

# Energy Pricing, Energy Supply and FDI Competitiveness in Viet Nam: An Assessment of Foreign Investor Sentiment

Vibhuti Garg, Richard Bridle and Kieran Clarke

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## 1.0 Introduction

Foreign Direct Investment (FDI) has made a major contribution to Viet Nam's impressive structural transformation and economic growth since the 1990s. As the country continues to pursue an ambitious development agenda, with FDI likely to play a central role in this process, it is important for policymakers to better understand the needs and concerns of foreign businesses regarding energy supply and energy pricing. The satisfaction of businesses with domestic energy market conditions may be one factor in determining the ease with which Viet Nam can attract the high-quality FDI that can help deliver key developmental goals.

Industries in Viet Nam tend to be more energy intensive compared to those in other Southeast Asian countries and other countries at the same level of development, with Vietnam one of the most energy intensive economies in the world (World Bank, 2014). One of the factors contributing to this are historically low electricity tariffs. The weighted average retail electricity applied from March 16, 2015 is VND 1622.01/kWh (not including VAT, which is estimated at USD 0.074/kWh) according to Decision No. 2256/QD-BCT of March 12, 2015 (Ministry of Industry and Trade (MOIT)), which, again, is lower than other Southeast Asian countries and other countries at the same level of development (Leitl, 2014). The Vietnamese government has indicated a desire to increase electricity tariffs in order to address rapid increases in energy demand, enhance investment in electricity generation and minimize fiscal losses within the power sector, however in practice it has been reluctant to increase electricity prices for a number of political, social and economic reasons. One of the reasons for inaction on electricity price reform has been a concern that higher power prices will increase cost burdens for multinational firms and thereby undermine the competitiveness of Viet Nam as a destination for FDI.

MOIT has shown a willingness to gradually increase power prices over time, with a recent price appreciation of approximately 7.5 per cent in March 2015. These tariff increases, however, have not been sufficient to cover the operational and commercial losses of EVN. Tariff increases are therefore likely necessary to continue to reduce the large fiscal outlays to EVN inherent to current pricing levels and, importantly, to encourage investment in the power sector to enhance power supply and reliability. This is, of course, a difficult task, as it will need to be completed while maintaining the competitiveness of domestic industry and without compromising the welfare of poor households.

This report discusses the issues of energy supply and pricing issues and provides recommendations for the design of energy policy that addresses, in particular, the concerns and interests of FDI investors in Viet Nam in this sphere. The key issues being analysed are:

- Are energy prices likely to drive or influence FDI investment decisions?
- Would higher electricity prices over the medium term affect companies' investment decisions in Viet Nam?
- Is reliability of power supply as important as the cost of power to businesses, or more important?
- What should be the governments key priorities in terms of energy policy based on the answers to these question?

In order to assess the impact of energy pricing and energy supply reforms on foreign direct investment decisions and to understand the needs and concerns of foreign businesses with regards to energy supply and reliability in Viet Nam, considerable new primary research was undertaken. Primary research involved the following:

- Three outreach workshops with senior executives from FDI firms in Viet Nam;
- Informal face-to-face meetings with key FDI firms; and
- A survey of FDI firms in Viet Nam

The analysis that follows is based on 150 responses received under the survey of FDI firms, as well as other forms of stakeholder consultation. This sample is compared to around 4000 registered FDI projects in the period 2011-2013,

approximately 4 per cent of the recently registered FDI projects. Due to the consistency of responses and correlation between verifiable metrics (such as the country of origin of investors) and the complementary information gathered from stakeholder meetings, it we conclude that the information presents a relatively representative reflection of the views and concerns of foreign investors in Viet Nam. The key findings from the survey and stakeholder meetings, which are set out in Chapter 5: Key Conclusions and Policy Implication, are summarized as follows:

- Around 60 per cent of investors said that energy costs made up less than 5 per cent of total operating costs. Some investors, mainly in energy intensive industry and 'other heavy industry', spent more than 10 per cent of their operating costs on energy, however attitudes towards energy pricing and supply tended to be fairly consistent across sectors.
- The relatively low share of energy costs in total costs for FDI firms and the relative importance of a significant number of other factors in investment decisions meant that firms seemed to be largely unconcerned about the prospect of higher power prices. Clearly, for the great majority of investors, the level of energy prices do not exert a significant influence on the decision to invest in Viet Nam.
- Most respondents (around 65 per cent) are not satisfied with energy infrastructure and supply In Viet Nam. Improving the quality and reliability of power service should be a key priority for government, a process that would likely require increasingly cost-reflective prices.
- For the majority (73 per cent) of respondents, the reliability of power supply was a bigger problem than the prospect of higher prices. Assuming it is only the views of FDI that are taken into consideration, this implies that government should actively seek to raise power prices as one means of improving power sector service.

Well-designed energy policy requires data and information from key stakeholders of the kind collected for this study and summarized very briefly above. There are several important policy implications that can be drawn from the new information collected in this report.

- Power prices need to be adjusted over time to reflect real production costs to encourage timely investment, enhance energy security and undermine power sector losses. Government should have a clear road map for power price increases so that the businesses (FDI and domestic) are well-informed and can best respond to higher prices over time.
- Higher power price can be influential in providing the incentives for private companies to invest in both electricity generation as well as in energy saving technologies and production enhancements, which enhances energy security and can make the Vietnamese industrial base more competitive over time. For a few specific sectors in the special investment priority list, prioritised power pricing schedules may be applied to encourage strategically important investments, however, in general and until a certain level, firms' investment decisions are not significantly influenced by the level of energy prices.
- Government planning for the energy sector should focus in the coming years on ensuring more reliable power supply through large-scale capacity addition to meet growing demand.
- In order to promote the renewable energy as a key part of energy generation in Viet Nam, better incentives should be provided. This will be especially important from an energy security perspective as Viet Nam becomes more dependent on imported coal.
- Evidence collected from multinational firms suggest that one of the most effective ways to encourage FDI is to provide an enabling and stable environment for business by rationalizing royalties and taxes, streamlining regulatory policies and enhancing infrastructure-for-business, which includes energy infrastructure.
- To understand the rationale for energy price adjustment level and adjustment roadmaps, more dialogue among concerned stakeholders such as businesses, professional and consumer groups, policy-makers, researchers and others should be undertaken to share information and hear the views of various stakeholders.

## 2.0 The nature of foreign direct investment in Viet Nam

Market-based economic reform in Viet Nam was launched in 1986, and in 1987 the first ever Law on Foreign Direct Investment was put in place. In the last 30 years, with amendments and improvements of FDI laws, Viet Nam has managed to attract substantial FDI inflows and the sector has contributed significantly to the overall economic development of the country. According to the Ministry of Planning and Investment (MPI), FDI capital in the period 2007-14, accounted for 25 per cent of total investment capital in the economy, made up 18 per cent of GDP of the country, 64-67 per cent of total exports and 12-14 per cent of total state budget revenue, and has also directly created 2 million jobs (LeMy, 2014).

### 2.1 Analysis of Viet Nam's FDI attraction policy

Currently, there are four main legal sources that define regulatory framework in Viet Nam:

- i) The 2005 Law on Investment and its associated decrees;
- ii) Sectoral laws and regulations;
- iii) A schedule of specific commitments in services under the WTO accession agreement; and
- iv) Legal restrictions on mergers and acquisitions (M&A) of domestic companies (UNCTAD, 2008).

Prior to 1 July 2006, the Vietnamese government provided a range of investment incentives to foreign investors. However, under the 2005 Law on Investment, foreign and domestic investors should be treated equally, charged the same inputs prices and given the same tax incentives. Some incentives are applicable for large-scale or high-tech projects (irrespective of FDI or domestic industry, however large-scale and high-tech projects are usually undertaken by foreign investors). Some provincial regulations, however, tend to provide certain incentives to FDI projects that are not available to domestic investors.

Investment incentives for both domestic and foreign investments are expected to be expanded in the coming months. The new amended Law on Investment, which was approved by the National Assembly and which will be effective from July 1, 2015, provides for a range of new incentives for firms as part of an attempt to create a more enabling and transparent investment environment in Viet Nam.

According to the new Law, foreign investment is eligible for additional government support if it involves investment in or the production of clean energy technology and renewable energy; products with at least 30 per cent value added in Viet Nam; energy-saving products; production of key electronic goods, agricultural machinery and cars; and collection, treatment and recycling of waste. Foreign investment is also eligible for additional government support if it involves capital investment of at least VND 6,000 billion (USD 270 million) and investment in projects in rural areas that employ at least 500 workers.

### 2.2 Status of FDI in Viet Nam

In the period 2001-2006, before Viet Nam joined the WTO, FDI capital contributed on average 16 per cent of total investment capital in the economy. This proportion increased remarkably in the period 2007-2014 reaching 25 per cent of total investment by the first half of 2014. A overview of FDI flows into Viet Nam since economic liberalization is presented in table below.

**TABLE 1: PERFORMANCE OF FDI IN VIET NAM (UNIT: MILLION US\$)**

	INDICATORS	1988-1990	1991-1995	1996-2000	2001-2005	2006-2010	2011-2013	CUMULATIVE AT END OF 2013	CUMULATIVE BY AUGUST 2014
1	Number of newly registered projects	211	1397	1724	3935	6147	4008	15698	16690
2	Registered capital	1602.5	18376	25507	20803	148071	54316	243169	253402
3	Newly registered capital	1602.2	16244	21328	13714	129469	35356	196386	203632
4	Increased capital	0.3	2132	4179	7089	18599	18960	46781	49767
5	Implemented capital	N/A	7153	13513	13840	44634	32960	98587.5	N/A

Source: Foreign Investment Agency - MPI

FDI inflows were modest (1988-1990) during the first 3 years after the promulgation of the first Law on Foreign Direct Investment, however this was followed by a 'boom period' in Viet Nam for newly registered foreign investment capital in the decade between 1991-2000.

During the period 2001-2005, the rate of growth in registered capital decreased compared to the previous period, however the value of total implemented capital continued to increase. Peak in FDI inflows were then recorded in the period 2006-2010 with the number of newly registered project increasing by 56 per cent and total implemented FDI capital more than tripling compared to the previous period. In the recent period 2011-13, FDI capital reached USD 32.960 billion, accounting for 60.9 per cent share of total registered capital in Viet Nam.

### 2.2.1 Analysis by Sector

Manufacturing is the largest recipient sector for FDI, accounting for 54.17 per cent of total registered FDI capital, with real estate sector ranked second with 20.6 per cent. The detailed sectoral distribution of FDI projects in Viet Nam is presented in the table below.

**TABLE 2: SECTORAL DISTRIBUTION OF FDI PROJECTS IN VIET NAM (AS OF AUGUST 2014)**

NO.	SECTOR	NO. OF PROJECTS	TOTAL REGISTERED CAPITAL (MILL. US\$)	SECTOR SHARES
1	Manufacturing	9207	131,645.68	54.17 per cent
2	Real estate	430	50,075.35	20.60 per cent
3	Hotels and restaurants	353	11,024.64	4.54 per cent
4	Construction	1119	10,843.48	4.46 per cent
5	Electricity, gas and water supply, air-conditioners	96	9,748.60	4.01 per cent
6	Information and telecommunication	1024	4,072.34	1.68 per cent
7	Wholesale, retail, repairing	1245	3,741.92	1.54 per cent
8	Transport and storage	417	3,659.18	1.51 per cent
9	Art and entertainment	146	3,631.78	1.49 per cent
10	Agriculture, forestry and fisheries	512	3,430.25	1.41 per cent
11	Mining	82	3,273.61	1.35 per cent
12	Healthcare and social protection	96	1,753.56	0.72 per cent
13	Professional contracts, science and technology	1616	1,747.85	0.72 per cent
14	Drainage and waste treatment	37	1,349.22	0.56 per cent



NO.	SECTOR	NO. OF PROJECTS	TOTAL REGISTERED CAPITAL (MILL. US\$)	SECTOR SHARES
15	Finance, insurance and banking	80	1,323.18	0.54 per cent
16	Education and Training	192	761.54	0.31 per cent
17	Other services	133	749.56	0.31 per cent
18	Administrative and supporting services	125	206.46	0.08 per cent
	<b>Total</b>	<b>16,910</b>	<b>243,038.20</b>	100.00 per cent

Source: Foreign Investment Agency - MPI

Interestingly, while agriculture, forestry and fisheries is an important sector for Viet Nam in terms of employment, it accounted for a very modest 1.41 per cent of total FDI capital.

### 2.2.2 Analysis by Source Countries

In 2014, Japan and South Korea became the top two source countries for FDI in Viet Nam, replacing Taiwan and Singapore. South Korea is the largest source country for FDI in Viet Nam in terms of number of projects, with 3930 projects in total. However, Japan leads in terms of total registered capital with USD 36.201 billion – 14.9 per cent share of total FDI capital. The detailed information for the top ten largest source countries for FDI to Viet Nam is presented in table below.

**TABLE 3: TOP TEN LARGEST SOURCE COUNTRIES FOR FDI TO VIET NAM (AS ON AUGUST 2014)**

NO.	FDI SOURCE COUNTRY	NUMBER OF PROJECTS	PERCENTAGE	TOTAL REGISTERED CAPITAL (MILL. US\$)	PERCENTAGE
1	Japan	2381	14.08 per cent	36,201.51	14.90 per cent
2	South Korea	3930	23.24 per cent	32,845.31	13.51 per cent
3	Singapore	1300	7.69 per cent	30,804.95	12.67 per cent
4	Taiwan	2325	13.75 per cent	27,907.43	11.48 per cent
5	British Virgin Islands	541	3.20 per cent	17,727.23	7.29 per cent
6	Hong Kong	838	4.96 per cent	13,633.24	5.61 per cent
7	USA	703	4.16 per cent	10,735.96	4.42 per cent
8	Malaysia	470	2.78 per cent	10,596.24	4.36 per cent
9	China	1056	6.24 per cent	7,884.11	3.24 per cent
10	Thailand	361	2.13 per cent	6,527.32	2.69 per cent

Source: Foreign Investment Agency - MPI

In 2014, the top ten FDI source countries accounted for more than 80 per cent of total FDI capital in Viet Nam. In terms of new projects in 2014, South Korea was the largest source country with total newly registered and supplemented capital of US\$ 6.82 billion, accounting for a 39.4 per cent share of total FDI investment capital in the country. Singapore was the second largest source of investment with 15.9 per cent of invested capital, followed by Japan 10 per cent (FIA, 2014a).

As of end-2014, 23 out of 28 EU member countries have invested in Viet Nam with 1544 effective projects and registered capital of US\$ 18.96 billion. Among EU nations, the Netherland is the single largest investor with 223 projects and total registered capital of US\$ 6.58 billion, accounting for 34.7 per cent share of total EU FDI in Viet Nam.

## 2.3 Electricity consumption trends of FDI investors in Viet Nam

The electricity consumption by various industries in Viet Nam in 2011 and 2012 is presented in the table below.

**TABLE 4: ELECTRICITY CONSUMPTION IN VIET NAM BY DIFFERENT SECTORS (IN GWH)**

INDUSTRY	2011	2012
Agriculture-forestry-fisheries	1079	1493
Industry-construction	50085	55316
Trading and services	4334	4989
State agencies and residential consumption	34212	38377
Other activities	4947	5215
Total consumption	94657	105390
Loss rate ( per cent)	9.23	9.0

Source: VNEEP (2013), *Viet Nam Energy Statistics*, Ha Noi, Viet Nam

According to a 2011 UNIDO-MPI report, FDI investors consider lack of skilled human resources and unreliable electricity supply as the two most important obstacles to capacity utilization in Viet Nam; especially compared to state-owned enterprises (SOEs), which were seen to have access to a high quality supply of electricity and labour. Also, the report identifies the poor infrastructure related to electricity as one of the key constraints to export growth in Viet Nam. Data on energy consumption, energy use and energy efficiency by FDI firms in different sectors in Viet Nam is not directly available – a key motivation for the primary research undertaken for this study. The details on energy trends of FDI investors are provided in detail in Chapter 4, following a discussion below on current issues in energy pricing and supply in Viet Nam.

## 3.0 Current issues with energy pricing and supply in Viet Nam

Based on the projections of Power Development Plan 7 (PDP7), the Vietnamese government's central power planning document, power demand is forecast to increase strongly to 2030, meaning Viet Nam's power generation mix will need to change rapidly meet demand, given the limited potential to expand traditional hydropower sources of generation (Mayer Brown, 2011). The share of coal-based generation is forecast to reach close to 50 per cent of total installed generation capacity by 2020. This large-scale transition to coal, while entailing massive environmental implications, will require a huge quantity of investment in electricity generation, transmission and distribution. Anecdotal evidence gathered prior to this study, however, suggests that electricity sector stakeholders are concerned about current power sector dysfunction and about the ability of government to achieve the required capacity additions to address current supply problems.

### 3.1 Supply issues

The Government of Viet Nam has, in general, provided a reliable and cheap supply of power to industries, especially those in Industrial Parks or Industrial Zones (IP/IZ). However, there exist concerns among foreign investors about the *future* ability of the government and EVN to provide stable and reliable power that allows for efficient production without reliance on expensive non-grid generating capacity. According to preliminary engagement on this issue, investors' key concerns are as follows.

- More investment in electricity generation capacity is required to meet strongly rising demand.
- National energy security is likely to deteriorate as increased fossil fuel imports are needed to meet rising energy demand, with Viet Nam forecast to become a net importer of coal and petroleum products in the near future.
- Government investment capacity is limited and access to low cost international loans has diminished, making private sector investment critical. However, incentives for private investment in the power sector currently do not exist.
- Energy SOEs are heavily indebted, raising concerns regarding the financial sustainability of electricity sector companies. EVN losses have been estimated at \$790 million in 2014.
- For expansion of coal- and gas-based generation, Viet Nam would need to enhance not only energy infrastructure but also to quickly expand the development of roads, rail and deep-water ports.
- Many of the coal power stations that were scheduled to be operational by end-2014 are delayed and others are at relatively early stages of development. The slower than expected increase in generation capacity is likely to cause a further deterioration in power supply reliability.
- Negotiations with private sector investors for developing domestic gas are reported to be stalled, leading to some major developers to pull out of planned investments in exploration and production.
- Plans for nuclear generation have been pushed back, making nuclear energy unlikely to become a significant contributor to the electricity mix in the short- or medium-term.
- Renewables energy deployment has been slow, with Viet Nam unlikely to meet its largely unambitious PDP7 target to increase renewables generation to 4.5 per cent of total generation, partly due to a general climate of low electricity prices and, specifically, low PPA rates of only \$0.078/ kWh for wind generation, for example.

- Given generalized power shortages, firms are concerned that power that is directed as a priority to industrial applications has come at the expense of power for Vietnamese citizens, leading to local social discontent in industrial areas and resentment towards foreign business.

Given this situation, multinational firms from both the energy and industrial sectors begun negotiations to construct new power plants (both renewable and thermal) to supply their own operations and the national grid, mainly under a Build Operate Transfer (BOT) model. Whether these capacity additions go ahead, however, will depend on the ability and willingness of the Vietnamese government to negotiate commercially viable PPAs, and, if approved, will take a minimum of five years to become operational. The precedent for this kind of success, however, is not strong. In late-2014, for example, Norway's SN Power cancelled plans to add generation capacity in Viet Nam because EVN and the Vietnamese government was unwilling to increase PPA rates above \$0.07/kWh, making such new capacity unviable.

## 3.2 Pricing issues

Maintaining low electricity prices, as the Vietnamese government has, is costly for three main reasons. First, low electricity prices undermine cost recovery and act as a disincentive to investment in generation capacity, leading over time to dysfunctional power markets and chronically unreliable supply. Second, lacking cost-recovery causes systemic losses within electricity markets and requires the Vietnamese government to therefore consistently 'bail out' EVN with scarce fiscal resources. Third, low energy prices encourage resource-intensive modes of development, from which Viet Nam is trying to move away. However, policymakers are concerned, among other social concerns, that higher electricity prices might drive away foreign investment (to Cambodia, Myanmar and other low cost competitors). In this context, this study analyses through survey and stakeholder consultations impact of energy pricing on FDI competitiveness. The key issues being analysed in the following chapter are:

- Are the level of energy prices likely to drive FDI investment decisions?
- Would higher electricity prices over the medium-term affect companies' investment decisions in Viet Nam?
- Is reliability of power supply as important to firms as the cost of power, or more so? Are they more concerned with higher prices or unreliable supply?
- How do firms view the trade-off between low power prices and unreliable supply?

The next chapter of this report outlines the answers to these questions, which have been based on comprehensive stakeholder analysis and outreach to the FDI community in Viet Nam.

## 4.0 Research findings: Assessing foreign investors' views on energy pricing and supply in Viet Nam

Viet Nam has so far attracted substantial FDI inflows, which has significantly contributed to the overall economic growth of the country. However, insufficient energy infrastructure, unreliable power supply and, potentially, higher power prices could have a number of real economic impacts and implications for foreign investment. This study identifies the energy-related (and general) drivers for foreign direct investment decisions in Viet Nam and the ongoing needs and concerns of foreign businesses with regards to energy supply and reliability.

### 4.1 Methodology

In order to assess the impact of energy pricing and energy supply reforms on foreign direct investment decisions and to understand the needs and concerns of foreign businesses with regards to energy supply and reliability in Viet Nam, various forms of primary research were undertaken.

#### I. Three Outreach Workshops and Informal Stakeholder Consultations

Two stakeholder consultations were held with 36 foreign businesses from the greater Ho Chi Minh City region on 16 January 2015 and with 33 foreign industrial, manufacturing and agricultural businesses from the greater Hanoi region on 20 January 2015. Following the second meeting, 50 participants also took part in a roundtable with representatives from the Ministry of Planning and Investment, the Ministry of Industry and Trade, EVN and representatives of foreign embassies and international development banks. One-on-one stakeholder meetings were also held in January 2015, including with Dutch, French, Norwegian and Singaporean companies.

#### II. Survey of FDI firms in Viet Nam

A questionnaire was circulated to FDI firms in Viet Nam through various international chambers of commerce. The questionnaire was translated into Japanese, Viet-namese, Korea and Taiwanese to ensure a balanced response rate from FDI firms from different source countries. A wide variety of FDI sectors were surveyed including energy intensive industry (cement, steel, petrochemicals, energy and aluminium), other heavy manufacturing industry, services, retail and construction. 150 responses from different countries and sectors were received and analysed. The majority of the investors responded in English, followed by Japanese and Korean (see Figure 1).

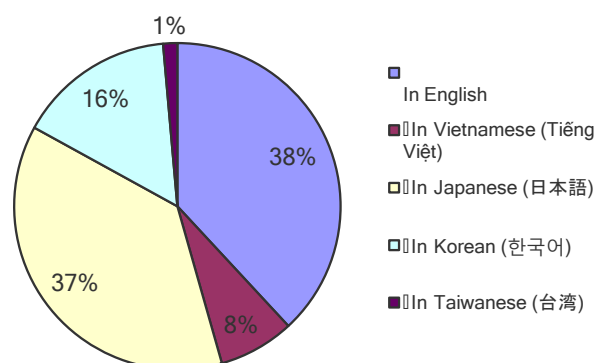


FIGURE 1: SURVEY RESPONDENTS BY LANGUAGE

The preference of language largely correlates with the source countries whose firms invest in Viet Nam. Most of the companies from Singapore, Europe, North America and Australia responded in English, while investors from Japan, Korea and Taiwan have largely responded in their respective national language. While there are many commonalities in the responses of FDI investors, some preferences are nationally specific. Responses in different languages are taken as a proxy for representation of needs and concerns of different source countries investing in Viet Nam.

In order to effectively design energy supply and pricing policy that adequately meets the needs of foreign investors, it is important that the Vietnamese government understand the following:

1. What is the nature and size of businesses of FDI investors operating in Viet Nam?
2. What are power costs as a proportion of total operating costs?
3. Are investment decisions driven by energy prices?
4. What are the key drivers for investment decisions in Viet Nam?
5. Are foreign investors satisfied with the energy infrastructure and supply for investment in Viet Nam?
6. Are foreign investors willing to pay higher prices for more reliable and uninterrupted power supply?
7. At what level of price increase would decisions to invest in Viet Nam be affected?
8. Did foreign investors account for possible price increases in their recent investments in Viet Nam?
9. How reliant on back-up power generation facilities are FDI businesses for their operation?
10. Are foreign investors willing to pay more for power from renewable generation sources?

The company survey was designed to address these issues, along with other forms of qualitative stakeholder analysis, and the responses are summarized below in sections 4.2 and 4.3.

**The survey methodology described above has certain limitations.** The sample of 150 firms may be compared to around 4000 newly registered projects in the period 2011-2013. This indicates a sample of around 4 per cent of the total newly registered FDI projects. In reality some respondents may have invested in several projects and some may not have invested in newly registered projects in this period. Due to the consistency of responses and correlation between verifiable metrics (such as origin of investors) and the complementary information gathered from stakeholder meetings it can be concluded that the information presents a relatively representative reflection of the views and concerns of the overall foreign investors in Viet Nam. However, caution should still be exercised when drawing conclusions from the data and future policy proposals based on this data should be subject to further stakeholder consultation.

## 4.2 Findings from non-Survey Stakeholder Engagement

### Informal Meetings

Consistent viewpoints were repeatedly raised in the various one-on-one meetings with foreign investors. First, power cuts to the businesses were reported to be infrequent and the businesses reportedly received advanced warning about the power cuts, enabling maintenance to be scheduled during these periods and meaning that cuts have, thus far, caused limited disruption to production. That said, businesses reported being mainly concerned with electricity supply and reliability rather than the price of power. Firms whose production was chiefly for the domestic markets were especially unconcerned with higher power prices, as these, it was said, would also impact competitors. Exporters were slightly more concerned, especially for energy intensive industry (such as fertilizer). All companies had installed generators to supplement grid power, but these are expensive and cannot sufficiently cover full-scale production. Importantly, energy costs were not reported to have been a major factor in the decision to operate in Viet Nam. The businesses cited the availability of labor, investment incentives, land and the dynamism of the domestic market as the main drivers of their Vietnamese investments.

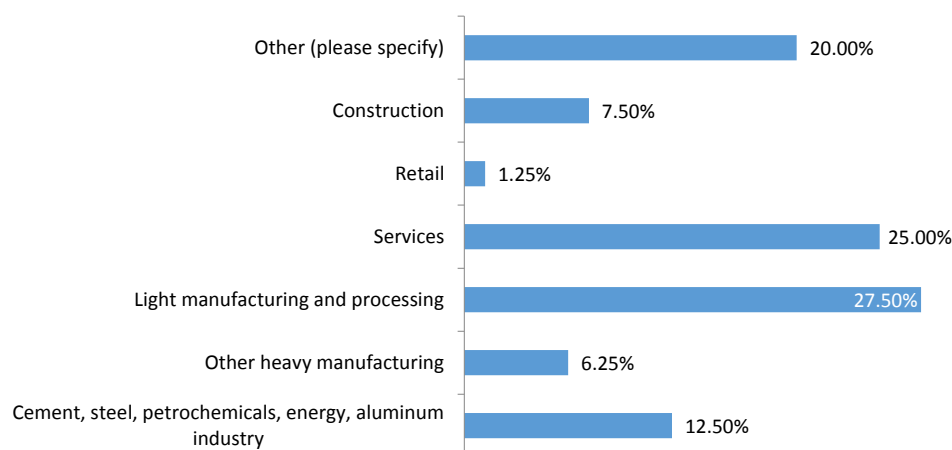
## Outreach Workshops

At the stakeholder consultation events, the majority of participants stated that higher energy prices were not a major concern, although a number of enterprises that were involved in exporting stated that their price competitiveness would be affected at the margin by higher tariff rates for power. The level of electricity tariffs were not considered to be main factor driving FDI investment in Viet Nam compared to other factors like low skilled labor costs, regulatory environment, domestic and international market access and land costs. Many people stressed the need for improved energy efficiency and that higher prices would drive implementation of more energy efficiency measures in the country. Businesses in the energy sector (and those seeking to build power capacity of their own) stated that the long process and negotiations for investment in new power plants was significantly delaying (and indeed undermining) construction of new generation. Most participants agreed that EVN had thus far provided relatively reliable supply, but that reliability was decreasing consistently, and future prospects were concerning. Firms argued power prices should gradually rise, but that at the same time EVN should become more transparent and improve management, as there is a strong perception of inefficiency in that organization. During the stakeholder consultation process, it was also pointed out that a more competitive market framework for sale of electricity should be created. This will ensure a market mechanism whereby consumers who want reliable supply, can secure supply by paying the market price of electricity. Price rises in the range of 10 per cent per annum would be acceptable for almost all firms but this should come with an assurance of more reliable power supply over time.

## 4.3 Survey Results

### 4.3.1 Nature and Size of Businesses of the Survey Respondents

Two sectors, light manufacturing and services, receive more than half of all FDI inflows to Viet Nam. 20 per cent of FDI was classified in the “other” category. This category included agriculture and pharmaceutical industries. Heavy manufacturing and energy intensive industry (cement, steel, energy petrochemicals and aluminium) accounted for 18.75 per cent of FDI. The distribution of FDI between sectors is shown in the figure below.

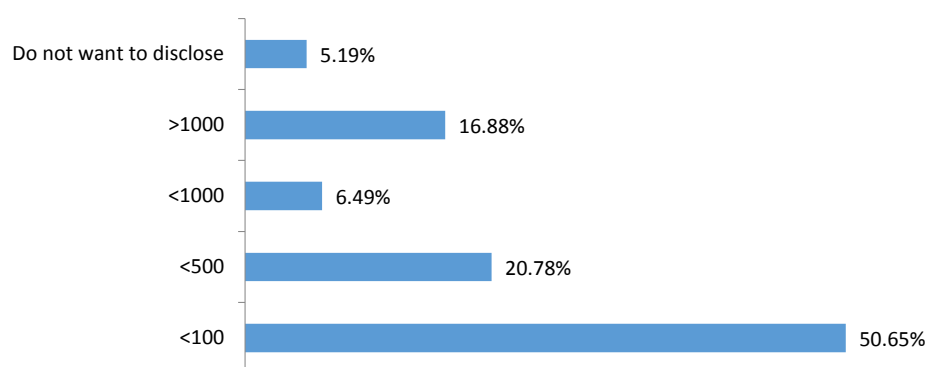


**FIGURE 2: SURVEY SAMPLE DISTRIBUTION BY TYPE OF INDUSTRIAL SECTOR**

Analysis at country level reveals that most of the countries have concentrated their investment in three to four sectors with some small investment in other areas. Japanese firms have made large investments in the light manufacturing and processing sectors, with 45 per cent share of total Japanese investment going to this sector, followed by various

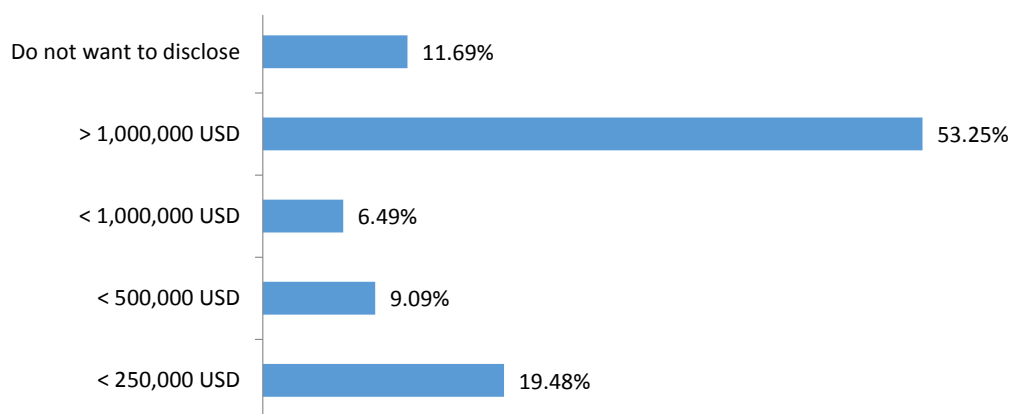
energy intensive sectors and services. Korean firms, like their Japanese counterparts, had largely invested in light manufacturing (36 per cent of total Korean firms surveyed) followed by services (28.6 per cent) and other energy intensive industries (cement, steel, petrochemicals, energy and aluminium) (14.3 per cent). Non-Japanese/Korean investors were distributed more broadly across sectors.

The majority of the foreign investors (51 per cent) have less than 100 staff employed in their businesses. The share of firms with greater than 100 staff but less than 500 staff is approximately 21 per cent, and firms with staff greater than 500 but less than 1000 staff have a 6.5 per cent share. However, about 17 per cent firms have number of employees exceeding 1000.



**FIGURE 3: SURVEY SAMPLE DISTRIBUTION IN TERMS OF STAFF EMPLOYED**

The majority of the foreign investors (53 per cent) responding to the survey have made capital investments of greater than 1,000,000 USD. On the other hand, about 20 per cent have foreign invested capital less than 250,000 USD and 9 per cent have foreign invested capital in the range between 250,000 to 500,000 USD. The share of FDI investors with invested capital greater than 500,000 USD but less than 1,000,000 USD is small (6.5 per cent).



**FIGURE 4: SURVEY SAMPLE DISTRIBUTION IN TERMS OF INVESTED CAPITAL**

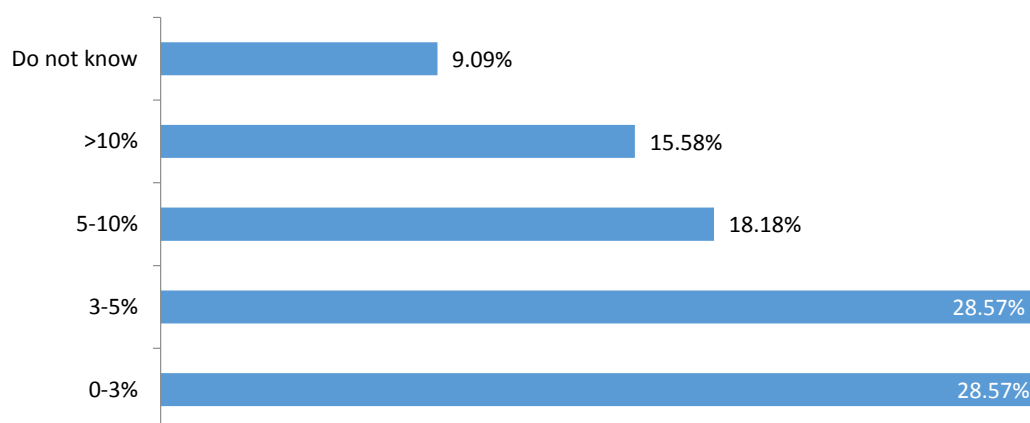
### 4.3.2 Key Findings

The views of FDI business regarding energy pricing and energy supply, and the links between these factors and Vietnam’s competitiveness are detailed below.



### ***I. Power cost as a proportion of total operating cost***

One indicator of the likely impact that changes in electricity price will have on business profitability is the proportion of total operating costs made up by electricity. For around 30 per cent of respondents, electricity makes up about 0-3 per cent of total operating costs, with a further 30 per cent spending 3-5 per cent of operating costs and 19 per cent spent in the range of 5-10 per cent. Sixty per cent of firms therefore spend less than 5 per cent of operating costs on electricity, with close to 90 per cent spending less than 10 per cent. Korean and Japanese firms tended to have slightly higher electricity costs as a proportion of operating costs reflecting the more energy-intensive sectoral distribution of investment of firms from these countries.

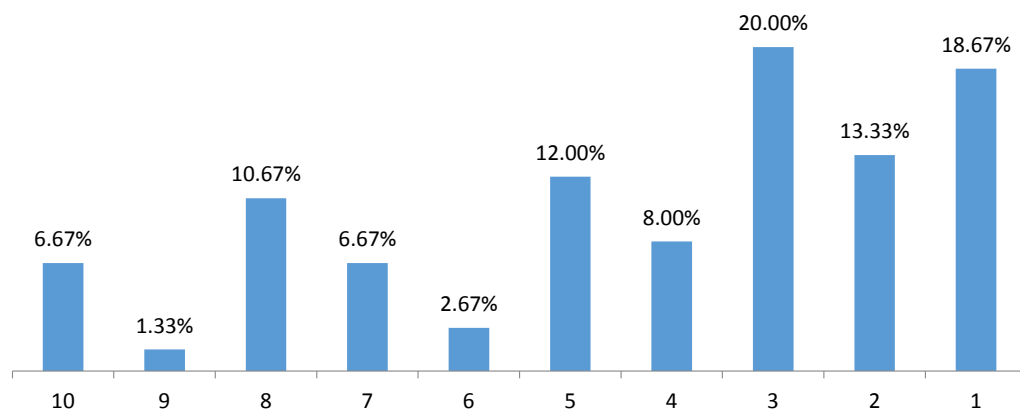


**FIGURE 5: POWER COST AS A PROPORTION OF TOTAL OPERATING COST**

Analysis at sectoral level show some differences in energy spending by sector, as would be expected. For firms in services and light manufacturing, energy costs vary approximately evenly between 0-5 per cent of total operating costs, with very few respondents reporting costs higher than 5 per cent of total costs. For investors in retail and construction, energy costs are mostly in the range of 3-5 per cent of total operating costs (and uniformly so in the case of retail), with 20 per cent of construction firms nevertheless indicating energy cost of higher than 10 per cent of total costs. Surprisingly, for energy intensive industry and other heavy manufacturing, energy costs are evenly distributed between high and low cost categories, likely reflecting differences in energy efficiency between firms. While energy costs as a proportion of operating costs are somewhat higher for energy intensive industry and other heavy manufacturing, in general businesses were found to spend relatively little on energy costs as a proportion of total costs.

### ***II. To what extent do energy prices drive FDI Viet Nam?***

The survey asked respondents to rank the extent to which investment in the past by FDI businesses had been driven by historically low energy prices in Vietnam. In general, businesses tended to discount the role of low energy prices in investment decisions (see Figure 6). Nineteen per cent of respondents said investment decisions were 'not at all' affected by energy prices, while a majority (51 per cent) ranked the importance of energy pricing as a driver of investment between 1 and 3 on an increasing scale of 1 to 10. A large majority of respondents (71 per cent), rated the importance of energy pricing less than 5 on a scale from 1 to 10. Korean firms were somewhat more likely to place a higher priority on energy prices, with 55 per cent (instead of 71 per cent of the total sample) ranking the importance of energy prices less than 5 on a scale of 1 to 10.



**FIGURE 6: DECISION TO INVEST IN VIET NAM DRIVEN BY ENERGY PRICES**

*Note: A score of 10 means 'to a very significant extent' while a score of 1 means 'not at all'*

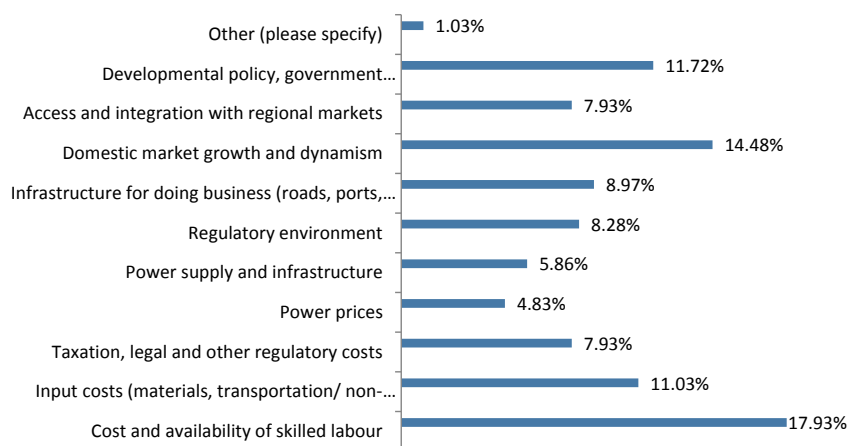
Analysis revealed some difference on a sector-by-sector basis. The majority of services (85 per cent) and light manufacturing firms (68 per cent) rated the importance of energy pricing less than 5 on a scale from 1 to 10. For the construction sector and energy intensive industry, approximately 20 per cent of respondents rated the importance of energy pricing 10, implying that energy prices was a key driver for their investment decision in Viet Nam. For heavy manufacturing industry the responses were mixed, with 50 per cent of the respondents assigning a score of 8, while the other 50 per cent of firms ranked the importance of energy pricing as a driver of investment between 1 and 3.

### **III. Key drivers for FDI in Viet Nam**

The survey asked firms to indicate the top five drivers of their investment in Vietnam from a list of ten key investment drivers, including the level of power prices. The top five drivers were as follows:

- Cost and availability of skilled labour (17.93 per cent).
- Domestic market growth and dynamism (14.48 per cent).
- Developmental policy, government investment/incentives and macroeconomic stability (11.72 per cent).
- Input costs (materials, transportation/ non-energy input costs) (11.03 per cent).
- Infrastructure for doing business (roads, ports, rail) (8.97 per cent).

Power prices ranked last (tenth) with only 4.83 per cent of respondents considering this to be one of the top five drivers for their investment in Viet Nam.

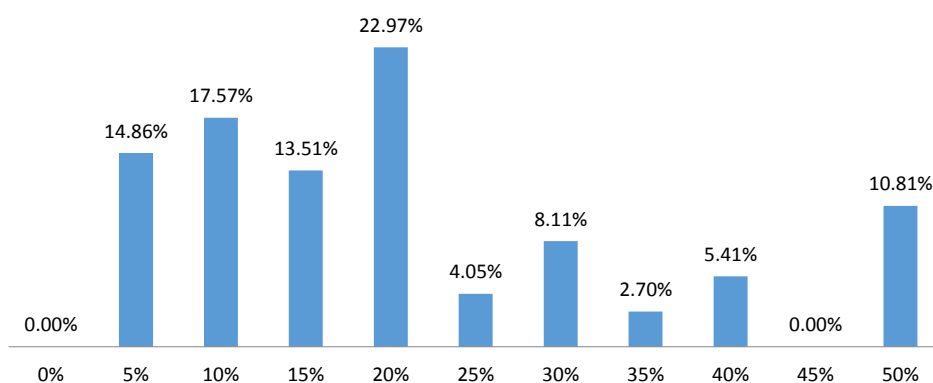


**FIGURE 7: KEY DRIVERS FOR INVESTMENT IN VIET NAM COMPARED TO COMPETITOR FDI DESTINATIONS**

The response of firms from different FDI source countries largely matched the responses from the aggregate sample, with significant emphasis for each country on cost and availability of skilled labour, input costs, development policy and domestic market conditions. The same was largely true across sectors, however with services firms placing a greater emphasis on access and integration with regional markets and energy intensive industries prioritizing input costs and domestic market conditions more than other sectors. For all sectors, power prices featured low or last in firms' ranking of the importance of different investment drivers.

**IV. Finding acceptable levels for power price increases**

The survey instrument asked respondents to indicate what annual level of nominal power price appreciation over the medium-term would lead them to reconsider future investments in Viet Nam. The majority of respondents (approximately 54 per cent) indicated that they would be willing to bear annual power prices of more than 15 per cent before reconsidering future investment, with 67 per cent of respondents willing to bear sustained price rises of more than 10 per cent. That still meant there existed a significant minority (46 per cent) whose investment was more sensitive increases above 15 per cent. Having said this, annual nominal power price increases of even 15 per cent over the medium-term would nevertheless still represent a significant structural increase in power prices that would go a considerable distance in enhancing cost recovery in industrial power supply.

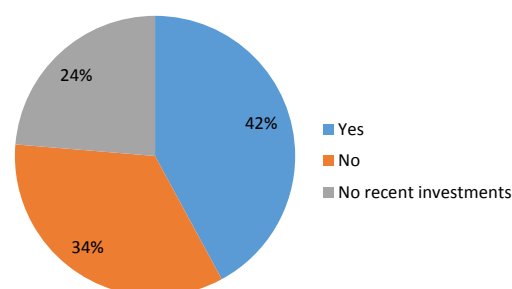


**FIGURE 8: FIRMS' RANGE OF ACCEPTABLE NOMINAL YEARLY POWER PRICE INCREASES OVER THE MEDIUM-TERM**

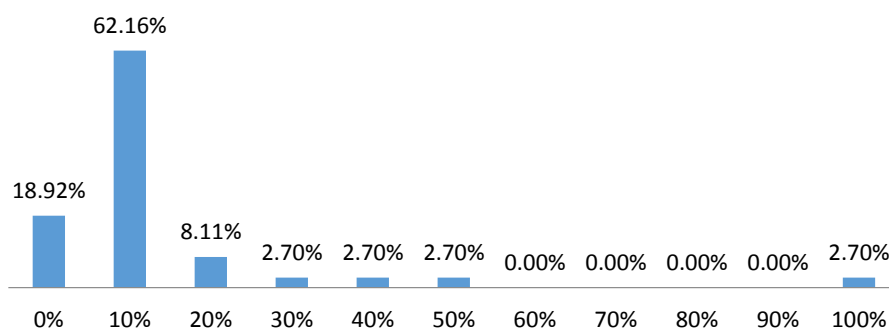
Fifty-five per cent of Japanese investors indicated that they were willing to accept nominal yearly power price increase of 25 per cent and greater, more than the sample. Eighty-five per cent of Korean investors, on the other hand, were concerned that nominal price increases of more than 20 per cent per annum would affect their investment decisions. For energy intensive industry, the results were similar – with 75 per cent of the respondents indicating that only yearly price increases up to a ceiling of 20 per cent would be acceptable. Most other sectors, aside from retail, were less price sensitive than the aggregate sample presented above.

**V. Have FDI investors accounted for higher power prices in recent investments?**

The survey asked respondents whether they have incorporated higher nominal power prices in their investment decisions in the last two years. In initial stakeholder outreach, many firms’ representatives said that higher power prices over time were already taken into consideration as part of their investment decision calculus, meaning FDI businesses were not discouraged by higher power prices but were actually including expectation of higher power prices in their investment plans. In practice, 55 per cent of firms who had made recent investments had indeed accounted for higher prices, with a large majority of these firms (>60 per cent) calculating power prices to rise about 10 per cent per annum (see Figure 10). This suggests that much of the cost impact of higher power prices on businesses over time has already been absorbed within calculations around recent investment decisions.



**FIGURE 9: HAVE FIRMS INCORPORATED HIGHER POWER PRICES INTO INVESTMENT DECISIONS IN THE LAST TWO YEARS?**



**FIGURE 10: PERCENTAGE OF NOMINAL POWER PRICE INCREASE INCORPORATED INTO INVESTMENT DECISIONS**

The picture is slightly different for Japanese investors, 40 per cent of whom did not make investments in the last two years. Of those who did, one third of the respondents did not incorporate higher power prices into investment calculations, one third incorporated yearly price increases of 10 per cent per annum and the remaining one third of firms accounted for price increases of between 20 and 50 per cent. Sixty-four per cent of Korean investors had allowed for yearly price increases of 10 per cent or less in their investment calculus.

Less energy intensive sectors such as retail and services tended not to incorporate higher prices into their investment decisions. The construction and light manufacturing sectors tended to include small increases in power prices (of around 10 per cent per annum) in investment calculations. Sixty per cent of firms in energy intensive industries, on the other hand, have incorporated higher power prices of between 10 and 50 per cent per annum into their investment decisions.

### VI. Level of satisfaction with energy infrastructure and supply

Power shortages are a relatively regular occurrence in Viet Nam, and these are likely to increase as installed generation capacity additions fail to keep up with strongly growing electricity demand. Thus far, firms have indicated that supply disruptions have been largely planned and therefore manageable. However, they are concerned that the reliability of supply is likely to worsen over time given inadequate recent investment. Sixty-five per cent of firms indicated that they were either rather unsatisfied or not satisfied at all with power infrastructure and supply. These results were largely consistent across sectors and across countries of origin for FDI.

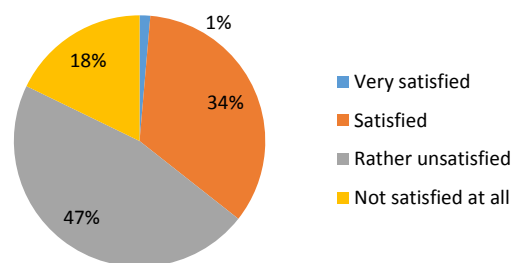


FIGURE 11: FIRMS' SATISFACTION WITH CURRENT POWER INFRASTRUCTURE AND SUPPLY IN VIET NAM

### VII. The trade-off between electricity sector reliability and price

There is a trade-off over time in electricity markets between low prices and the reliability of electricity supply – low electricity prices, while being beneficial for consumers, tend to undermine the signal and incentive for additional investment in generation capacity while weakening the ability, from a cash flow perspective, of national utilities to make timely investments. Higher prices, on the other hand, are likely to promote timely investment. The survey asked firms to indicate whether, for them, likely higher power prices or unreliable power supply was a more of a problem for Viet Nam's competitiveness as a destination for investment. Interestingly, a large majority (73 per cent) of respondents said that unreliable power supply was more damaging to Vietnamese competitiveness. This concern regarding supply unreliability was even more marked for those responding in English and Japanese, with over 80 per cent these respondents indicating that power supply was more of an issue. Somewhat surprisingly, it was above all for energy intensive industry and other heavy manufacturing that unreliable power supply is considered to be more damaging than the higher energy prices, which suggests a willingness to pay among these firms for more reliable supply despite being heavy energy users.

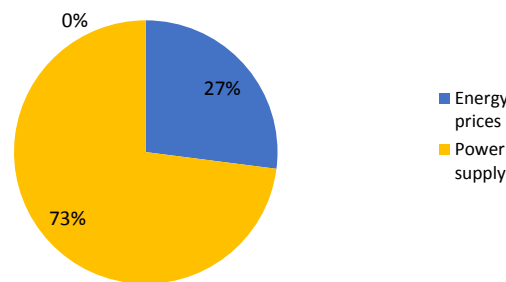


FIGURE 12: FACTOR CONSIDERED MORE DAMAGING FOR ATTRACTIVENESS OF VIET NAM AS A DESTINATION FOR FDI

### VIII. Reliance on back-up generators

The survey asked respondents to indicate whether and how often they use back-up generators to supplement grid power and to maintain production during power outages. Over 50 per cent of respondents said that they used back-up generation either 'sometimes' (on average once per week) or 'often' (on average several times per week), indicating a serious problem of power supply reliability for a large proportion of firms. Having said that, a sizeable minority (28 per cent), however, indicated that they never used back-up generation. These results were largely similar across FDI country of origin and sector.

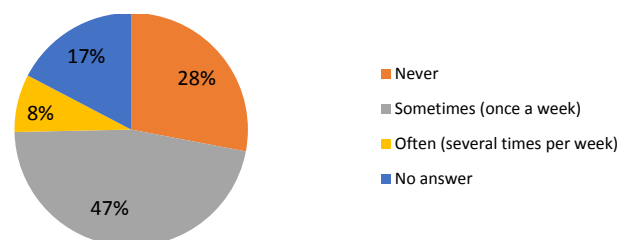
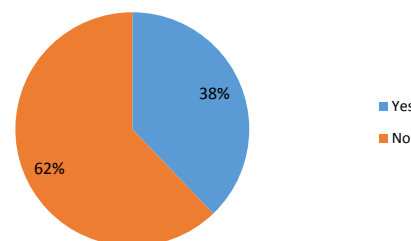


FIGURE 13: RELIANCE ON BACK-UP POWER GENERATION FACILITIES?

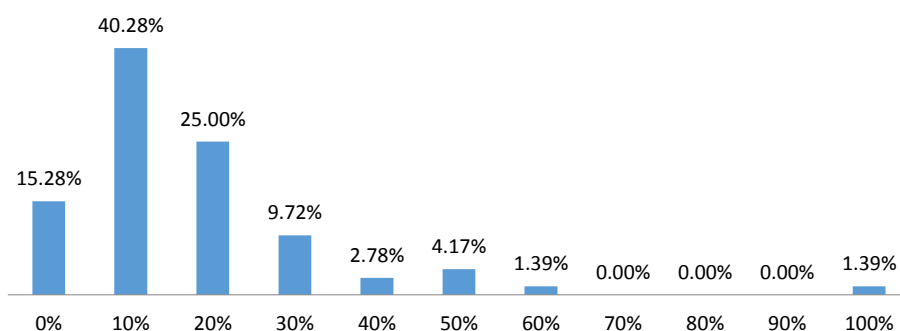
**IX. Willingness to pay higher prices for more reliable/uninterrupted power supply**

To assess the willingness of investors to accept higher prices in return for better power service provision, respondents were asked to choose whether they would accept a one-off nominal increase in power prices by 20 per cent in return for reliable and uninterrupted power supply. Interestingly, only 38 per cent of the respondents indicated a willingness to do so. This result likely reflects the fact that, while frequent, power outages are largely planned at this stage and are therefore often manageable. Dialogue with businesses suggests that they are not necessarily concerned about unreliable power supply in the present but rapidly worsening reliability over time. There was, however, a wide variance of responses depending on the geographic source of FDI, with Korean and Japanese investors particularly reticent to pay higher power prices for greater reliability (80 per cent of Korean and 90 per cent of Japanese investors indicating they would not do so), while the majority of investors from other countries (63 per cent) saying that they would pay higher prices for greater reliability. In the same way, more than 60 per cent of energy intensive and other heavy manufacturing firms indicated that they would be willing to make the trade-off of higher power prices for enhanced power supply.



**FIGURE 14: FIRM'S WILLINGNESS TO PAY HIGHER POWER PRICES FOR UNINTERRUPTED POWER SUPPLY**

**X. Willingness to pay more for power supply from renewable generation sources**



**FIGURE 15: WILLINGNESS TO PAY MORE FOR POWER SUPPLY FROM RENEWABLE GENERATION SOURCES**

Finally, the survey asked respondent to indicate whether they would be willing to pay a premium above normal retail power prices for electricity supplied from renewable sources, and if so, how large of a premium. While 15 per cent of firms indicated they would be unwilling to pay more for renewable electricity, 40 per cent of the respondents were willing to pay 10 per cent more, 25 per cent were willing to pay 20 per cent more and 10 per cent of the respondents willing to pay 30 per cent more. This distribution of responses was, with small variances, consistent across FDI sectors.

Japanese and Korean firms tended to have less appetite to pay higher tariffs for renewable-sourced electricity, with more than 30 per cent not willing to pay a premium for this (and only about 30 per cent of firms willing to pay more than 10 per cent above normal retail prices for renewable power). On the other hand, 97 per cent of non-Korean/Japanese firms were willing to pay more for power supplied from renewable sources, with 35 per cent of these firms willing to pay 20 per cent more and a full 15 per cent willing to pay 30 per cent more for renewable power supply. In general, the survey results suggest that Japanese and Korean firms are more price sensitive than others, having less willingness to pay for both more reliable power supply and power supply from renewable sources.

## 5.0 Key conclusions and policy implications

The primary research presented above provides significant new data and information which has a number of clear, important implications for Vietnamese energy policy, especially as it relates to foreign investors as key energy consumers. The Vietnamese government should use the insights outlined here to inform the formulation of key upcoming energy policy documents, especially the planned revisions to PDP7. The key policy implications of the foregoing study are outlined below.

**1. Viet Nam's ability to attract FDI is NOT based on low energy prices.** Stakeholder analysis and survey results indicate that firms do not typically invest in Viet Nam as a result of the fact that energy prices have been historically low. In fact, firms ranked the state of power prices to be the least important factor of ten factors in their decision to invest in Vietnam. Much more important in their investment decisions were other drivers such as the cost and availability of skilled labour, domestic market condition and government development policy. When asked to rank the importance of energy prices as a driver for investment decisions (on an increasing scale of 1-10), 72 per cent of firms indicated a score of 5 or less.

This was also a message that was reported consistently through other forms of stakeholder analysis. Simply put, there are many other more important factors that drive the decision to invest (or not to invest) in Vietnam than energy prices, and policy in these other areas is what is of most concern to foreign investors when looking to government to provide an enabling environment for investment.

**2. On the whole, foreign investors are not seriously concerned about the prospect of gradually higher power prices.** This is likely partly to do with the fact that firms spend relatively little on electricity. The study found that 90 per cent of foreign firms across all sectors spend less than 10 per cent of total operating costs on electricity, with 60 per cent of firms spending less than 5 per cent. The majority of firms indicated that they would be willing to bear sustained nominal annual power prices increases of 15 per cent or more before reconsidering future investment, and more than 65 per cent of firms were willing to bear sustained price rises of more than 10 per cent per annum. Indeed, the majority of firms that had made recent investments had already incorporated higher power prices (with an average increase of 10 per cent) into their investment decisions. Sustained annual industrial electricity tariff increases of 15 per cent would contribute significantly towards the achievement of cost recovery over time.

This message was again reiterated in stakeholder analysis. Firms made it clear that they understand that EVN continues to run at a large loss, that electricity costs remain the lowest in the region, that generation capacity addition and power supply have become increasingly unreliable and that there is therefore a need to raise power prices to cover costs and encourage energy sector investment, both from EVN and the private-sector.

**3. Based on these findings, the Vietnamese government should be more ambitious in raising the price that large industrial consumers pay for power.** Firstly, firms have clearly indicated that energy prices are not a key driver of foreign investment in Viet Nam. Secondly, as presented throughout this report, firms have also shown some willingness to accept higher power prices over time as a key means of enhancing the functioning of Vietnam's electricity sector. This provides space for the Vietnamese government to be more determined in moving towards charging large industrial users the full cost of power, without being concerned that by doing so they will cause a significant adverse investment response from multinationals.

**4. Firms are concerned by the inadequacy of power supply and the prospects for diminishing supply reliability, more so than by the prospect of higher power prices.** Sixty-five per cent of firms indicated that they were either rather unsatisfied or not satisfied at all with power infrastructure and supply. Two-thirds of firms who disclosed information said that they used back-up generation either 'sometimes' or 'often'. Further, a large majority (73 per cent)

of firms said that the unreliability of power supply was more damaging to Vietnamese investment competitiveness than the prospect of higher power prices over time. Given the linkages between low power prices and inadequate investment in supply capacity, this seems to suggest a willingness to accept higher prices in exchange for much improved electricity system functioning. Indeed, the survey found that even 60 per cent of energy intensive industry and other heavy manufacturing firms were willing to accept an immediate nominal increase in power prices by 20 per cent in exchange for uninterrupted power supply.

Ensuring adequate power supply should therefore be *the* key priority of Vietnamese energy policy, along with a long-term movement towards greener modes of electricity generation. As such, a key focus of the crucial revisions to PDP7 should be the identification, design and ultimate implementation of new mechanisms and incentives that can enhance investment and supply reliability in power markets. Indeed, enhancing electricity sector investment will likely only take place with higher tariffs for grid electricity (to increasingly provide investment capital to EVN), higher PPAs to encourage new private sector BOTs, and the development of a legal framework for investment that makes the latter – especially for renewable generation – possible.

**5. There is significant space (and necessity) for private-sector solutions to Viet Nam’s power supply needs.**

Given both the current inefficiency of EVN and the difficulty of EVN in allocating investment capital, private sector investment will likely need to play an increasingly important role in securing adequate electricity supply in Viet Nam over time. Renewable generation, in particular, is well-placed to meet growing energy needs due to its scalability over short time frames, with wind power being particularly promising given the extensive pipeline (4.4 GW) of registered projects and existing (although currently inadequate) government support policy. Again, however, this will require higher grid tariffs, higher PPAs to encourage new private sector investments, and a new enabling legal framework for investment. Working towards these three outcomes should be a priority for government, and should be addressed in the important ongoing process to revise PDP7.

**6. Despite the need for greater ambition in increasing power prices to industrial users, a gradualistic approach to price rises should be pursued.**

While firms are on the whole willing to accept higher power prices over time, there are limits as to what firms can realistically absorb in the short-term in terms of higher power costs. Survey results suggest that only a few firms are willing to accept nominal power price increases much above 20 per cent per annum. While higher power prices are necessary, the Vietnamese government should define and implement a gradual schedule for nominal industrial power tariff appreciation of 15-20 per cent per annum (with scope for larger increases depending on inflation rates) over three to four years. This would help to significantly address the issues associated with currently low power prices, while giving firms the certainty to plan accordingly and avoiding potentially damaging and destabilizing power price spikes.



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