



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)



COIMBATORE-35

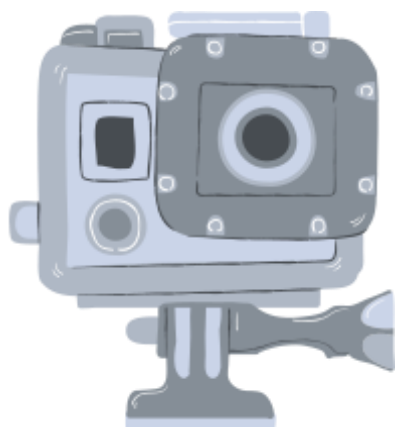
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UNIT 1

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Voltage sag (or dip)

19EEE307 – Power Quality Engineering
IV year / VII Semester



07.09.2022

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INTRODUCTION



- **Voltage Sag or Voltage Dip** (IEC term) is defined by the IEEE 1159 as the **decrease in the RMS voltage level to 10% - 90% (1% - 90% for EN 50160) of nominal**, at the power frequency for durations of **1/2 cycle to one (1) minute**.
- voltage sag - **short duration voltage decrease phenomena**
- Voltage sag durations are subdivided into three categories:
 - Instantaneous** (1/2 cycle to 30 cycles)
 - Momentary** (30 cycles to 3 seconds)
 - Temporary** (3 seconds to 1 minute)



Short-duration variation

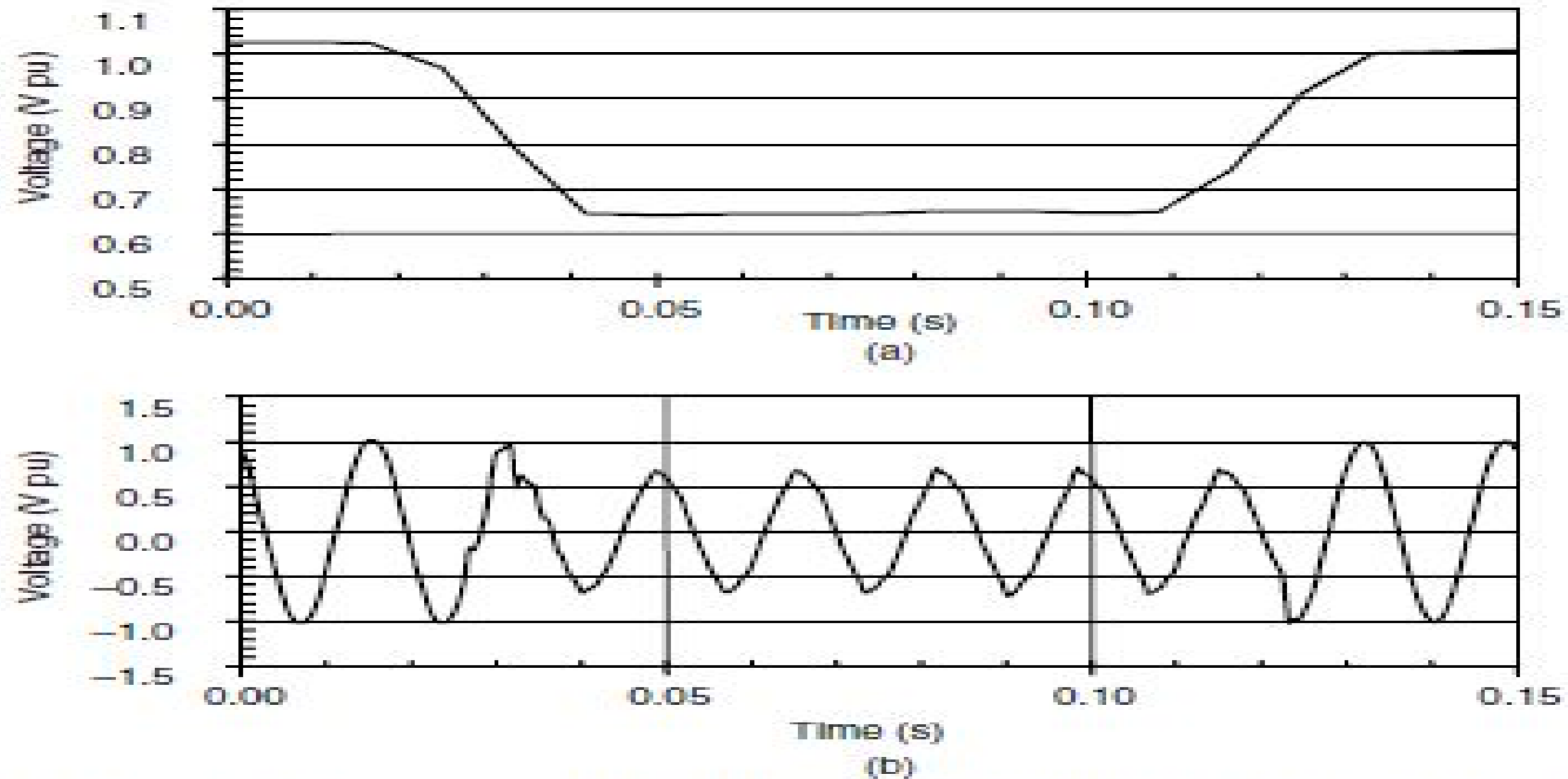


Figure 2.6 Voltage sag caused by an SLG fault. (a) RMS waveform for voltage sag event. (b) Voltage sag waveform.



Voltage sag (or dip)

- IEC –phenomenon - voltage dip.
- Sag - US and dip - European countries.

□ Sources

External

Storm - ice storms – lightning- tree or animal contact
with energized feeders

Internal

Starting large loads - switching of heavy loads - grounding
or wiring problems - fault on a parallel feeder circuit

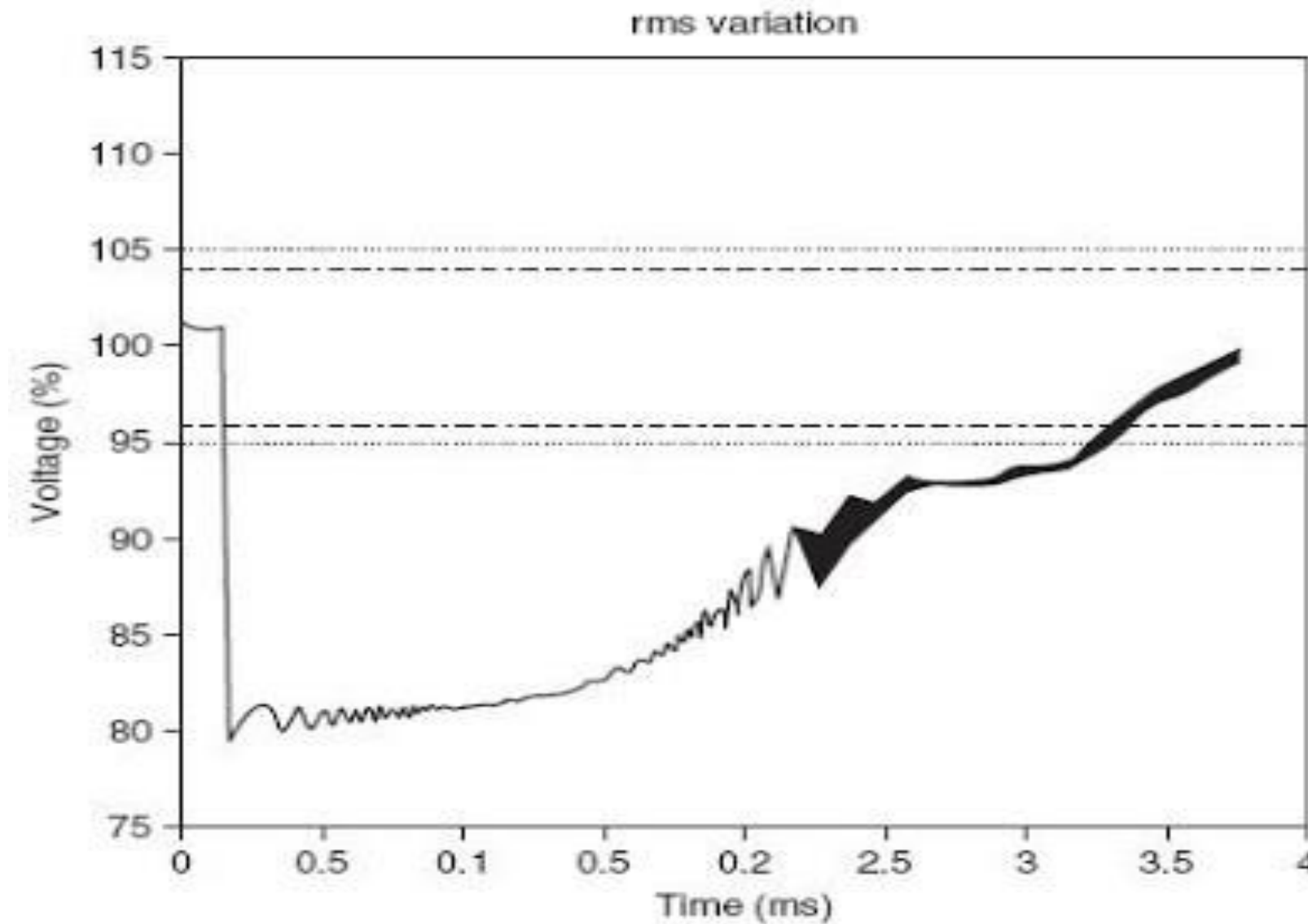


Voltage sag (or dip)

- Sags affects commercial and industrial customers - virtually unnoticeable by observing lightning blinks - many industrial processes shutdown.
- Possible effects of voltage sags would be
 - System shutdown
 - Reduction in efficiency and life span of electrical equipment, specifically motors
 - Huge financial losses



Voltage Sag Caused By Motor Starting





Summary



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KEEP
LEARNING..
Thank u

SEE YOU IN NEXT CLASS