

# Report for Week 2

This is a capstone project from Coursera and IBM where we will be analysing the power stations in Singapore.

We will be using the data from the following website;

[https://en.wikipedia.org/wiki/List\\_of\\_power\\_stations\\_in\\_Singapore](https://en.wikipedia.org/wiki/List_of_power_stations_in_Singapore)

## **Objective:**

to segment the type of power stations and their locations to understand the current power generation landscape in Singapore.

There are talks of building another power station and the various interested parties are going to use this report to determine the feasibility by having a clearer picture on the power generation landscape before moving on to the next step of building the power station

The various interested parties are:

1. The government
2. The current power station owners (increased competition)
3. The companies that are interested in building the new power station
4. The general public who are concerned with price of energy generation and the consequences to the environment

This study will enable the us to determine the following;

1. What are the different type and weightage of power generation available in Singapore
2. Where are the different location where energy are generated in Singapore.
3. If we were to build another new power station, what type of power generation should be installed?

The Data provided will be:

1. The locations of the existing power stations in Singapore
2. The type of power generation employed by the various power stations
3. The capacity of the individual power station in Singapore
4. The year each power station was commissioned.
5. The owners of the different power stations in Singapore

How can problems be solved:

1. By listing the different locations of the power stations graphically, we can have a cleared picture of where the power stations are located. The interested parties can understand the following
  - a. Where can the next power station be built at? Infrastructure are available at the current available locations
  - b. If there is any over-congestion at any particular location

2. The various kind of power generation.
  - a. Should there be diversification for the power generation
  - b. Should there be more investment in alternative form of power generation.
  - c. Is the new power generation is environmental friendly
3. What is the most prevalent form of power generation;
  - d. Is that the most efficient form of power generation.
  - e. What other type of power generation is available

### **Results:**

The most prevalent of power generation is Oil with a total capacity of 8876 MW.

<b>Name</b>	<b>Capacity</b>	<b>Type</b>
Senoko Power Station	3300	Oil, NG
Tuas Power Station	2476	Oil, NG
Jurong Power Station	180	Diesel
Pulau Seraya Power Station	2920	Oil, NG
<b>Total:</b>	<b>8876</b>	

Followed by NG (Natural Gas) with a capacity of 3892 MW.

<b>Name</b>	<b>Capacity</b>	<b>Type</b>
PacificLight Power	800	LNG
SembCorp Cogen @ Banyan	400	NG, cogen
Pulau Sakra Power Station	815	NG, cogen
Keppel Merlimau Cogen Power Station	1300	NG, cogen
Tuaspring Plant	411	LNG, desalination
TP Utilities	166	NG, cogen, desalination
<b>Total:</b>	<b>3892</b>	

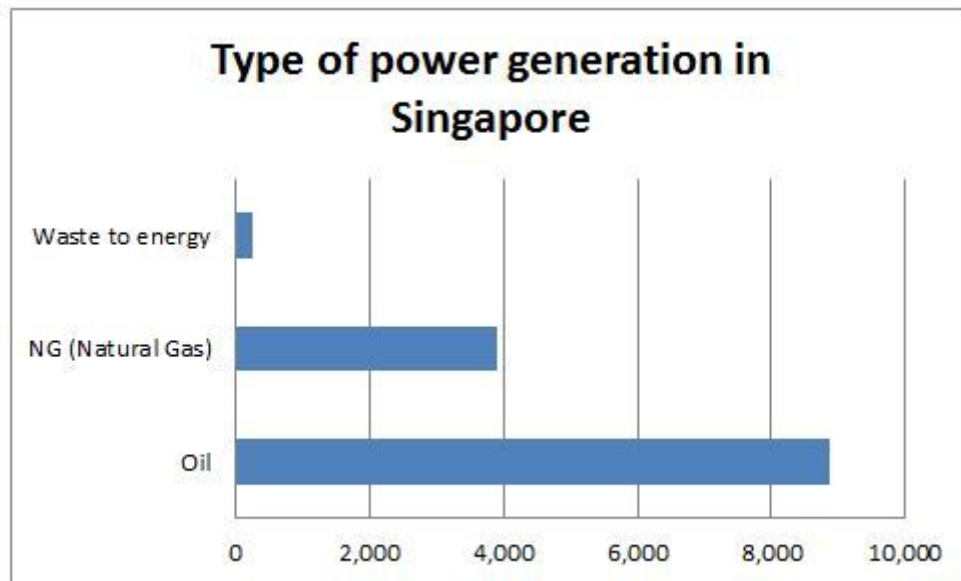
Lastly 'waste to energy' with a capacity of 256.8 MW.

<b>Name</b>	<b>Capacity</b>	<b>Type</b>
Senoko Incineration Plant	55	Waste-to-Energy
Tuas Incineration Plant	47.8	Waste-to-Energy
Tuas South Incineration Plant	132	Waste-to-Energy
Keppel Seghers Tuas Waste-to-Energy Plant	22	Waste-to-Energy
<b>Total:</b>	<b>256.8</b>	

Consolidating all the data we have collected in a table below:

<b>Type</b>	<b>Capacity</b>
Oil	8,879
NG (Natural Gas)	3,892
Waste to energy	256.8

Presenting the type of power generation in Singapore:



### **Conclusion:**

Clearly, using oil to generate power is heavily overweight. To distribute the weightage, the next power station should employ the use of 'waste to energy' technology to generate power for the following reasons;

1. To avoid competition for resources with the power stations currently using.
2. Cut down the risk exposure to the raw material (oil) prices for the country.

In addition to the above, there are many other factors to consider when it comes to the decisions making with respect to the installation of a new power station. This report will serve as a start to have a simple and general view of the energy generation landscape in Singapore.

It would require a lot more data and more in-depth analysis to better understand the situation and to enable better projection for building a new power station.