

THE IMPACT OF POWER OUTAGES IN MEDAN

CASE STUDY:

COMMUNITY, MERCHANT, OFFICE & INDUSTRY

Istu Sri Poneni

Fakulty of Engineering, Islamic University of North Sumatera

Abstract

This study aims to determine the impact of power cuts towards people, small businessmen, officers, and industries in the city of Medan. This research uses method of data through interviews, and questionnaires were addressed to 2 entrepreneurs, 2 common people, 2 small businessmen, and 2 officers purposively selected to determine the location of the research is also done intentionally (purposive sampling). The analysis technique used in this study is a multiple linear regression analysis and descriptive analysis for each problem using SPSS 20. The data used in this study are primary. The results of this study indicate that a power outages has negative and direct impact towards people, small businessmen, officers, and industries in the city of Medan.

Keywords : Power Outages , Negative Impacts, Energy

I. Introduction

1.1 Background

Energy resources are all things that are useful in building value in the conditions in which we find it. For that energy resource is an asset for the fulfillment of human satisfaction and utility. Energy resources consist of non-biological mineral resources of patra, namely petroleum and natural gas, minerals such as coal and uranium. Outside water and oil/gas energy resources, such as geothermal, solar, wind, ocean currents, tides, ocean heat and natural resources such as firewood.

Electric power is a mean of production and facilities of everyday life that plays an important role in efforts to achieve development goals. According to Fisher (1987) are the prices of natural resources and energy, exploitation costs, royalties to be paid, the ratio of capital to labor. With the rise of the index figures it is certain there has been a process of scarcity.

The problem faced today is how to utilize electricity as efficiently as possible, where the demand for electricity increases sharply to deal with this electrical problem needs to be done a policy. One of the policies made by PLN for now is a rotating blackout. This is done to save energy that is needed by society.

This rotating power outage may benefit PLN especially given the small amount of available electrical energy reserves. But the consequences arising and faced by a direct society that almost all of its activities require electrical energy.

Power outages have not only affected the big industries, small and medium industries become disrupted. If this is not immediately addressed, it could have an adverse impact on the people's economy. Medan is one city that has many small and even medium industries. Medan city is a city experiencing such power outages. One of the factors supporting the economic life of North Sumatra is the availability of electrical energy and infrastructure.

Where in its supply most handled by PT. PLN (Persero). To implement the vision and mission of the company and the improvement of service quality in North Sumatra there are 7 branch companies one of which is PT. PLN (Persero) Medan branch. As a State-Owned Enterprise that handles electricity, it makes a significant contribution in supporting local community life activities. This means that PT. PLN (Persero) is trying to meet the needs and demands of the community. This is closely related to the number of people who feel the need for electric power is like the primary needs, both industrial household sector, social agency, business, education, public street lighting so that electricity demand from local communities is quite high. High demand for electricity is a lot of factors that affect according to the needs of each consumer. Based on the description above, the authors are interested to conduct research entitled "The Impact of Power Suppression on Society, Traders, Offices And Industry In Medan City.

1.2 Formulation of the problem

The problems studied in this research are:
Is there any effect of blackout to society, trader, office and industry in Medan city?

Research purposes

The objectives of this research are:
To know the effect of electricity blackout to society, trader, office and industry in Medan city

.

Benefits of research

The benefits of doing this research is:

1. As a study material and additional science for UISU Faculty of Engineering students. Especially for students of Electrical Engineering Department.
2. To enrich the scientific perspective of writers in science writers tekuni and apply it contextually and textually.

3. The results of this study improve the ability of authors in conducting research.

II. Theoretical Basis

2.1 Industry

Understanding the industry is very broad, which concerns all human activities in the field of economic nature of productive and commercial. Due to widespread economic activity, the number and range of industries vary for each country or region. The way of classification or classification of industry is different. But basically, industry classification is based on criteria that is based on raw materials, labor, market share, capital or type of technology used.

The industry classification based on each criterion (Siahaan, 1996) is as follows:

1. Industry Classification Based on Manpower
 - a) Household Industry
 - b) Small industry
 - c) Medium industry
 - d) Large industry
2. Industry Classification by Location of Business
 - a) Market oriented industri
 - b) Employment oriented industry
 - c) Supply oriented industry
 - d) Industry-oriented raw materials
 - e) Footloose industry
3. Industry Based on Production Process
 - a) Upstream industries
 - b) Downstream industry

4. Household Industry

Industrialization is actually a path of activity to improve people's welfare in the sense of a more advanced level and a better quality of life. In other words, the development of the industry is a function of the ultimate goal of people's welfare, not an independent activity to merely achieve the physical.

Perroux (Muhammad, 1992) says, growth does not appear in different regions at the same time. Growth occurs only in a few places called growth centers with different intensities.

2.2 Society

According to SeloSumarjan (1974): "Society is the people who live together that produce culture". So the society is a number of people who are a unity of related groups remain and have the same interests.

2.3 Business

According to Harmaizar, "Business is a form of business that conducts activities constantly and constantly in order to gain profit". Business entities / private companies or individuals are owned enterprises owned by one person. Individuals may create individual business entities without specific permits and ordinances. Everyone is free to make personal business without any limitations to establish it. In general, individual companies with small capital, limited types and quantities of production, have few labor / labor and use of simple technology production tools.

2.4 Offices

Offices according to Uerbert Silalahi (1997): "Office is the place where the implementation of corporate activities take place". So the office is a hall to take care of a job or workplace.

2.5 Power outage

Power outages occur because PT. PLN has electricity deficits, especially at peak loads. Along with the emergence of various electronic devices and lighting needs for the needs at night continues to increase. One by one the public began to install electrical installation into the house. Although still in the expensive category, but electricity has begun to be needed by the community to meet their needs. The addition of electricity demand by the community was greeted by PT. PLN and not difficult to meet the electricity demand of the community.

2.5 Impact

In order to know the positive or negative impacts, a similar understanding is needed about what is meant by the impact. Impact is the result of an activity such as a development activity. This impact can have both positive and negative effects that both need to be anticipated. In view of the impact, it should be seen first about the program, output, goals, and impact.

2.6 Conceptual framework

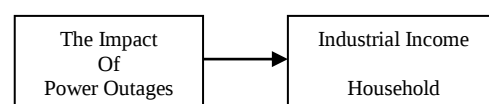


Figure 1. Conceptual Framework

2.7 Research Hypothesis

The hypothesis is a temporary answer to the actual problem to be tested. Based on the above problems then as a temporary answer the author makes the following hypothesis:

There is a negative effect of electricity blackouts on the income of household industries in Medan.

2.8 Subject Interview Data

Table 1. Subject interview data

Entrepreneur		Officer		Trader		Sitizen	
Name (Title)	Company	Name	Agency	Name	Business	Name	Job
Januardi, ST.: (Dirut)	P.T. TEMS	RejaRahman,SE	Pandu Logistic	Fahriramadhan	Ud. Harapan	Alon sinaga	Guru
YudiPranoto, S.T. (Owner)	C.V Tri Engineering Mandiri	RaysaPutri,S.Kom	C.V Rahayu Sentosa	JosuaManurung	Counter Hp	BaktiarSin ambela	Peternak

III. Analysis And Discussion

3.1 Respondents' Overview

The respondents in this study are as many as 8 people consisting of 2 businessmen, 2 office employees, 2 small traders and 2 ordinary people. In this data analysis, descriptive data are described descriptively related to the variables interviewed.

a. Age Level

Judging from the data of respondents by age obtained data as follows:

**Table 2. Characteristics of Respondents by Age Level
Medan City**

No	Age Level (Year)	Number of Respondents (Person)	Persentase (%)
1	< 25	3	37.5%
2	26-39	2	25%
3	>40	3	37.5%
Total		8	100%

From the table above, shows that respondents aged over 40 years amounted to 3 people or with a percentage of 37,5%, ages between 26 to 39 years as many as 2 people or with a percentage of 25% and 3 respondents aged less than 25 years amounted to 3 people with a percentage of 37,5%.

b. Level of education

The level of education in this study is the last formal education level of the respondents. Judging from the data of respondents by education obtained data as follows:

**Table 3. Characteristics of Respondents by Education
Medan City**

No	Level of education	Number of Respondents	Persentase (%)
1	High School or equivalent	4	50
2	Bachelor Degree / S1 or higher	4	50
Total		8	100%

From the table, it shows that the majority of respondents are divided into 2 categories of educational level ie 4 people or 50% of respondents who have the level of education final or equivalent and 4 people or 50% who have graduated level S1 / higher education.

3.2 Data analysis

Based on data that have been obtained from the results of the research then the results are as follows:

Interview Result Data

a. Industry:

R1: All the productivity of the machine does not work so that the impact does not achieve the desired production target.

R2: All installations that require power are paralyzed and not running High operational cost, increasing operational cost (maintenance generator).

b. Offices:

R1: Inhibition of worker productivity Inhibition of administrative work

R2: Inhibition of work-related communication
Signal disturbed when looking for client information through media online
Office work is piling up because it is usually brought home so it can no longer be done.

c. Society:

R1: Automatically no entertainment. Television as the main source of entertainment in the family is sleeping until sometime. Favorite viewing is also missing from circulation.

R2: Homework abandoned. Such as ironing, cooking, washing and others that usually use electricity and automatically back to the manual. Moreover, which is closely related to electronic equipment such as laptops. Petrol money increases especially for those who use generators.

d. Small Business (Traders):

R1: Who has a business production costs also increased.

R2: Customers tend to not want to spend when the lights out

Table 4. Level of electrical Extension
LEVEL OF ELECTRICAL EXTENSION

	X1	Once in 3 days	1 time a week	Once in 2 weeks
X2				✓
X3			✓	
X4				✓
X5	✓			

Ket:

- Variable, Power supply (X1)
- Variable, large business actor (Industry) (X2)
- Variable, small business actor (X3)
- Variable, office clerk (X4)
- Variable, ordinary people (X5)

This is in accordance with the previous hypothesis that if the Power Supply (X1) variable, large business actor (Industry) (X2), small business actor (X3), Office clerk (X4) and ordinary people (X5) can affect good productivity individually or institution, business sustainability is disrupted and hinders community life in Medan city.

IV. Conclusions And Suggestions

4.1 Conclusions

- The continuous blackouts in Medan area have a direct impact on the community, small and large business actors and office employees. Because of the disruption of blackouts in rotation on the productivity of large businesses whose businesses use electricity experienced obstacles and penurunan. Office employees can not work optimally because all office work is generally related to electronic devices such as computers as well as communications and internet networks that use Wi-Fi signals in other words, working hours but permanent employee productivity decreases.
- As a result of the blackout the entrepreneur must use and buy a generator set (genset) for the continuity of his business while the small circle just wait until the electricity is revived. Capital and operational costs incurred by the entrepreneurs become larger, to buy generators and buy fuel oil (fuel) such as diesel and gasoline while small business actors must accept the risk of inhibition process sales.

- As a result of power outages, social activities of society is hampered considering the very common communication system in the field is the telephone and social media. Likewise, the activities at home are obstructed.

4.2 Suggestions

In connection with the results of this study, the following suggestions are given:

- Given the importance of the use of electricity in this life, then we should make energy savings at every peak load that is at night.
- Entrepreneurs who use a lot of electrical energy should use electrical replacement tools such as engine generator for smooth operation and to increase profit.
- There needs to be a balanced institutional arrangement to avoid blackouts that are very detrimental to society in general and large and small entrepreneurs as well as office workers.

References

- Bungin, Burhan, 2011, *Metodelogi Penelitian Kualitatif*. Kencana Prenada Media Group, Jakarta.
- Daulay, Murni, 2010, *Metodologi Penelitian Ekonom*, USU Press, Medan.
- Haeril, Muhammad, 2011, *Kualitas Pelayanan PLN Ranting Rappang Kecamatan Pancarajang Kabupaten Sidrap*. Universitas Hasanuddin Makassar
- Mardalis, 1995, *Metode Penelitian*, Bumi Aksara, Jakarta.
- Sugiyono, 2009, *Metode Penelitian Bisnis*, Alfabeta, Bandung.
- Sukirno, Sadono, 1996, *PengantarTeori Makro Ekonomi*. PT Raja Grafindo Persada, Jakarta.
- Sutrisno Hadi, 2001, *Metodologi Research untuk Penulisan Paper, Skripsi, Thesis dan Disertasi*, Jilid Tiga, Penerbit Andi, Yogyakarta.
- <http://repository.usu.ac.id/bitstream/123456789/17768/4/Chapter%20II.pdf>
- <http://repository.usu.ac.id/bitstream/123456789/30130/4/Chapter%20II.pdf>
- <http://www.anneahira.com/industri-rumah-tangga.htm>
- <http://www.anneahira.com/pengertian-industri.htm>
- Parinduri, L., & Sulaiman, O. K. (2018, April). Biomass analysis at palm oil factory as an electric power plant. In *Journal of Physics: Conference Series* (Vol. 1007, No. 1, p. 012053). IOP Publishing.