

# **Blackouts**

## **19<sup>th</sup> December 1978, France**

More than three quarters of the country went without power; it is estimated to have affected approximately 30 million people.

## **27<sup>th</sup> December 1983, Sweden**

A busbar fault in a vital substation of Stockholm caused cascade line tripping of lines and cut off the load centres from hydro production and imports. Shutdown of nuclear production followed. The disturbance affected more people than any previous disturbance in Sweden.

## **23<sup>th</sup> July 1987, Tokio, Japan**

On July 23, 1987, the metropolitan Tokyo area experienced a massive blackout caused by voltage instability. In the blackout, more than 8 GW of load was lost for about 3.35 hours at most, which affected 2.8 million households.

## **13<sup>th</sup> March 1989, Quebec, Canada**

A geomagnetic storm caused the largest electricity generator in Quebec to fail, it's effect was the loss of power to around 6 million people for nearly 10 hours.

## **8<sup>th</sup> of June 1995, Israel**

A power failure affected the Israel electrical network on June 8, 1995. As a result of the failure about 70% of the consumers were disconnected from the energy supply.

## **11<sup>th</sup> of March 1999, Brazil**

Approximately 80 million people were left without power across most of Brazil. Thought to have been caused by a lightning strike on a main power station, at 10:16pm, power began to be reinstated from midnight and into the early hours of the following day.

## **23<sup>rd</sup> of September 2003, Sweden and Denmark**

Nearly 5 million people were affected by a two stage short circuit at a substation in southern Sweden. It took between 2 and 7 hours before full supply was restored.

## **12<sup>th</sup> of July 2004, Greece**

On July 12, 2004 at 12:39 local time, the south part of the Hellenic Interconnected Transmission System (including Athens) was split from the rest of the system and collapsed, driving consumers with a total load of 4500 MW into blackout.

### **17<sup>th</sup> of May 2005, Vietnam**

A blackout happened on May 17, 2005 and caused interruption in power supply to North and Central Vietnam with a total of 1074MW lost from the 500kV interconnected system. It required 108 minutes from beginning of the incident to full restoration of the system.

### **18<sup>th</sup> of August 2005, Java and Bali**

The blackout to end all blackouts occurred at around 10am local time and an incredible 100 million people lost power across most of the two Indonesia islands. Power was thankfully resumed within 7 hours.

### **26<sup>th</sup> of September 2005, Hainan Island, China**

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n Sept. 26 th,2005,the blackout in Hainan Island power system was caused by the typhoon named “DaWi” .The typhoon destroyed the power grids and led to many faults.

### **24<sup>th</sup> of September 2006, Pakistan**

On 24th September, 2006, a severe disturbance occurred on the National Grid System of Pakistan which caused cascading outages of transmission lines and generating stations that ultimately led to system wide collapse/blackout. This major blackout was one of the worst power system failures of WAPDA, the main electric utility of Pakistan.

### **26<sup>th</sup> of April 2007, Colombia**

On April 26th, 2007, at 9:58 a.m., a fault on the colombian power system caused by maintenance in the 230 kV Torca Bus gave origin to black out.

### **January and February 2008, China**

In the beginning of 2008, southern China had experienced extreme low temperature, heavy rain, snow, and freezing weather. This extreme weather had impaired the southern area power grid greatly and threatened the security and stability running of power system and power supply.

### **10<sup>th</sup> of November 2009, Brazil and Paraguay**

A short circuit caused by severe weather conditions caused 60 million to lose all power, including the whole of Paraguay and many areas of Brazil. The blackout lasted for at least four hours from 10am through to 2am on the 11th of November.

### **18<sup>th</sup> of February 2010, Tenerife, Spain**

An incident this morning at a power plant in Las Caletillas, within the municipality of Candelaria, Tenerife, has left the entire island without electricity. The problem occurred at 12:08pm today, when a short circuit is thought to have triggered the blackout which affected all of the 850,000 residents and tourists living on Tenerife.

### **30<sup>th</sup> ans 31<sup>st</sup> of July 2012 in India**

The July 2012 India blackout was the largest power outage in history, occurring as two separate events on 30 and 31 July 2012. The outage affected over 620 million people, about 9% of the world population, or half of India's population, spread across 22 states in Northern, Eastern, and Northeast India. An estimated 32 gigawatts of generating capacity was taken offline in the outage. An article in *The Wall Street Journal* stated that of the affected population, 320 million initially had power, while the rest of the affected population lacked direct access