



# TERs Transportation Energy Resources

## *World Power Capacity by Source*

### Energy Transportation

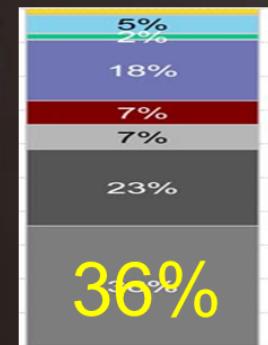


2,000/d  
720/d

80,000,000 T/d  
30,000,000 T/d

Coal

2015  
5,000,000 MW



### Energy Transportation



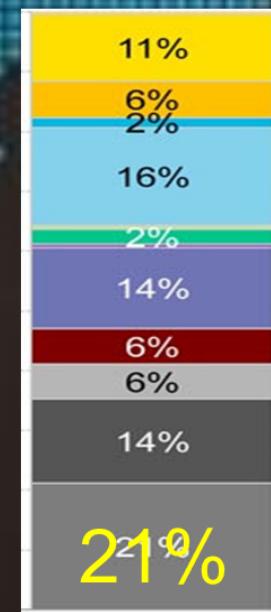
4,000/d  
840/d

160,000,000 T/d  
34,000,000 T/d

Coal

2030

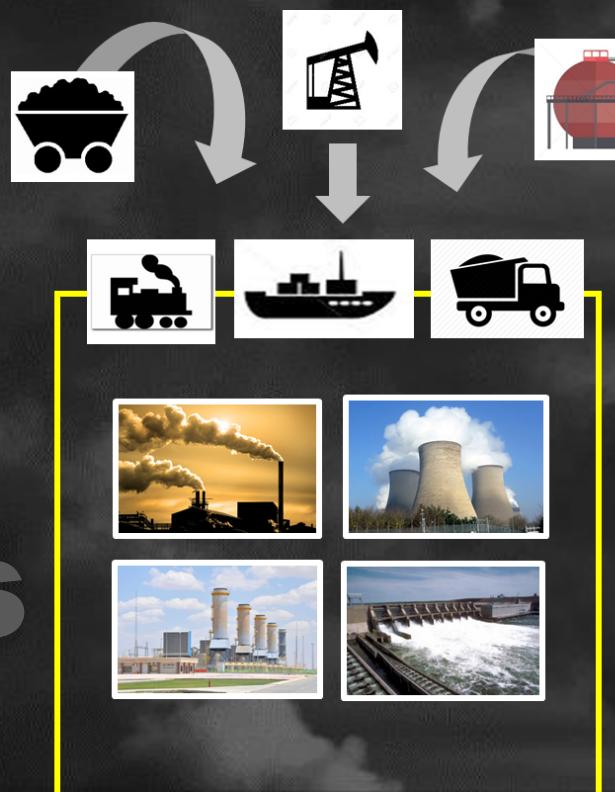
10,000,000 MW





Pride of SGtech  
ASEAN Smart Grid Simulator

# TERs



Generation(Producer)

# TERs

Transportation  
*Traditional Grid*  
Energy  
Resources

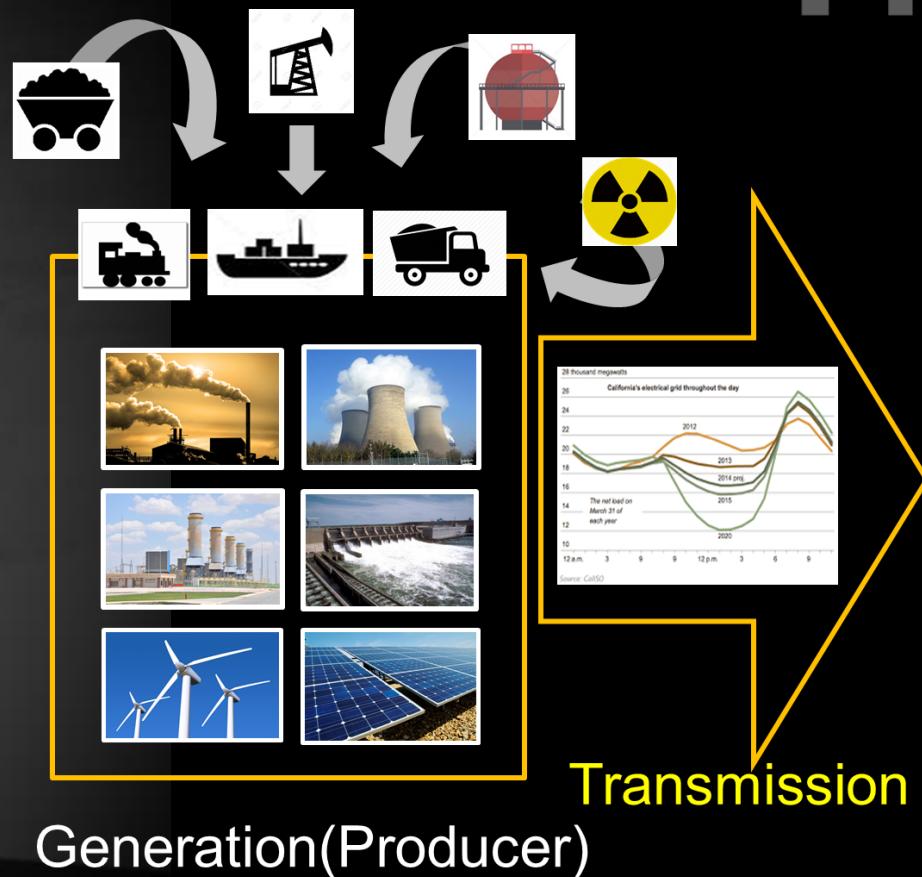
Transmission

Load (Consumer)

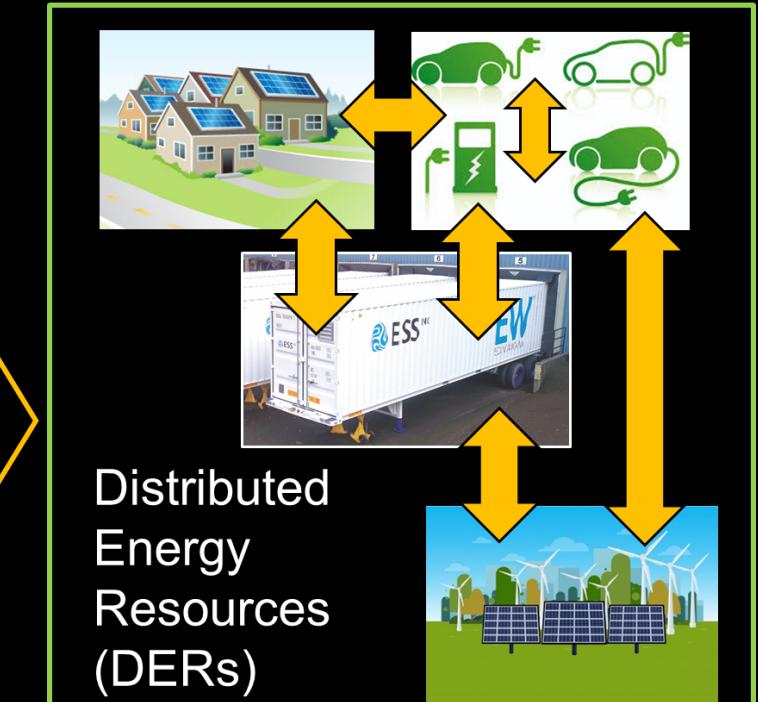


Pride of SGtech  
ASEAN Smart Grid Simulator

TERs  
DERs



# DERs and *Prosumer Grid* Prosumer

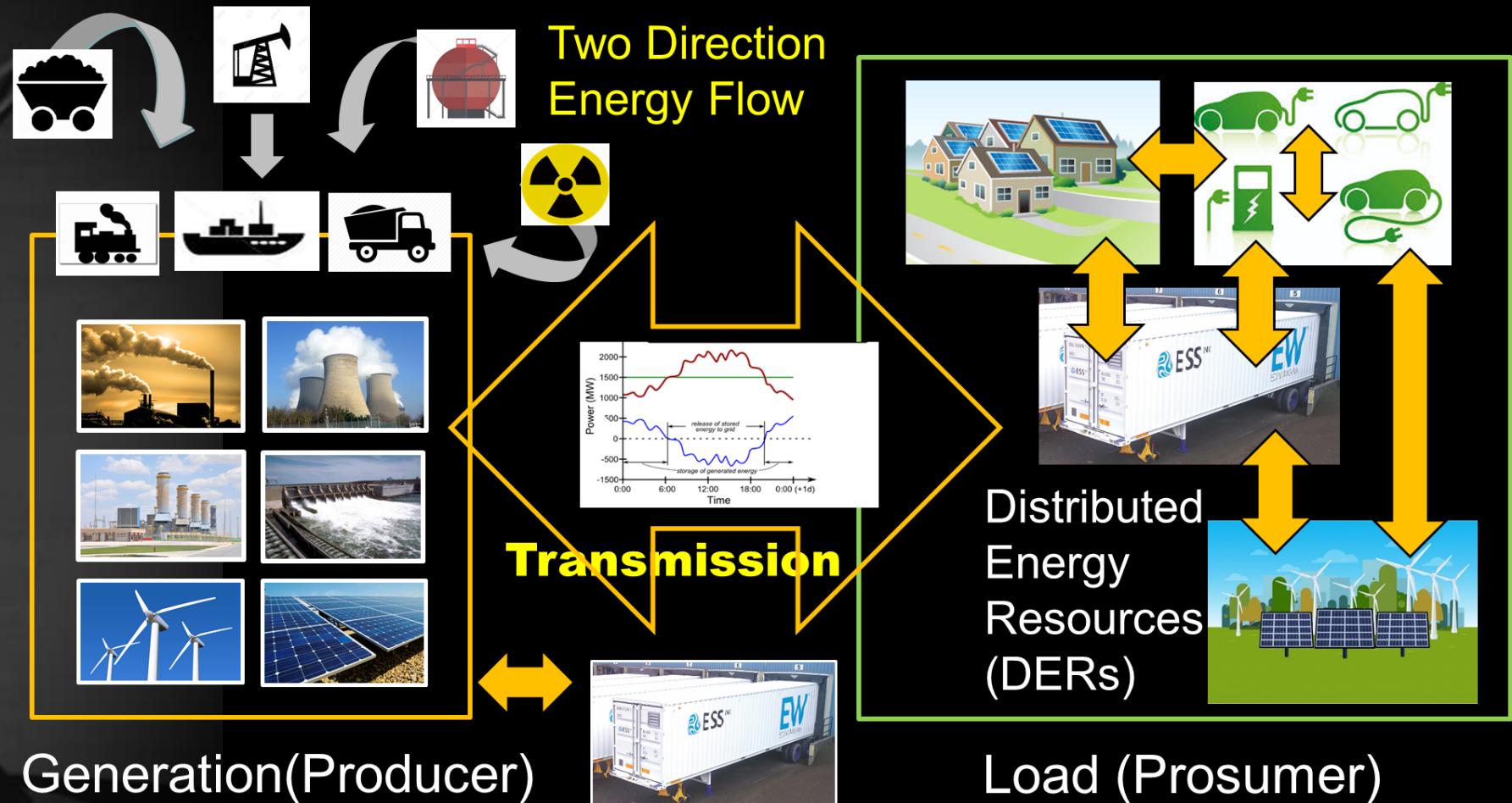




Pride of SGtech  
ASEAN Smart Grid Simulator

# DERs and *Smart Grid* Prosumer

TERs  
DERs





SGtech

School of Renewable Energy  
and Smart Grid Technology

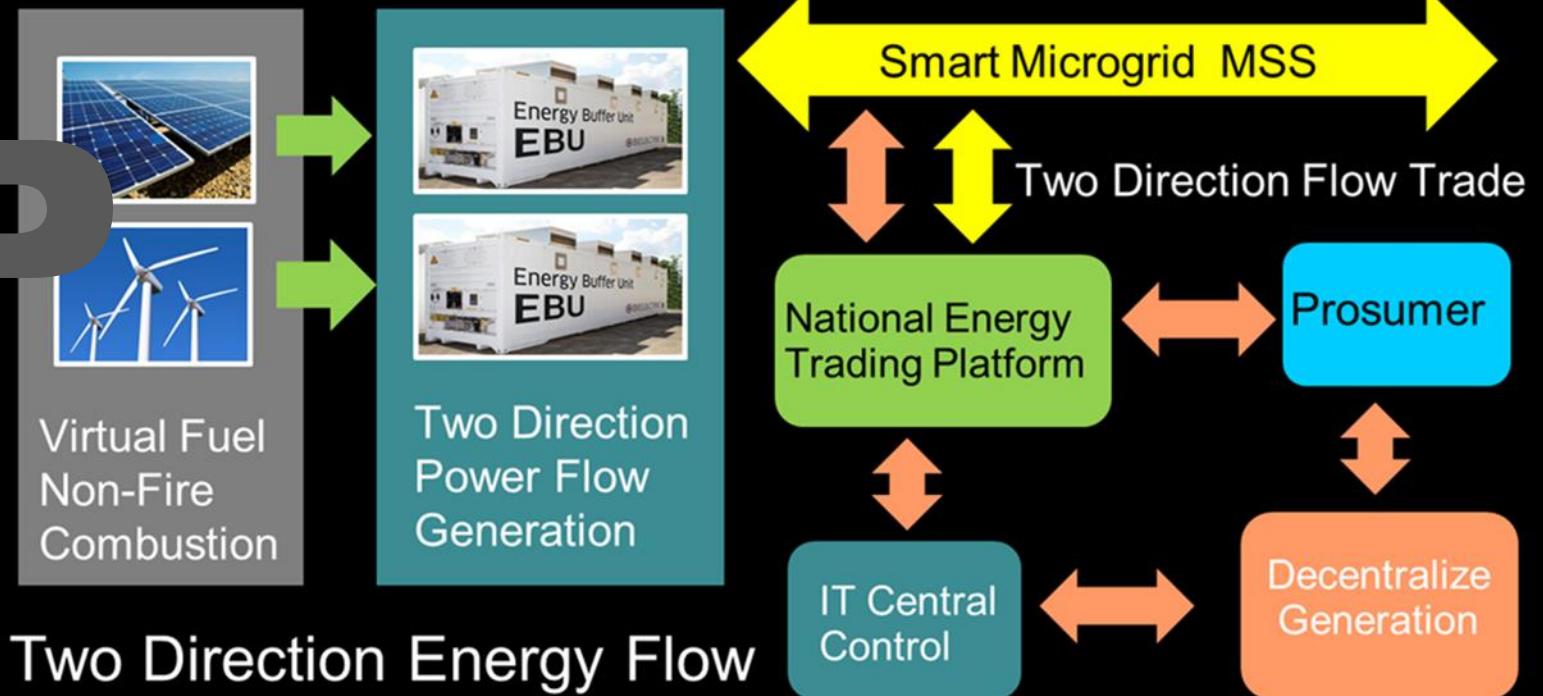
# VPP

# NETP TERs

## DERs

### DG and Microgrid

## Prosumer

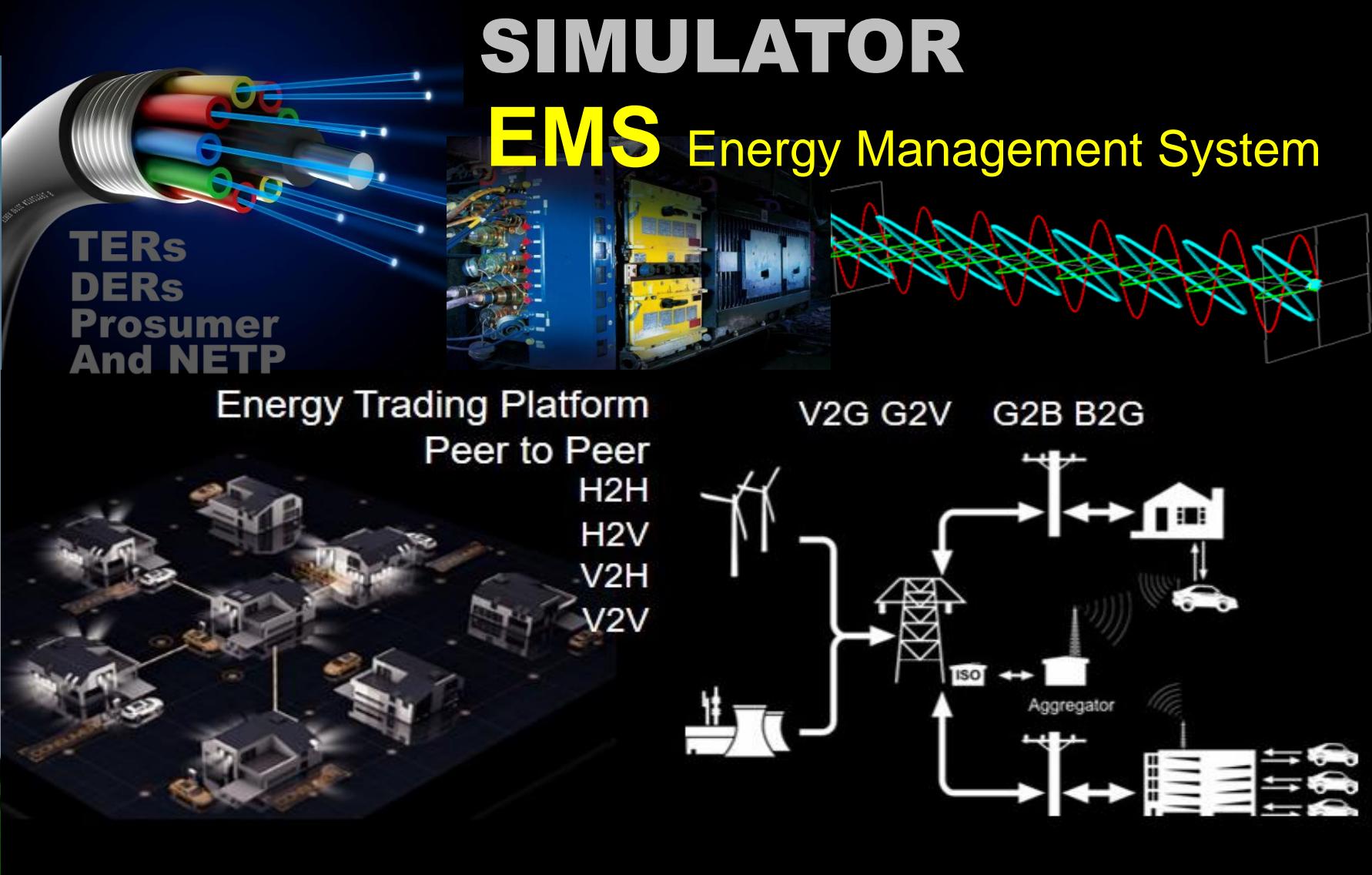




Pride of SGtech  
ASEAN Smart Grid Simulator

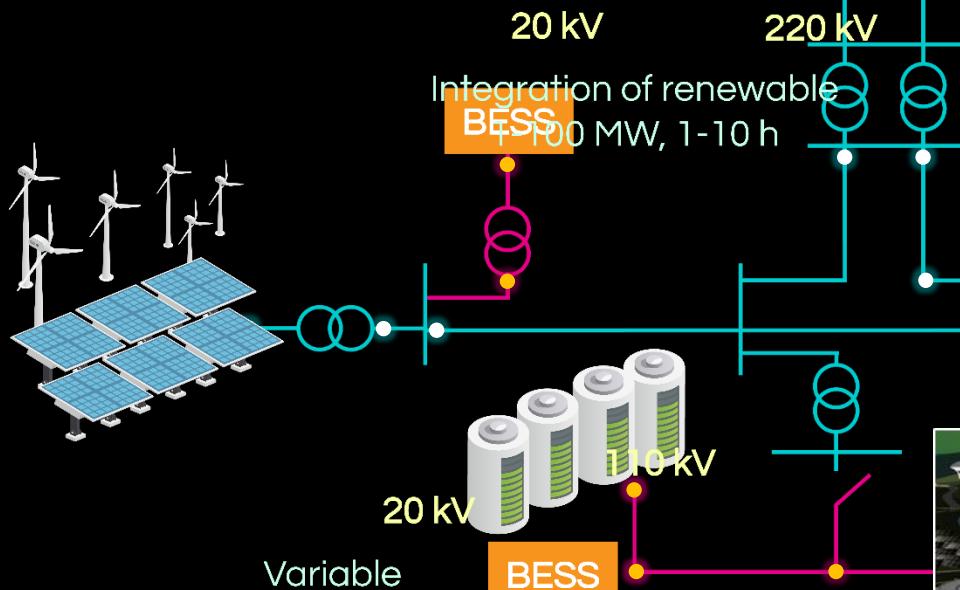
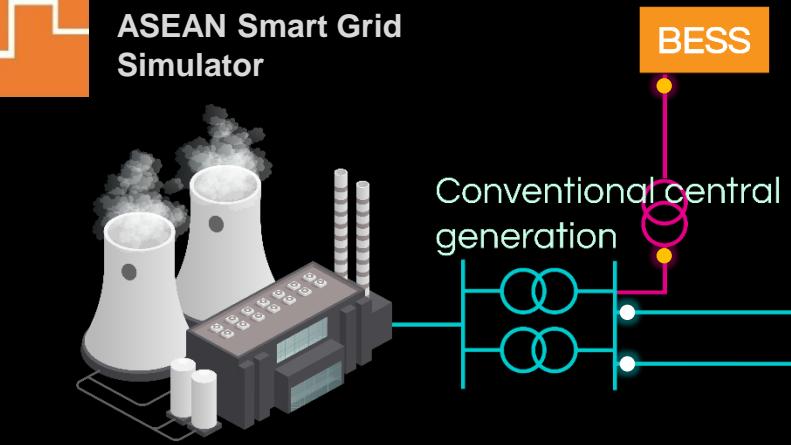
# ASEAN-ONR SMART GRID SIMULATOR

## EMS Energy Management System





Pride of SGtech  
ASEAN Smart Grid  
Simulator



Stack  
0.1-5 ↑

# DG Microgrid

Microgrid

SGtech

Load leveling  
for generation utilization  
10-1000 MW, 1-8 h

# Thank you



220 kV

BESS

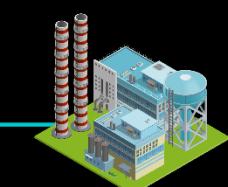
Load leveling for  
assessment of grid upgrade  
10-1000 MW, 1-6 h



Frequency regulation

BESS

Peak shaving  
0.5 - 10 MW, 1 h



Industry/  
large commercial



Residential/Small  
commercial

BESS

Grid PV time shift  
1-100 kW, 2-6 h