

Legal Issues in the Rating Valuation of a Power Sub-Station Plant

Abdul Hamid Mar Iman
Department of Property Management
Faculty of Engineering and Geoinformation Science
UTM

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Abstract

Presently, most local authorities in Malaysia have not included power sub-station plant as a rateable property component. The current practice is to include only land and buildings, but not the plant. In the light of this point, there are some disputes between the local authority and the rate-payers as to the admissibility of the sub-station plant for rating purposes. This paper addresses this issue from the legal perspective. The fundamental legal problem in valuing power sub-stations is discussed. A possible solution to this problem is proposed. Finally, the prospect of rating power sub-station plant is assessed.

Key words: power sub-station plant and machinery, rating valuation, local authority

Introduction

Under the Local Government Act (LGA) 1976 (Act 171) all holdings within the jurisdiction of a particular local authority to which it renders public services¹ are subject to local rates. Rates are chargeable on all of such holdings irrespective of whether these holdings comprise land and buildings or only vacant lands.

Under Section 2 of the Act, a "holding" is defined as "any land, with or without buildings thereon, which is held under a separate document of title and in case of subdivided buildings, the common property and any parcel thereof ...". For rating purposes, a holding may:

- (1) be partially occupied or partially built upon;
- (2) be not occupied and there is no structure on it;
- (3) have any structure but not being completed yet;
- (4) have derelict buildings not fit for occupation.

Holdings under category (1), which are confined to rented properties, can be charged an annual value based on the gross annual rental minus all annual expenditure (e.g. repair, maintenance, taxes). Alternatively, rates can be calculated as 10 per cent of the open market values of the holdings, subject to the absolute discretion of the valuation officer. Holdings under categories (2), (3) and

(4) can be considered vacant lands, whereby the Local Authority imposes rates as much as 10 per cent or a reduction to a 5 per cent figure, subject to the approval of the State Authority, of the open market values of the holdings.

Many Local Authorities include power sub-stations as property holdings under Section 2 of the LGA and, thereby, subject these properties to rating.² In the current practice, the rating valuation of these sub-stations includes only land and buildings as rateable components. The valuation, which is based on the annual value of land and building, does not include plant.³ This exclusion has been a source of dispute between the Local Authority and the rate-payer, in particular, Lembaga Letrik Negara (LLN) - now known as Tenaga Nasional Berhad (TNB). The dispute culminated in the case of **Majlis Perbandaran Seberang Perai vs. Lembaga Letrik Negara** [1994] Land Tribunal Case No. 1/94.⁴

Briefly, in this case, LLN submitted seven points of contention on the valuation of the Perai power station by Majlis Perbandaran Seberang Perai (MPSP). One of these, which is the focus of this paper, concerned the admissibility of plant and machinery for rating purposes. MPSP has included while LLN has excluded plant and machinery in their rating valuations. The Tribunal decided in favour of LLN.

The dispute principally relates to the definition of annual value as per paragraph (b), Section 2 of the LGA 1976 (Act 171) which requires, among other things that, in estimating the annual value of a holding, in or upon which there is any machinery used for any or all of the following purposes:

(i) the making of any article or part of an article;

(ii) the altering, repairing, or ornamenting, or finishing of any article;

(iii) the adapting for sale of any article, the enhanced value given to the holding from the presence of such machinery shall not be taken into consideration, and for the purpose of the paragraph, "machinery" includes steam engines, boilers or other motive power belonging to such machinery.

The above definition has given rise to three main issues in valuing power sub-stations for rating purposes. First, whether electricity is an article. Second, whether a power sub-station plant is a machine. Third, whether the said plant is a machine which is used to make, alter, ornament, repair, or adapt an article for sale (see Ishak, 1999).

Objectives and Scope

Having presented the above issues, this paper has three objectives. First, to highlight the possible dispute between the Local Authority and rate-payer pertaining to rating of a power sub-station plant. This includes the issue of whether electricity is an article as defined under Section 2 of the LGA. Second, to argue on the definition of plant from another legal perspective: plant as part of land or building. Third, to conclude based on the second objective, whether rating of a power sub-station plant is possible.

This paper has four sections. Introduction and objectives have been outlined. The third section contains issues and discussion. The description of the movement of electricity (from generation, transmission, to distribution) and the main components of a power sub-station are presented. The issues of dispute, then, follow. Next, the proposed solution is discussed. Finally, some comments on the prospect of rating a power sub-station plant are made.

The Power Sub-Station : Design and Processes

Based on the TNB'S power generating, transmission and distribution infrastructure, the making of electricity output starts at the generating stations, which are considered as the actual factories producing the output. The output is then transmitted and distributed throughout the country via the Grid System Transmission, using high-voltage transmission lines (500KV, 275KV and 132KV) to PMU sub-stations, PPU sub-stations, P/E sub-stations, and finally, to terminal receivers (households, industries, schools, offices, etc).⁵

The PMU sub-stations, PPU sub-stations, and P/E sub-stations are interrelated systems in the whole process of power supply, which includes power (generating) stations. On the one hand, electricity generated at the power stations could not be supplied to the end users without a step-down process at the three intermediate sub-stations. This is because power stations produce very high-voltage current, which is of no use to end users. On the other hand, the intermediate sub-stations would be useless without the power supply from the generating stations. Only when all these components exist and function together at all times will the electricity supply process be complete and the output be beneficial to the consumers.⁶

Power sub-stations in Malaysia fall into three categories: main intake or transmission sub-stations (PMU) (275/132/6.6KV), main distribution sub-stations (PPU) (22/6.6KV), and electricity distribution sub-stations (P/E) (6.6/1.5KV).⁷ Out of these categories, there are two main types of power sub-stations by construction. First, those housed entirely in buildings. Most P/E sub-stations and some PPU sub-stations with gas insulator system fall under this type. Second, those fenced in the open yards with equipment fastened to concrete foundations. PMU and PPU sub-stations with conventional systems fall under this type.

A power sub-station consists of land, building and plant. The status of the land depends on a number of factors, particularly its title and zoning. Power sub-stations normally fall under TNB reserves, with titles restricted only for power transmission. The land use is normally classified under industrial.

Power sub-stations housed in buildings have different building design and materials which need to be noted down case by case during a rating assignment. Generally, the building is made up of a permanent cement and concrete structure.

The general design and layout of a power sub-station can be cited, for example, in Hicks (1986), Pansini (1992), and Fardo (1997). However, the specific components of such a station may differ from one power sub-station to another.

PMU sub-stations has two main compounds. The first compound is where the control building is sited. The internal building is subdivided into a number of rooms including control panel room, relay room, battery room, LGVA room and fibre optic control room. The equipment in these rooms is bolted to the cement floor at the base. The second compound is the switch yard. Erected in the yard are steel structures, bolted to concrete slabs, which support equipment such as isolators (main bus bar and reserve bus bar); current transformer; reserve circuit transformer; voltage transformer; lightning arrestor (circuit braker); cooling plant; power transformer (super grid transformer); and landing tower. PPU and P/E sub-stations do not have switchyards and, therefore, they consist of mainly buildings which house control panels, relays rooms and transformers.⁸

These components need mentioning since they have direct relevance to property rating. For land and buildings, they are directly rateable. As for the plant, there are issues that need to be resolved as to its admissibility

as a rateable component. This will be further discussed in the later part of this paper.

Issues of Dispute

Whether electric current is an article

With regard to interpreting the meaning of an “article”, the Local Authority claims that electric current is not an article because an article should be able to be seen and should be in a physical form. This claim is not totally baseless. In the case of **Longhurst vs. Guildform Godalming and District Water Board** [1960], Justice Devlin defined an “article” as something that is articulated, that is, separated from an amorphous mass, and given shape and form. His Lordship’s definition of an “article” did not seem to include electricity. In other words, since electricity does not exhibit any of the said characteristics, it cannot be regarded as an “article”.

The rate-payer maintains that electric current is a symbolic article because, although it does not appear in a physical form, it does exist and, it has importance, so much so that people regard it as a commodity and are willing to pay for its consumption (adapted from Ishak, 1999). The Pocket Oxford Dictionary (1982) defines an “article” as a “thing” which, in turn, is defined as “any possible object... including material objects, events, qualities, circumstances, ideas, utterances, and acts”. The connotation from this broad linguistic definition is that, something that we are aware of its being, presence, or existence, whether physical or non-physical, can be regarded as an article, a thing, or an object.

The Tribunal decision cited above did not share the view of Justice Devlin and made an exception in the case of electricity. Mentioning a number of Acts of Parliament dealing with electricity (one of which is the Electricity Act 1949), the Tribunal agreed that electricity is an article. The Tribunal pointed

out that, one cannot dispute that LLN is manufacturing something. That something can only be regarded as an “article”, otherwise it would be impossible to know what it produces. Therefore, in conclusion, there is a good ground of argument and there are statutes recognizing electricity as an article, from which the Tribunal made its decision.

Whether a power sub-station plant is a machine making /altering /repairing ornamenting /repairing /finishing /adapting an article for sale

While “machinery” has a specific reference under Section 2 of the LGA, no specific reference to “plant” is made in the Act. As a matter of fact, it is important to differentiate between these two terms because they do not always bear the same meaning and, thus, do not bear the same implications in rating valuation. While machinery may be excluded from rating valuation, subject to a clear interpretation of Section 2 of the said Act, such exclusion may not automatically apply to plant. This suggests that a specific and clear legal definition of plant needs to be spelt out, although it may be quite difficult.

Usually the term “plant” is defined together with the term “machinery”. The Oxford Pocket Dictionary (1982) defines plant as “fixtures, implements, machinery, etc., used in industrial process; factory”. It also defines machine as “an apparatus for applying mechanical power, having several parts, each with a definite function”. Derry (1985) defines plant and machinery as “the fixed assets, of a company, other than land and buildings”. They include moving plant, ship, locomotive, aircraft, and the like. Watts (1989) also defines plant and machinery as “all fixed assets other than land and buildings”.

A court case ruled that the term machinery ought to be treated as having been used in its popular meaning. In the case of **Auckland City Corporation vs. Auckland Gas Co.**

Ltd. [1919] N.Z.L.R. 321, Sim J. said that, a machine in its popular sense is a piece of mechanism which, by means of its interrelated parts, serves to utilize or apply power, but does not include anything that is merely a reservoir or conduit, although connected with something which is without doubt a machine. In the case of **Waratah Gypsum Pty. Ltd. vs. Commissioner of Taxation** [1965] 112 C.L.R. 152, McTieman J. defined a plant as fixtures, implements, and machinery used in an industrial process. In the **Grey County vs. Grey Electric-power Board** [1936] N.Z.L.R. 253, Northcroft J. concluded that the whole of the defendant's electric-power plant was a combination of mechanical parts by which motion and force are applied to the production of electricity in a merchantable state. Thus, it constituted a machine.⁹

It seems that the technical meaning of plant and machinery are rather muddled up: even the court has created some confusion. Nevertheless, court definitions have made, at least, two distinctions about machinery. First, machinery is a specific category of plant (hence, the case of *Waratah Gypsum Pty. Ltd.*). Second, a machine has a connotation of motion, power and force. Besides the *Auckland City Corporation's* case, this connotation can be derived from the case of **Cuttack Municipality vs. The Executive Manager, S.E. Board** [1975] I.L.R. Put another way, plant is a general term describing physical or mechanical equipment with or without locomotive power, immovable (as part of land or building) or moveable, which are used for operation, production, and/or conveyance of a particular output. Included in this definition is machinery, which is reflected in the term "locomotive" or "power". In this regard, Section 2 of the LGA has extended the definition of machinery to include power-generating machines.

The implication of the above issue on rating valuation is that, one may need to identify

which of a power sub-station equipment is machinery and which is non-machinery. This could be important as far as manufacturing of electricity is concerned. Although it is quite clear that electricity is an article, not all of the components of this manufacturing process are machinery. In this regard, the Tribunal has decided that a power generating station (with the exception of some components, which come under the ambit of building), comprises machinery. However, a power sub-station does not comprise machinery, except the air cooling system of a PMU sub-station. The main function of a PMU, PPU, and P/E sub-station is to alter electric current into the desired levels of voltage through a stepping-up or stepping-down process. There is no motive power in the alteration process itself as well as in the equipment used. As far as electricity transmission and distribution are concerned, a power sub-station plant is more of a complex conduit system or a complex electricity by-pass, rather than a machine.

However, the clause "making, altering, repairing, ornamenting, repairing, finishing, adapting an article for sale" in Section 2 of the LGA is an overriding clause. From the chain of movement of electricity output mentioned in the early part of this article, obviously, a power sub-station plant is part of the "making", "altering", and "adapting" process of electricity output for sales. Therefore, it is not rateable.

Although Section 2 of the LGA has mentioned about "machinery" and its excludability from rating valuation, it makes no distinction between machinery as a fixture and machinery as a chattel. The distinction is quite important because a fixture can be part of a realty and, thus, is rateable. However, in the case of **Northern Roller Milling Co. Ltd. vs. Valuer General** [1964] TNZV, Vol. 19, No. 4, 153, the presiding judge, referring to Section 2 of the Rating Act 1925, said that, all machinery whether fixed

or not are to be excluded from any valuation used for rating purposes.

The Proposed Solution

It is not too difficult to consider that a power sub-station plant has many structural parts, some of which may fall under the category of building while others under the category of land - the main realty of a power sub-station holding. Therefore, the status of such a plant can be considered on the basis of whether or not it is part of the realty. In this regard, even if the plant could be proved to be a machine, the nature of the annexation, purpose, and intention for which it is installed may render it to be a fixture, in which case, two possible situations may arise. First, it will be part of land or building, the onus of proof of which is on the party who so claims. Second, the court has to decide whether the interpretation of Section 2 of the LGA covers "fixed" machinery and, if yes, whether the decision of the tribunal should remain.

Whether a power sub-station plant is building or part of building

"Building" in the ordinary sense, according to Funk & Wagnalls Standard Desk Dictionary (1984) is, "that which is built; a structure; edifice; as a house or barn". The Oxford Pocket Dictionary (1982) defines this term in a more popular fashion as "(especially) house, school, factory, etc". From these general definitions and from the definitions of plant given earlier, a plant can be "something other than" or "something of the type of" building. A plant is part of a building, if its installation is so attached to a building or main structure as in the case of the tower of an oil rig (see Iannacito, 1989) and steel bins of a flour mill (see the case of *Northern Roller Milling Co. Ltd.*, 1964). In the same way, plant can be a stand-alone component associated with a building, but, not part of a building, e.g., split-system air-conditioning units. So, as we may concede, the ordinary meaning of "building" will need to be legally clarified.

Section 2 of the LGA defines "building" to "includes any house, hut, shed or roofed enclosure, whether used for the purpose of human habitation or otherwise, and also any wall, fence, platform, septic tank, underground tank, staging, gate, post, pillar, piling, frame, hoarding, slip, dock, wharf, pier, jetty, landing-stage, swimming pool, bridge, railway lines, transmission lines, cables, redifussion lines, overhead or underground pipelines, or any other structure, support or foundation".

At the outset, based on this definition, some other components of a power sub-station plant (other than mentioned above) can be categorized as "building". For example, "building" may also include landing towers, control panel and relays instrumentation. This suggests that the identification of each structural component of a plant is fundamental to rating valuation, and that legal tests need to be used to determine their category - as a building or otherwise.

However, even the courts have some difficulty in the interpretation of "building" as can be seen from a number of court cases such as *Shell Mex & British Petroleum Ltd. vs. Clayton* [1961] R.V.R. 357; *Shell Mex & British Petroleum Ltd. vs. Childa* [1962] EG.R. 939; *Clayton vs. Good, Havercraft & Co. Ltd.* [1961] R.V.R. 6; and the local case of *Shell Co. of the Federation of Malaya vs. President of the Town Council of Bandar Penggaram, Batu Bahat* [1962] M.L.J. 277. Nevertheless, these cases, which were cited in the case of *Socfin Co. Ltd. vs. Chairman of Klang Town Council* [1964] M.L.J. 325, have delineated some principles on the legal definitive use of "building". First, although the word "building" must be given its ordinary every day meaning, it does not necessarily prevail in whatever context it may appear. This means that something may not look like a building but may be so regarded depending on particular circumstances. Second, there is a distinction between "building" and "structure": structure

must have a wider embrace, not every structure is a building, though, it may be that every building is a structure. Third, a structure can be considered as building if, for example, the structure is connected with certain particularization such as a platform and pillars.

Whether a power sub-station plant is land or part of land

Apart from the definition given in Section 5 of the National Land Code 1965, under Section 2 of the LGA, *land* includes things attached to the earth or permanently fastened to anything attached to the earth. In other words, land means "land and its fixtures". According to Abbott (1987), fixtures are defined as objects fixed to the land or building and depend on other objects and become part of the land.

This definition raises an issue of whether a power sub-station plant constitutes fixtures. In the broadest sense, all structural improvements on land are chattels, unless the laws define them otherwise. If the definition identifies any structural component of a plant to be a fixture (either as part of land or building), then, it can be subject to rates. The concept of fixtures and land under the Malaysian Torrens system adopt the maxim *quid quid plantatur solo solo cedit* meaning *that which is affixed to soil belongs to soil* (Salleh, 1989; Hishamuddin, 1996).

The courts in Malaysia have set three principles of whether an object is a fixture or a chattel, viz. degree of annexation (in the case of **Shell Co. of the Federation of Malaya Ltd. vs. Commissioner of the Federal Capital of Kuala Lumpur** [1964] M.L.J. 302); the purpose of annexation; and the intention of the party involved (both in the case of **Socfin Co. Ltd. vs. Chairman, Klang Town Council** [1964] M.L.J. 325). The main principle derived from the first case is that, for an object to be a fixture, it must, in effect, be land itself so much so that it cannot

be removed without causing damage to the soil. However, there is a more general principle in this regard: if an object is attached or fastened to the wall or floor of a building or to the ground, the object is, *prima facie*, a fixture, even if it is easily removable. If it merely rests on its own weight, the object is a chattel (Salleh, 1989).

Whether this principle applies to a power sub-station plant must remain hypothetical in the absence of specific court cases. Furthermore, for practical purposes, the degree of annexation is a *prima facie* but not a conclusive test for deciding whether an object is a fixture or a chattel. Many court cases have applied the other two principles - the purpose of annexation and the intention of the party involved - as the decisive tests for determining whether an object is a fixture or a chattel.

In the New South Wales' case of **Australian Provincial Assurance Co. Ltd. vs. Coroneo** [1938] 38 S. R. (N.S.W.) 700, Jordan C.J. said that, a fixture is a thing once a chattel which has become in law having been fixed to land. **In addition**, the question of whether a chattel has become a fixture depends upon whether it has been fixed to land and if so, for what purpose. [words in bold is author's emphasis] In the case of **Holland & Anor vs. Hodgson & Anor** [1872] L.R. 7 C.P. 328, Blackburn. J. ruled that, articles not otherwise attached to the land than by their own weight are not to be considered as part of the land, unless the circumstances are such as to show that they were intended to be part of the land. On the contrary, an article which is affixed to the land even slightly, is to be considered as part of the land, unless the circumstances are such as to show that it was intended all along to continue as chattel. This latter and two other cases of **Reynolds vs. Ashby & Sons** [1904] All E.R. 401 and **Benger vs. Quartermain** [1934] N.Z.L.R. 13 have set the principle that if an object is proved to have been fixed for a temporary purpose it is not a fixture and, that the intention of the person fixing it must

be for the purpose. This principle was applied in a local case of **Goh Chong Hin & Anor vs. The Consolidated Malay Rubber Estates Ltd.** [1924] 5 F.M.S.L.R. 86, in which Sproule C.J. decided that, whatever is annexed to the realty becomes part of it, but, only if the annexation was intended to be permanent. If the nature, degree and object of the annexation is such as to show that the intention was to annex the chattels to the land temporarily, then the general rule will not apply.

Another test, to distinguish between fixtures and chattels when objects have been fastened to land or building, is to determine whether the purpose of annexation is to increase the value of the property (land or building) and giving a long term improvement effect to it, or merely to increase the utility or facilitate the enjoyment of the chattel as chattel. This test is derived, for example, from the court decision by Blackburn J., in the case of **Hellawell vs. Eastwood** [1851] 6 Ex. R. 295 and **Socfin Co. Ltd.** (1964).

The second and third principles can be applied to a power sub-station plant. Based on the case of **Holland & Anor vs. Hodgson & Anor**, **Reynolds vs. Ashby & Sons**, and **Benger vs. Quartermain**, the nature and degree of annexation of the power sub-station plant signifies it to be intended as a permanent structure. The plant, once fixed to the concrete foundation, is intended to remain *in situ* for as long as the power sub-station continues in operation. Hence, its attachment to the earth is, for all practical purposes, as permanent as the building erected on the holding. Based on the cases of **Hellawell vs. Eastwood (1851)** and **Socfin Co. Ltd. vs. Chairman of Klang Town Council (1964)**, it can also be argued that the intention of the owner of a power sub-station in installing the plant is to make it part of the improvement to the property. Likewise, the purpose of annexation of the plant is to make it part of the power sub-station's complete electricity distribution system, without which the whole

functioning of the power sub-station would completely fail.

Prospect of Rating A Power Sub-Station Plant

The discussion so far, hinges upon the issue of whether or not electricity is an article; a power sub-station plant is a machine; and the machine is part of the "making, altering, and adapting the article for sale". Section 2 of the LGA 1976 has its own criteria in determining the admissibility of a power sub-station plant as a rateable component. The criteria imply that, if electricity is an article and if it is produced by a machine which is part of the "making, altering, and adapting the article for sale", then that machinery is excluded from rating.

This problem can be resolved from another angle. The plant is rateable on the ground that it is part of realty. The ground of argument for this is fundamentally a matter of switching from one legal perspective to another. Such a phenomenon can be seen, for example, in the judgements of two cases, which have the same core of contention. The two cases were approached from two widely different standpoints. In the case of **Shell Co. of the Federation of Malay vs. The President, Town Council, Penggeram, Batu Pahat** [1962] M.L.J. 227, the stress by Adams J. regarding the status of underground tanks of the oil company was on the basis of whether the entity is "building". In the case of **Shell Co. of the Federation of Malaya vs. Commissioner of the Federal Capital Kuala Lumpur** [1964] M.L.J. 302, the stress by Ong J. on the the status of underground tanks of the oil company was on the basis of whether the entity is "land". In the first case, it was decided that the tanks **were not** buildings while in the second case, the tanks **were** land [words in bold are author's emphasis].

In a similar manner, switching the argument from whether a sub-station plant is "machinery" to whether it is "land" or

“building” is a possible alternative to resolving the dispute, without overshadowing the interpretations of Section 2 of the LGA. Switching to the later ground of argument will likely find that some components of the plant are parts of land or building and, thus, are rateable. Examples of these components are: control panels, relay instrumentation, landing towers, overhead transmission lines (building); and concrete slabs/foundation in the switchyard, cabling and earthing.

With the admissibility of such components in rating valuation, local authorities in Malaysia can now find new items to add to the annual value of power sub-station holdings. Valuers can expand their valuation activities and expertise into the area of plant and machinery valuation.

Conclusion

The dispute between the Local Authority and the rate-payer on the admissibility of a power sub-station's plant for rating purposes arises, among other things, from the legal entanglement concerning the interpretation of Section 2 of the LGA. In this context, there is a notion that plant and machinery are not rateable, based on the Tribunal's decision in respect of power generating stations. Although the case specifically refers to a power generating station, the grounds of dispute can also involve power transmission and distribution sub-stations.

However, the dispute can be taken onto an alternative ground of resolution, viz. to consider the plant based on the concept of fixtures. This can be done by expanding the interpretations of Section 2 of the LGA and, consequently, determining which components of the plant are parts of building and which are parts of land.□

Endnote

¹Examples are garbage collection, cutting grass, cleaning drains and ditches, building of

community markets, bus terminals, and business stalls.

²Examples are Majlis Perbandaran Seberang Prai (Penang); Majlis Daerah Port Dickson (Negeri Sembilan); and Majlis Daerah Cameron Highlands (Pahang); Majlis Perbandaran Johor Baharu; and Pihak Berkuasa Tempatan Pasir Gudang (both in Johor).

³This method has been a standard practice by all valuers. For rating purposes, the bare site value of a power sub station is assessed based on the values of comparable industrial properties nearby, after adjusting for a number of factors such as location, accessibility, land size, surrounding development, and sale date. Added to this value is the replacement or substitution cost of building new less depreciation. The sum value of both components is the added value of the property (used in the state of Johore) or annual value of the property after reducing the sum value by an appropriate percentage (in other states). The word “plant” is defined in the paper.

⁴This was a test case for all five Local Authorities involved in the ‘dispute’: Majlis Perbandaran Seberang Prai, Majlis Daerah Cameron Highland, Majlis Daerah Port Dickson, Majlis Bandaraya Johor Bahru, and Pihak Berkuasa Tempatan Pasir Gudang. Despite the Tribunal decision, the dispute was pursued to the High Court, which is still under way to date. Pending the final decision by the Court, the decision by the Land Tribunal is binding upon the disputing parties.

⁵Verbal communications with Senior Engineer (Protection), Tenaga Nasional Berhad, No.3 Jalan 10/10 Taman Permas Jaya, P.O. Box 777, 81750 Johor Bahru and Senior Engineer (Planning), Tenaga Nasional Berhad, Level 4, Block C (Middle), Pusat Bandar Damansara, 50490 Kuala Lumpur. No specific published information is available on this aspect except, perhaps, the information on <http://www.tnb.com.my/>. The words PMU, PPU, and P/E stand for “Pencawang Masuk Utama”, “Pencawang Pembahagian Utama”, and “Pencawang Elektrik”, respectively.

⁶Reconstructed from the Valuation Officer (Rating), Tenaga Nasional Berhad, Level 4, Block C (Middle), Pusat Bandar Damansara, 50490 Kuala Lumpur. Verbal communication.

⁷Most of the power sub stations within the jurisdiction of local authorities are under the category of electricity transmission and distribution network. This paper concentrates on this type of sub stations (henceforth referred to as power "sub stations"), and not the generation power stations, which comprise, among other things, power-generating plants.

⁸No specific documented information on the design and layout of power sub stations is available from Tenaga Nasional Berhad. The description here is based on site inspection involving a number PMU, PPU, and P/E sub stations in Johor Bahru.

⁹This case referred specifically to power generating plants, which are characterized by motion, power, and force. In our present discussion, however, we refer to power distribution sub stations, which do not constitute any of such characteristics.

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