as Macquarie Group, which is partnered with DONG and local offshore wind developer Swancor on the Formosa-1 project, have years of experience calculating the risk of such projects, local banks are just learning.

"The risks associated with different activities (e.g. offshore construction, operation, etc.) are still new to Taiwan banks," observed EOLFI. "At present, due to the lack of local involvement in large-scale project financing schemes, especially for a scale such as ours, foreign banks' involvement will be necessary."

The Formosa-1 project is owned 50% by Macquarie, 35% by DONG, and 15% by Swancor, and is so far the only offshore wind-power project in Taiwan to have been successfully developed and generate revenue. DONG considers the Formosa-1 project a vital test case for Taiwan's banks and developers.

"We are helping this first project in Taiwan to work out, to bring our experience but to also learn," says Bausenwein. "Formosa-1 is a perfect case because it gives the banks the opportunity to learn about offshore wind."

Despite the slow progress, developers are optimistic that offshore wind will play a major role in Taiwan's future energy needs, while generating an entirely new supply chain.

"The impact of offshore wind will be similar to the oil and gas industry in the North Sea – it's a game changer," says Hatton. "The current targets are too restrictive, but I think that once the government gets confidence that this stuff will be delivered, then they will start to plan more strategically."

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二. 請閱讀下列一則英文新聞後，以中文回答下列問題：(20%)

- (一) 可否簡單敘述一下這一則新聞所探討的事件為何？(5%) 究竟有何重要意義？(5%)
- (二) TFTC 之主要理由為何？(10%)

TFTC imposes USD773 million fine and corrective order on Qualcomm for abuse of dominance

Slaughter and May

October 18 2017

Source: <https://www.lexology.com/library/detail.aspx?g=d5849e9d-82e4-4cf7-9f3d-205ebc5bc192>

On 11 October 2017, following an investigation launched in February 2015, the Taiwan Fair Trade Commission (TFTC) announced its decision to impose a fine of TWD23.4 billion (approximately USD773 million) and a corrective order on US chipmaker Qualcomm for abuse of market dominance in the market for baseband chips for mobile communications standards including CDMA, WCDMA and LTE.

The TFTC found Qualcomm to own considerable standard essential patents (SEPs) and to have a dominant position in the baseband chip market. It also found that Qualcomm: (i) refused to license SEPs to rival chipmakers; (ii) coerced mobile phone manufacturers to sign unfair licensing agreements by linking chipset supply with patent licence contracts; and (iii) imposed exclusive terms on licensing agreements. This conduct increased the trading costs between phone manufacturers and Qualcomm's competitors, thereby forcing phone manufacturers to accept disadvantageous terms, deprived or lowered competitors' opportunities to do business, and/or reduced their ability to withstand price competition. Since Qualcomm's competitors could not circumvent the SEPs, they had to raise prices to offset the increased costs, which led to a decrease in demand for their products, thus excluding them from competing with Qualcomm. The TFTC therefore concluded that Qualcomm's licensing practices in Taiwan restricted and harmed competition in the baseband chip market, breaching the Taiwan Fair Trade Act.

This is the largest fine levied on a single company by the TFTC and marks the third recent major Asian antitrust enforcement ruling against Qualcomm. In early 2015 the

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Chinese National Development and Reform Commission imposed a fine of RMB6.08 billion (approximately USD975 million) on Qualcomm for its unfair patent-licensing practices; and in December 2016 the Korean Fair Trade Commission fined

Qualcomm KRW1.03 trillion (approximately USD865 million), again for similar patent-licensing practices.

It is worth noting that the TFTC's fine of TWD23.4 billion is indeed very significant, especially when compared proportionally with Taiwan's much bigger neighbours, China and South Korea. Unlike in Europe, but not uncommonly in Asia, there is no further detail in its public decision of how the TFTC arrived at this level of fine. If Qualcomm's recent encounter is the beginning of a growing trend of high antitrust fines in multiple jurisdictions across Asia, this will rapidly become a very significant risk area for companies facing antitrust investigations by Asian competition authorities.

In addition to the fine, the TFTC also imposed a corrective order requiring Qualcomm to stop its abusive behaviour and re-negotiate concluded agreements in good faith with competing chipmakers and mobile phone manufacturers.

Qualcomm released a statement the next day outlining its intention to seek a stay of the corrective order and appeal against the TFTC's decision to the Taiwanese courts after receiving the formal decision.

Qualcomm also intends to appeal the amount of the fine and the methodology adopted in calculating it.

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三. 請閱讀文章後，以中文回答下列問題：

平等的意義在於即使有差異，但彼此之間仍有平等的關懷和尊重。平等並不預設要消除或是打壓差異。尊重基本人權必須從對吾人自身的肯定做起，而非否定。所以，平等並非暗示人人的同等化或均值化，它並非指某種形式較為優越，而另一種形式則應受到貶抑，平等乃是承認並接受彼此之間的差異。或者，至少要知道差異不應導致排他、邊緣化，或標籤化。終極的平等則是人人可以享受到人與人之間的差異為這個社會帶來的活力。這個議題大大超出了過去對異性戀的排他性的假設，而這正是目前爭議的源頭。然而，像在南非這樣的國家，承認並接受差異特別重要——在過去幾個世紀以來，基於像是膚色這樣的生理特徵，我們被劃分為優勢和劣勢。南非的國民形形色色，因此憲法了解到人類（生理、社會、和文化）的多樣性，了解保持差異性的權利，並擁抱這個國家的多元性。因此本案的問題不只是消除某個族群過去受到的不公平待遇，而是更迫切需要瞭解我們的社會是奠基於包容和相互尊重。要測試寬容度，不是找那些原本就與我們相處融洽的人事物，而是得和自己所不欲的人事物之間進行溝通與和解。

長久以來的社會偏見與因循守舊的結果是，同性戀配偶無法享受婚姻的好處和責任，但是，這不只是像必將蒸發的晨露一般的小小不便，這代表著法律偷偷摸摸地、殘酷地把同性戀視為外來的他者，並認為他/她們的親密關係不像異性戀一樣，需要受到肯定和保護。雪上加霜的是，同性戀被當成生物學上的異類，是犯錯或誤入歧途的人類，和我們的社會格格不入，所以他們不適用我國憲法上對每個人都有受到關懷和尊重之權利的保障。這無異於暗示他/她們對愛、對承諾、對承擔責任的能力劣於異性戀配偶。

其結果就是，既然婚姻及其相關的社會關係在我們的文化中具有相當的重要性，否定同性戀婚姻，等於是有一種最徹底的方式否定他/她們定義、展現自我的權利。

這種古老的偏見沒有理由繼續存在。奴隸制度在這個國家持續了一個半世紀、殖民主義長達三世紀，禁止不同種族的通婚甚至更久，赤裸裸的男性霸權則幾乎有一千年那麼長。前述這些原則都是因為明顯的生物和社會因素，並被宗教戒律或國家法律支持。奴隸制度和殖民主義現在被完全摒棄，禁止異族通婚則受到不同程度的否定、羞辱或唾棄。類似的，如果今日的法律仍然繼續擁

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護傳統的主流意見，那歧視就難以消除。正是那些不能得到大多數人認同，或是無法在國會獲得足夠代表的族群，必須由憲法人權憲章來確認、保障他們的 기본人權。

奧比·薩克思著，陳毓奇、陳禮工譯，《斷臂上的花朵》

麥田出版，2014 年，251-253 頁

問題：

- (一) 本文作者對於「同性婚姻」的看法為何？(20 分)
- (二) 有論者主張可用「民事伴侶」的方式，讓同性戀伴侶能夠以法定方式處理財產繼承等實際問題，如此既可保障同性戀者的權利，亦不會影響到現行的婚姻制度。試問：如果你是本文作者，會如何反駁上述主張？請附理由說明之。(15 分)
- (三) 你是否贊同本文作者的想法？若是，其理由為何？若否，其理由為何？(15 分)