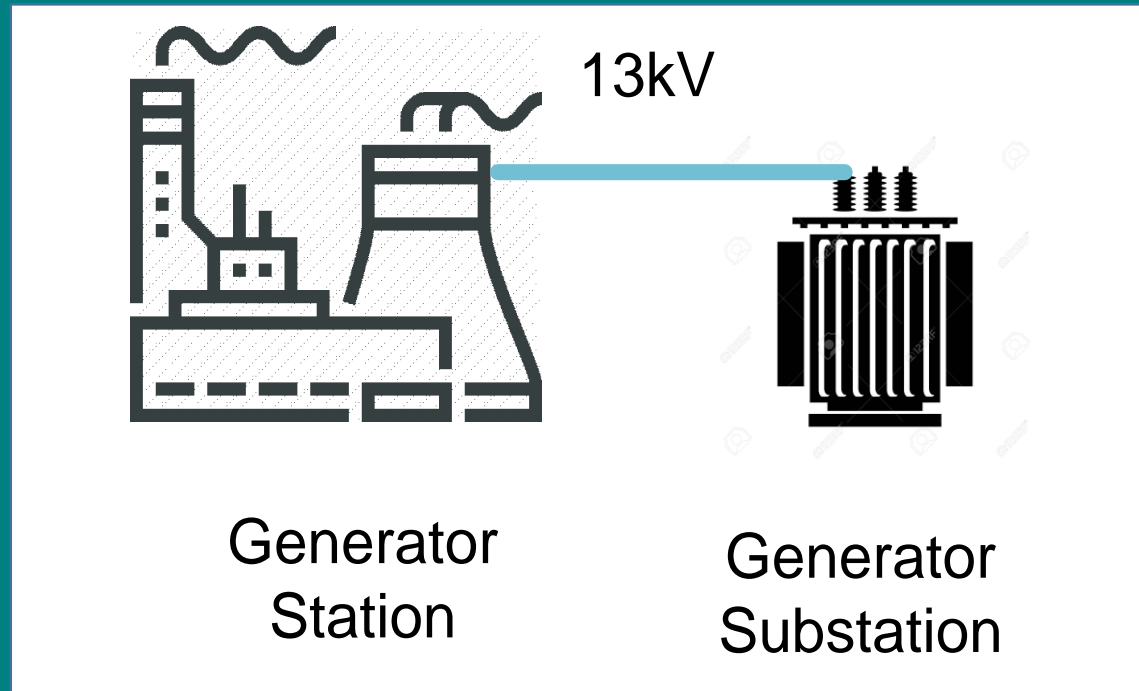
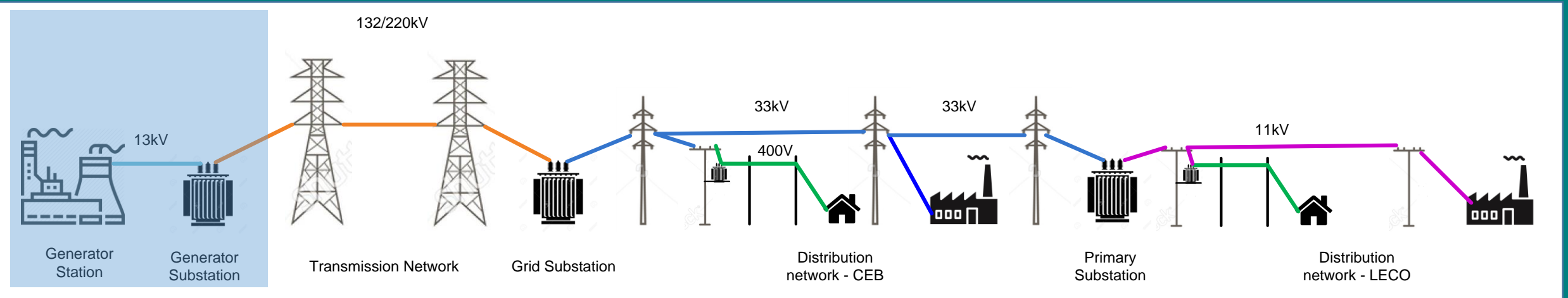


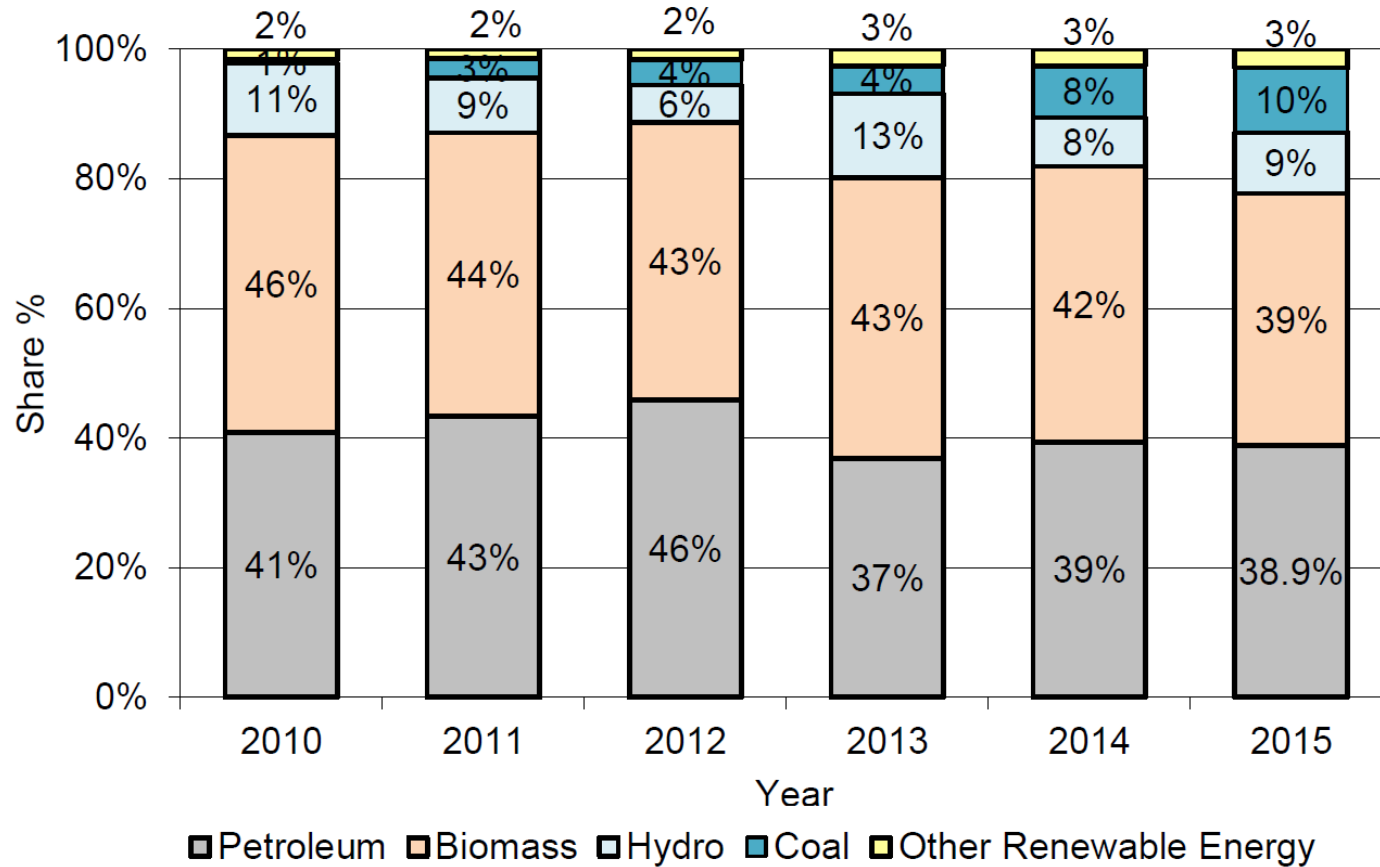
Sri Lankan Power System

Shan Edirisingha
Electrical Engineer, System Developments,
LECO,
BSc (hons.)

Our Power System

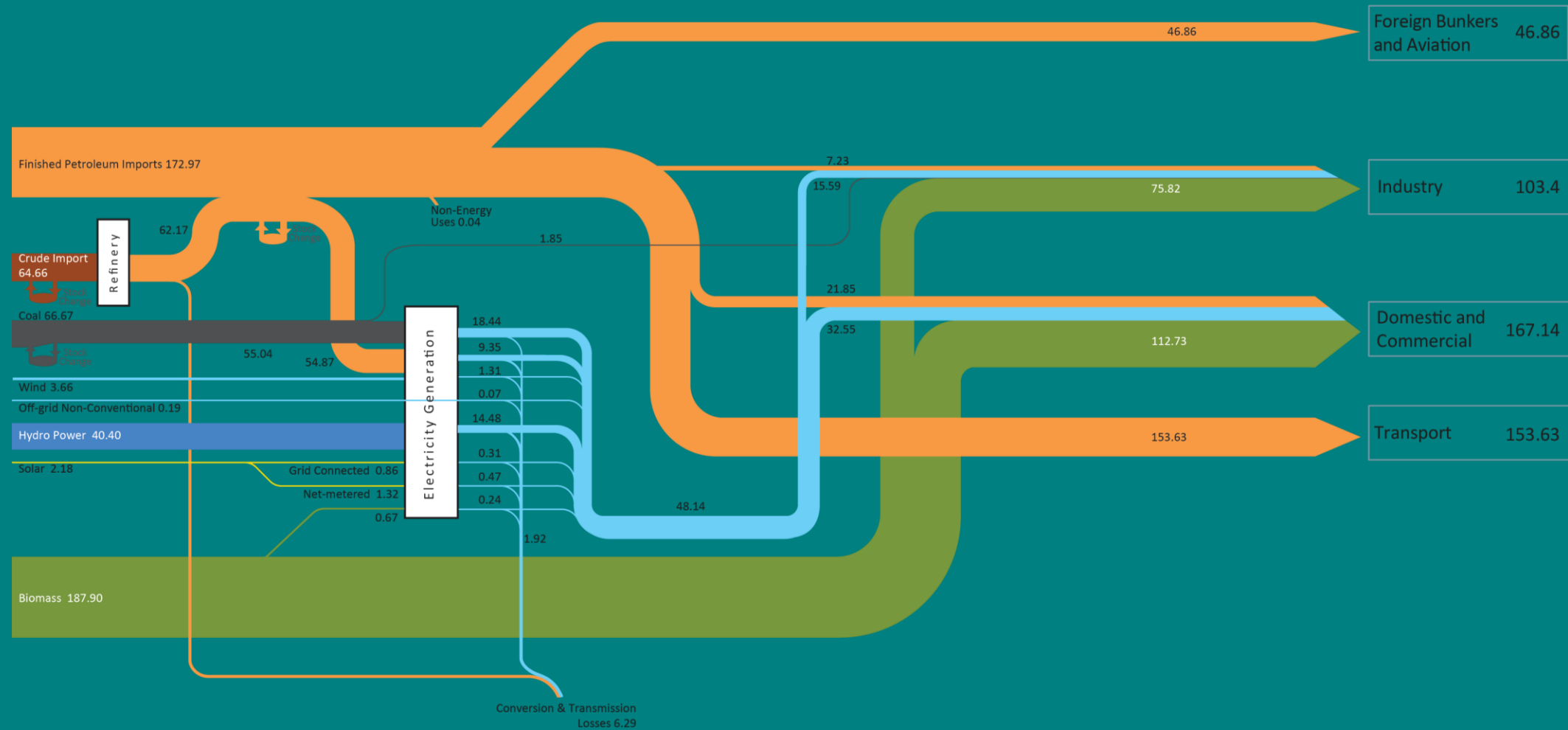


Primary Energy

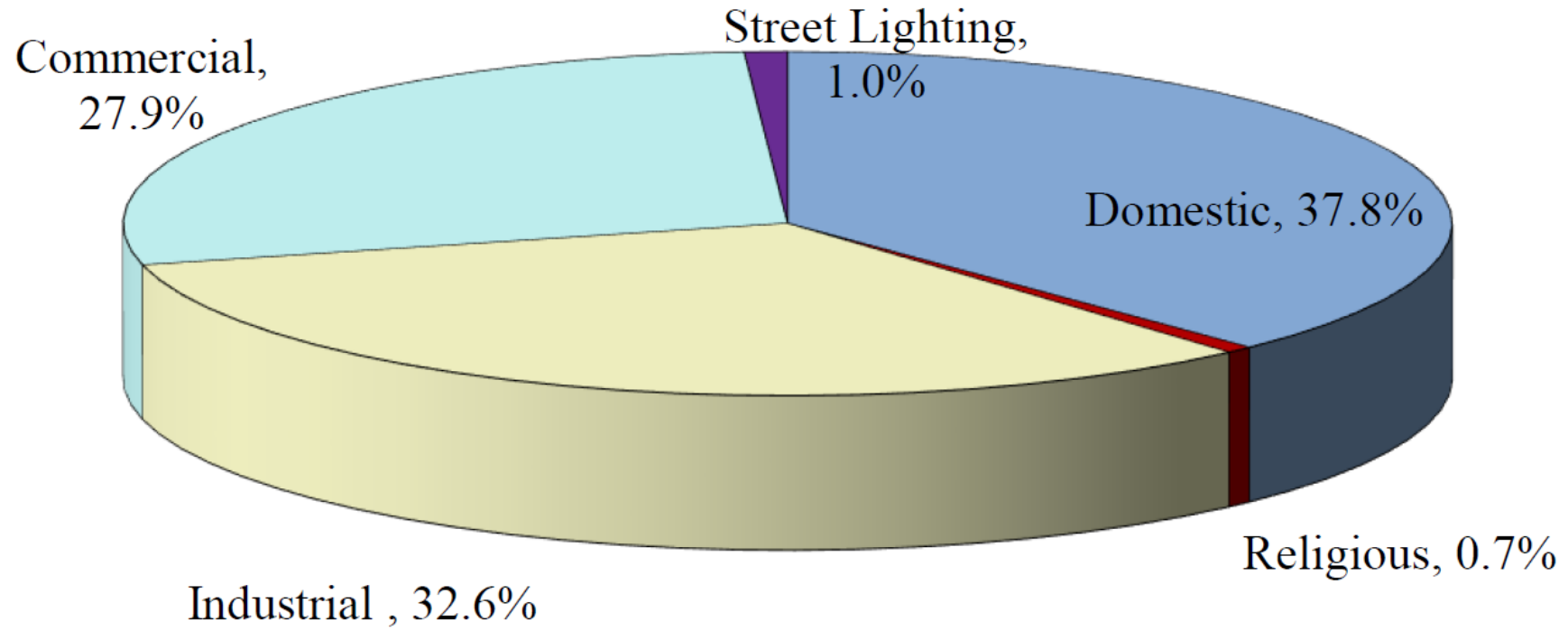


Source: Sri Lanka Sustainable Energy Authority

Our Energy Picture



Our Consumption



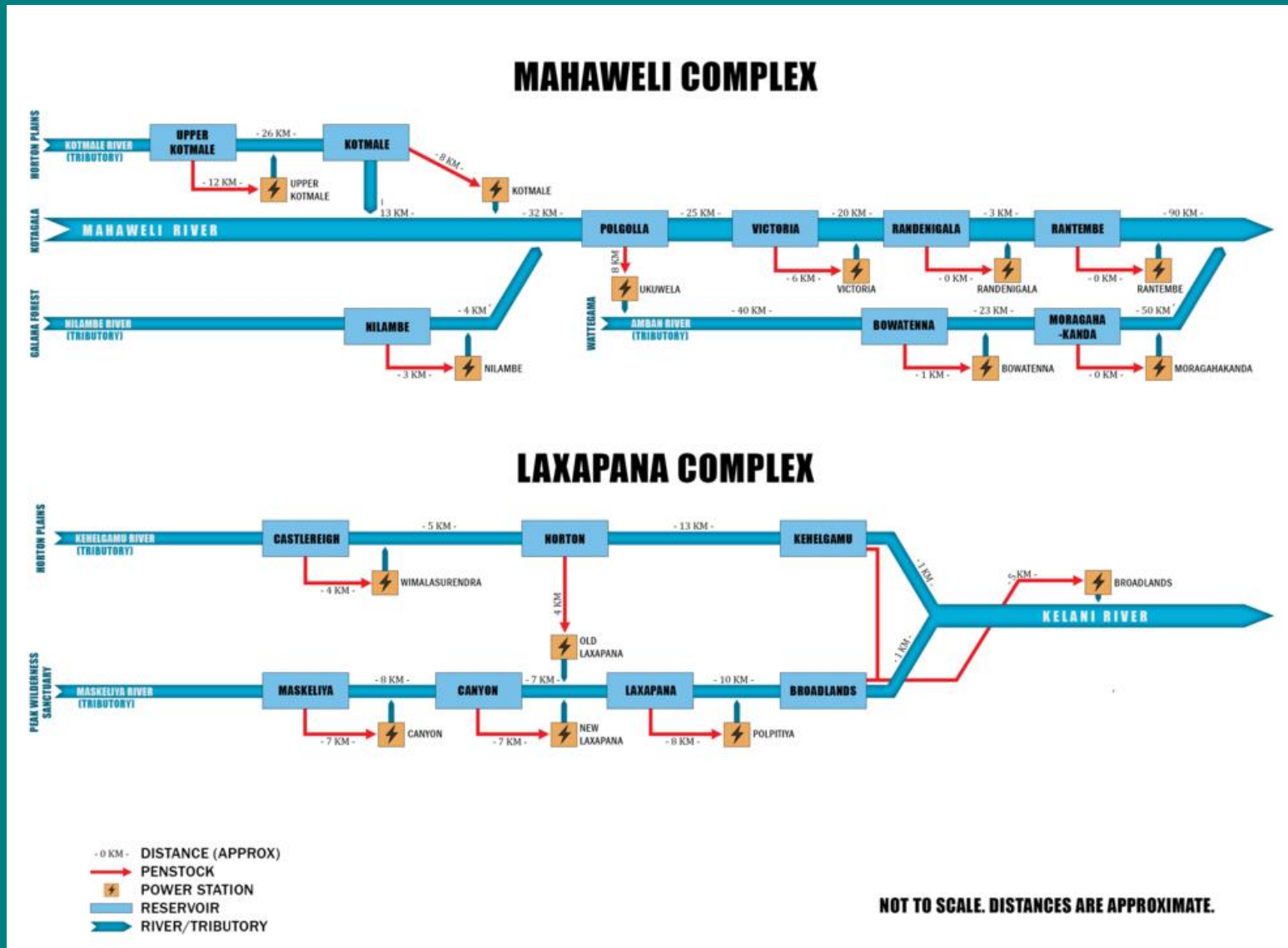
Our Generation

MW	2005	2010	2013	2014	2015	2016
Major Hydro	1,207.5	1,207.5	1,361.0	1,377.0	1,377.0	1,383.9
Thermal Power Producers (CEB+IPP+Hired)	1,114.5	1,389.5	1,575.0	2,213.0	2,028.0	2,052.8
CEB Wind	3.0	3.0	3.0	3.0	3.0	3.0
New Renewable Energy	85.8	217.6	351.6	436.7	452.0	511.8
Micro Power Producers	-	-	3.3	13.3	27.7	50.4
Total Installed Capacity	2,410.8	2,817.6	3,293.9	4,042.9	3,887.6	4,001.9
%						
Major Hydro	50.1	42.9	41.3	34.1	35.4	34.6
Thermal Power Producers (CEB+IPP+Hired)	46.2	49.3	47.8	54.7	52.2	51.3
CEB Wind	0.1	0.1	0.1	0.1	0.1	0.1
New Renewable Energy	3.6	7.7	10.7	10.8	11.6	12.8
Micro Power Producers	-	-	0.1	0.3	0.7	1.3

Our Hydro Plants

Name of Hydro Power Station	Plant Capacity (MW)	Name of the Reservoir	Reservoir Live Storage (million m ³)	Generation in 2016 (GWh)	Share in Generation (%)
Laxapana Complex					
Wimalasurendra	50	Castlereigh Reservoir	44.8	84.7	2.4
Canyon	60	Maussakelle Reservoir	123.4	122.7	3.5
Laxapana	53.8	Norton Pond	0.4	236.7	6.8
Samanala	75	Laxapana Pond	0.4	324.8	9.3
New Laxapana	116	Canyon Pond	1.2	431.4	12.4
Mahaweli Complex					
Kotmale	201	Kotmale Reservoir	172.6	278.6	8.0
Nilambe	3.2	-	-	4.3	0.1
Ukuwela	40	Polgolla Barrage	-	157.7	4.5
Bowatenna	40	Bowatenna Reservoir	49.9	42.0	1.2
Victoria	210	Victoria Reservoir	721.2	588.2	16.9
Randenigala	122	Randenigala Reservoir	875	322.3	9.3
Rantembe	50	Rantembe Pond	21	141.0	4.0
Upper Kotmale	150	Upper Kotmale	0.8	233.5	6.7
Other Hydro Complex					
Inginiyagala	11.25	Inginiyagala Reservoir	-	41.6	1.2
Uda Walawa	6	Uda Walawa	-	15.2	0.4
Samanalawewa	120	Samanalawewa Reservoir	278	257.7	7.4
Kukule Ganga	75	-	-	199.4	5.7
Total	1,384	-	-	3,481.9	100.0

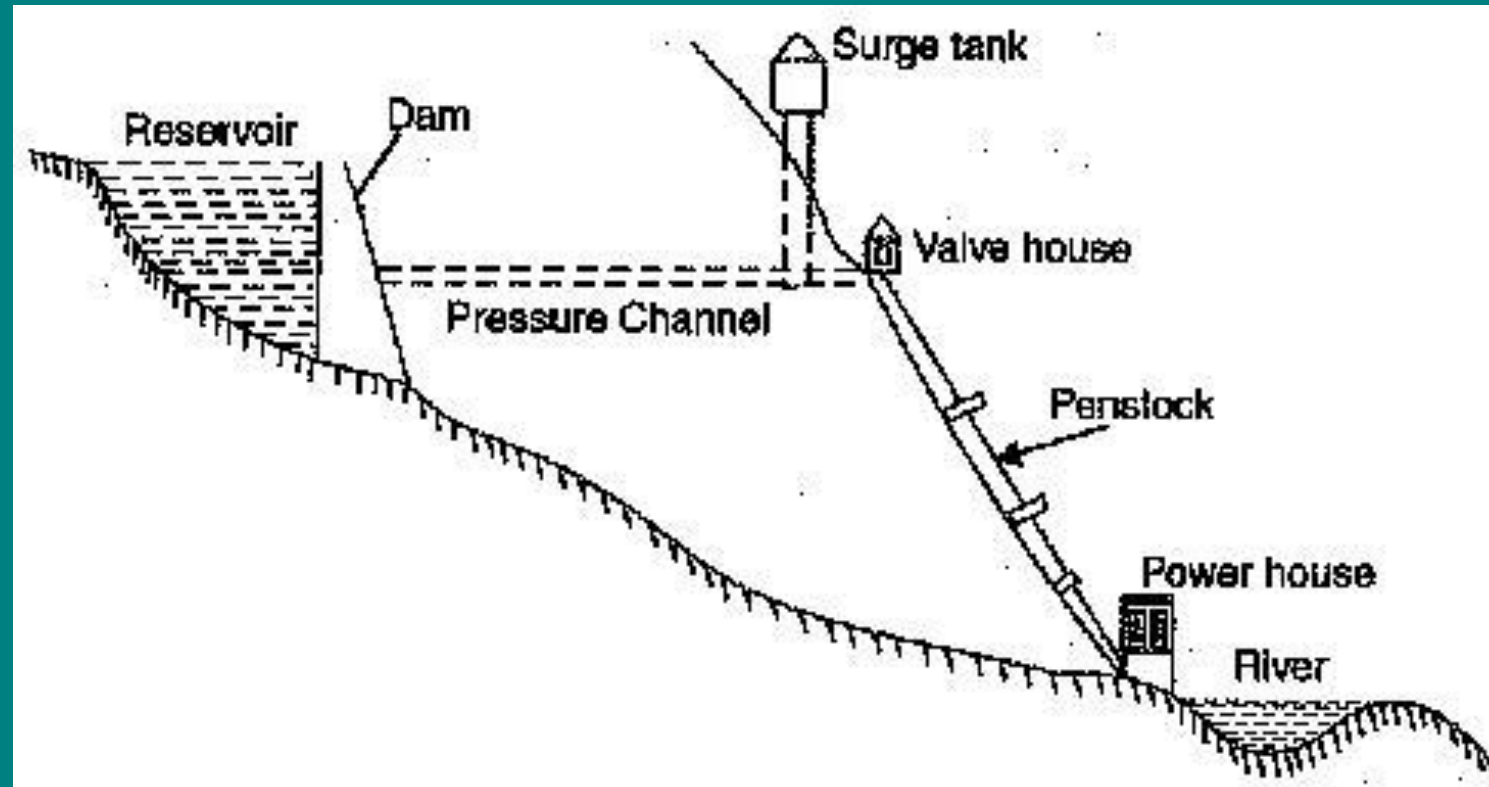
Our Major Hydro Schemes



Our Consumption

Name of Power Station	Technology Type	Fuel Type	Capacity (MW)	Gross Generation (GWh)	Share in Generation (%)
CEB					
Kelanitissa Power Station	Gas Turbine (stg 2)	Auti Diesel	115	263.8	2.7
Kelanitissa Power Station	Gas Turbine (stg 3)	Auto Diesel	80	44.7	0.5
Sapugaskanda Power Station	Diesel Engine	Auto Diesel	80	12.4	0.1
		HSFO 380 cst (FO 3500)		296.8	3.1
Sapugaskanda Power Station Extension	Diesel Engine	Auto Diesel	80	8.6	0.1
		HSFO 380 cst (FO 3500)		467.1	4.9
Kelanitissa Power Station	Combined Cycle	Auto Diesel	165	128.4	1.3
		Naphtha		669.2	6.9
Uthuru Janani	Diesel Engine	HSFO 180 cst (FO 1500)	24	101.6	1.1
Barge Mounted Power Plant	Diesel Engine	HSFO 180 cst (FO 1500)	60	367.8	3.8
Puttalam Coal Power Station	Steam	Auto Diesel	900	12.3	0.1
		Coal		5,054.5	52.5
IPP					
Asia Power	Diesel Engine	HSFO 380 cst (FO 3500)	51	130.2	1.4
AES - Kelanitissa	Combined Cycle	Auto Diesel	110	806.0	8.4
	Steam Turbine		53		
Ace Power Embilipitiya	Diesel Engine	HSFO 180 cst (FO 1500)	100	374.9	3.9
Yugadhanavi-Kerawalapitiya	Combined Cycle	LSFO 180 cst	270	891.8	9.3
Total			2,088	9,630.0	100.0

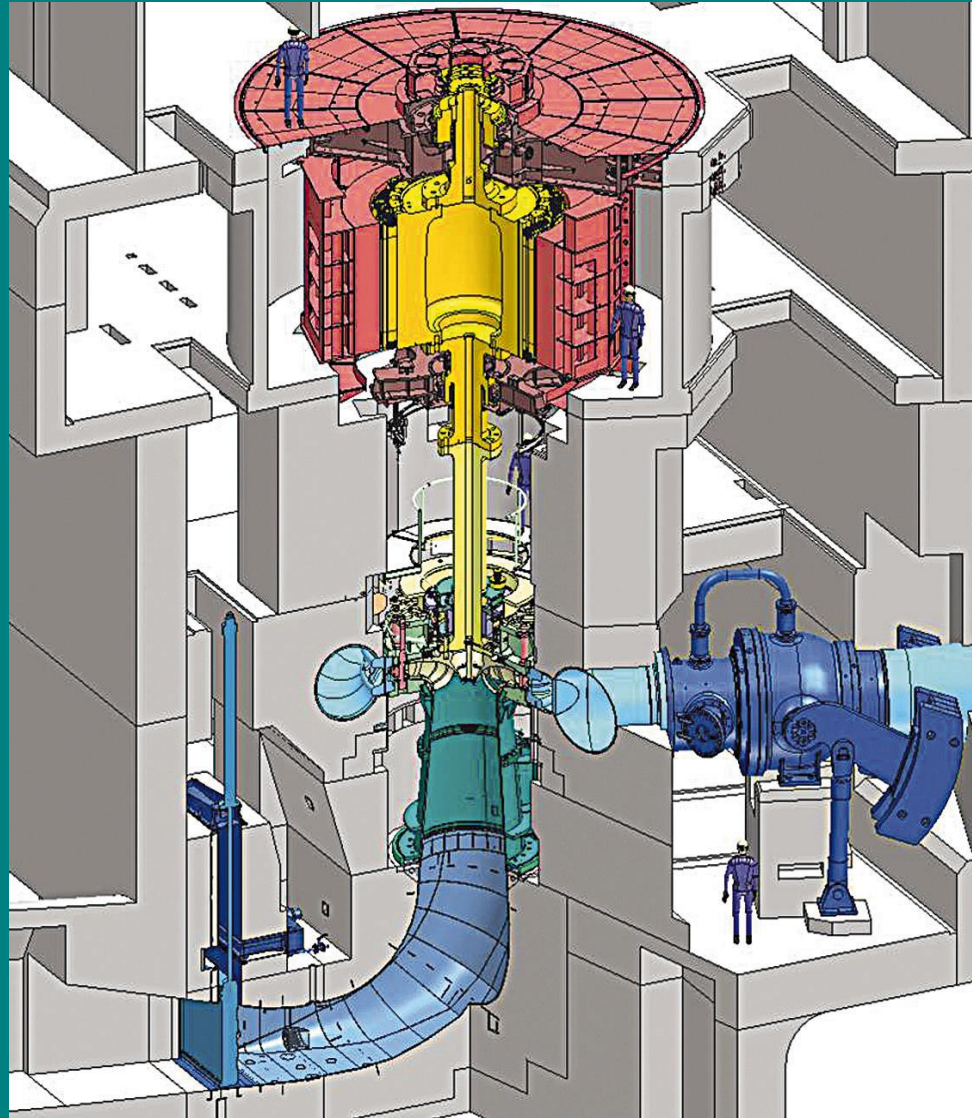
Hydro Power Plant



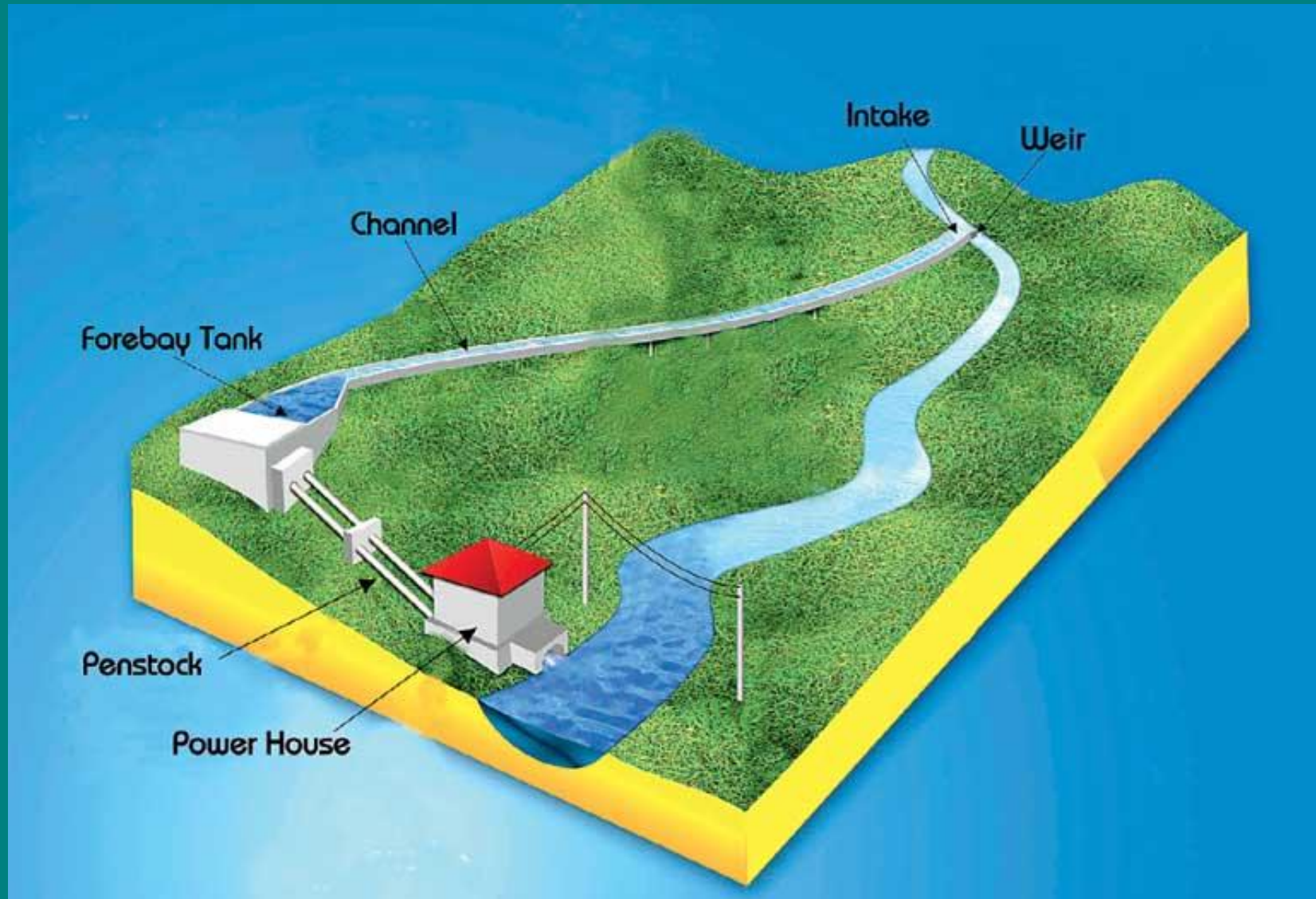
Schematic arrangement of a Hydro-electric plant

Fig. 2.2

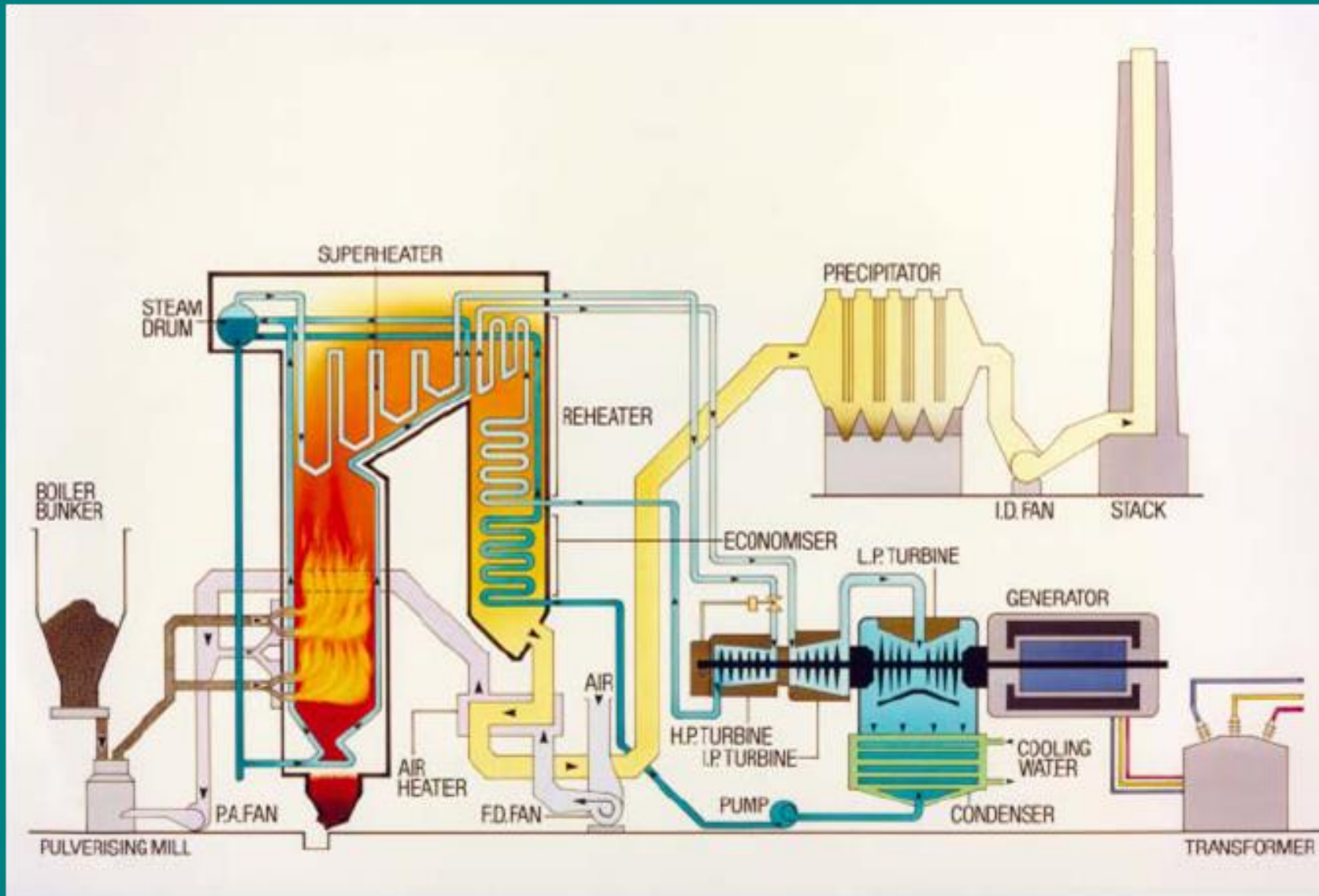
Hydro Power Plant



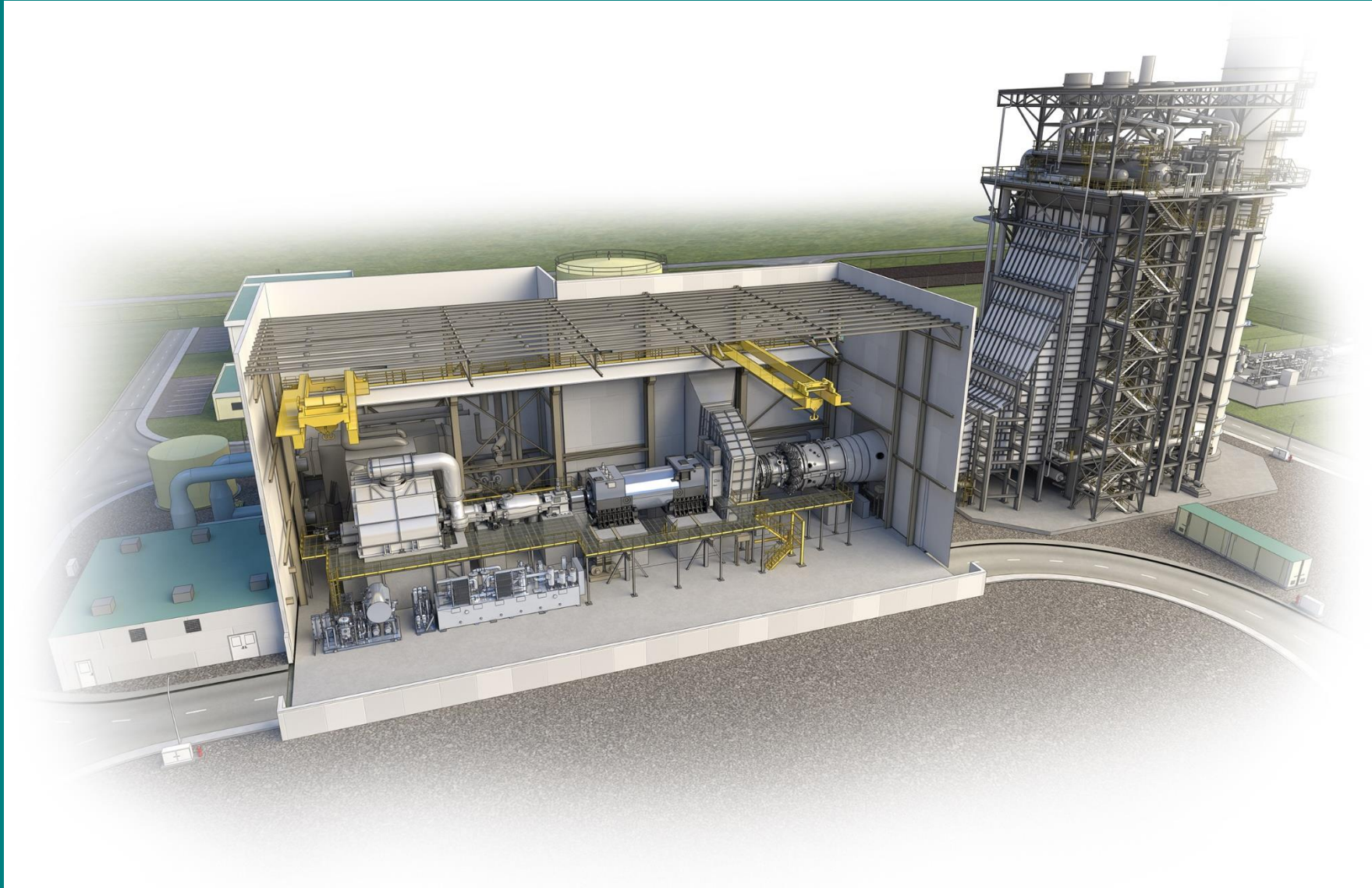
Mini-Hydro Power Plant



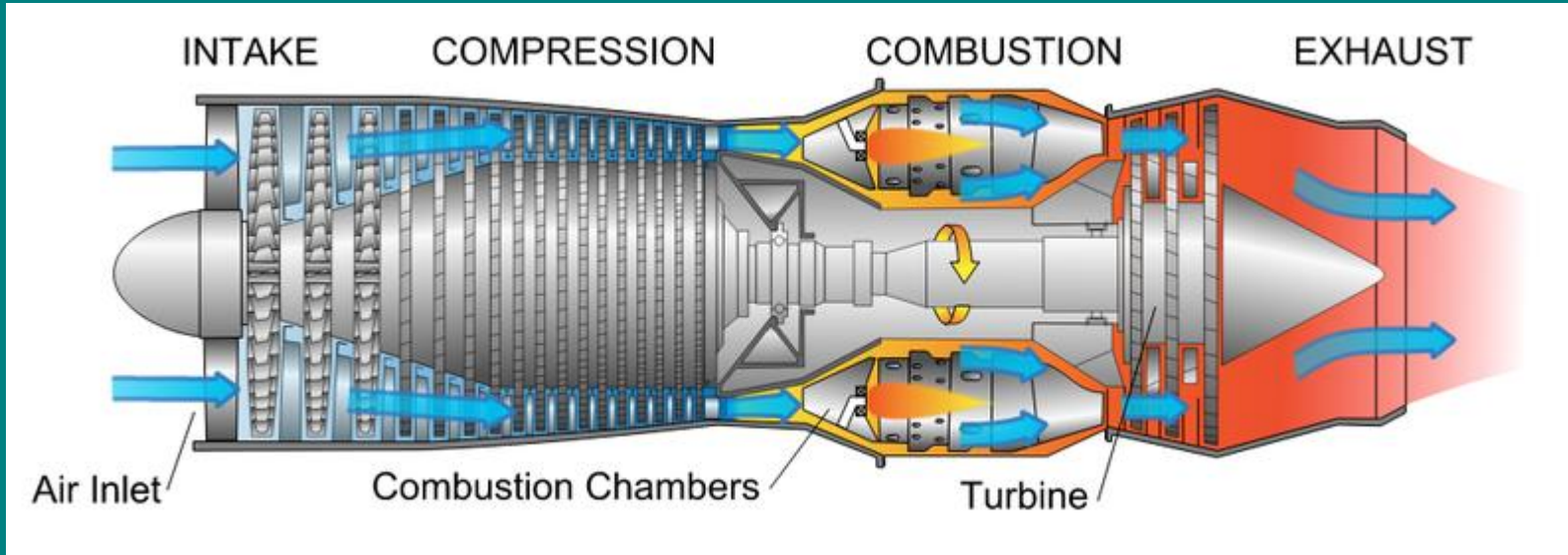
Steam Power Plant



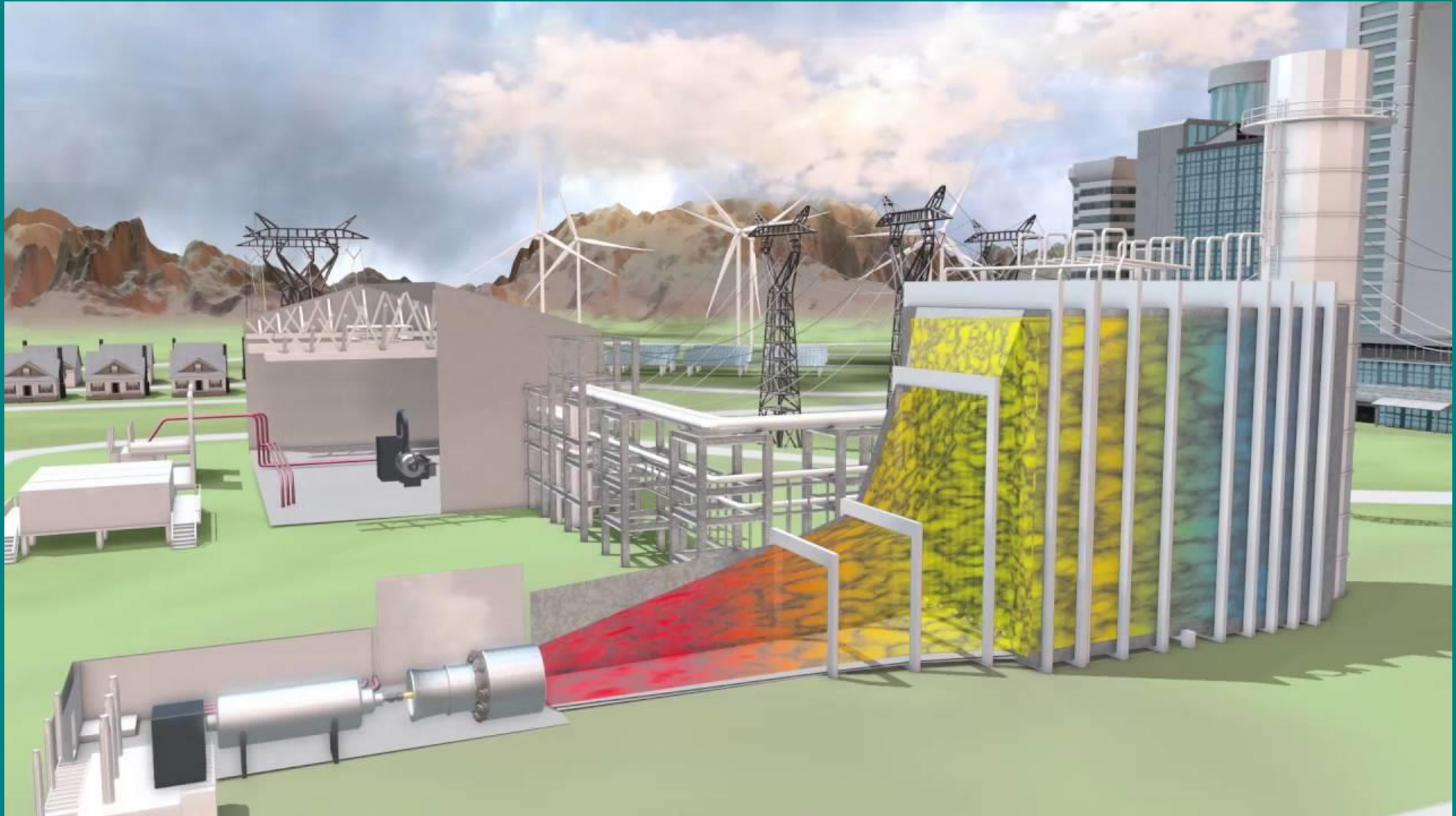
Combined Cycle Power Plant



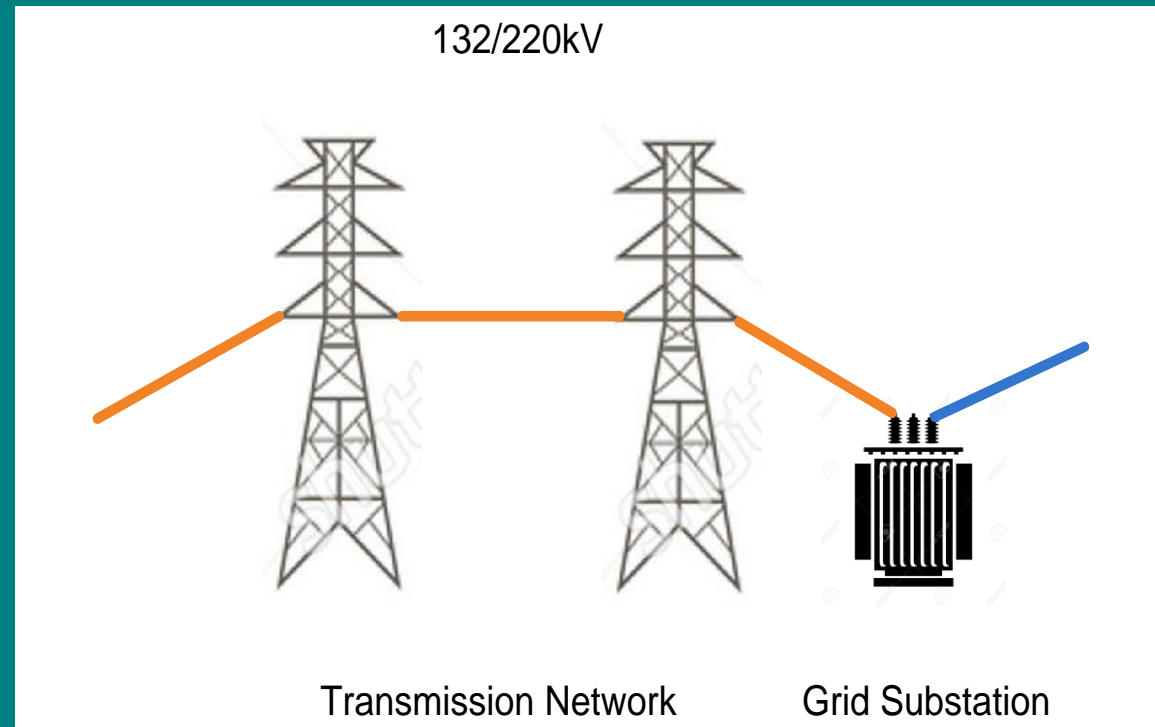
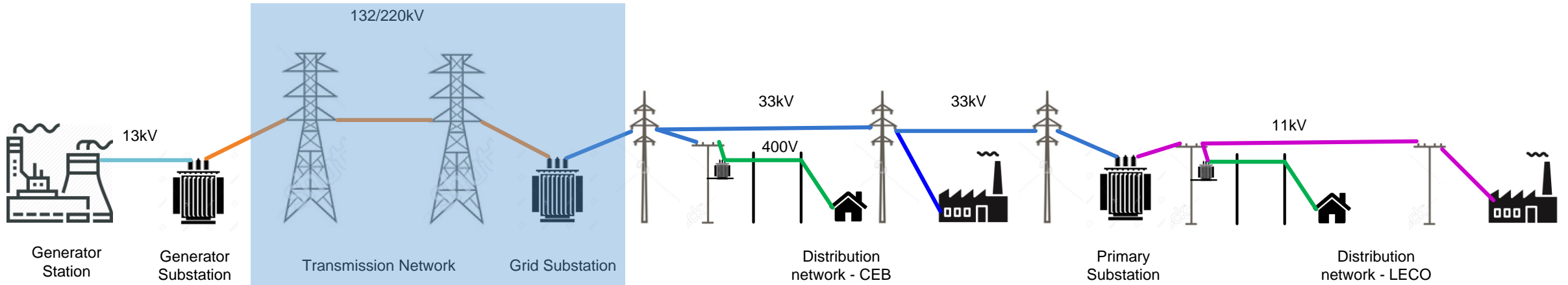
Gas Turbine Power Plants



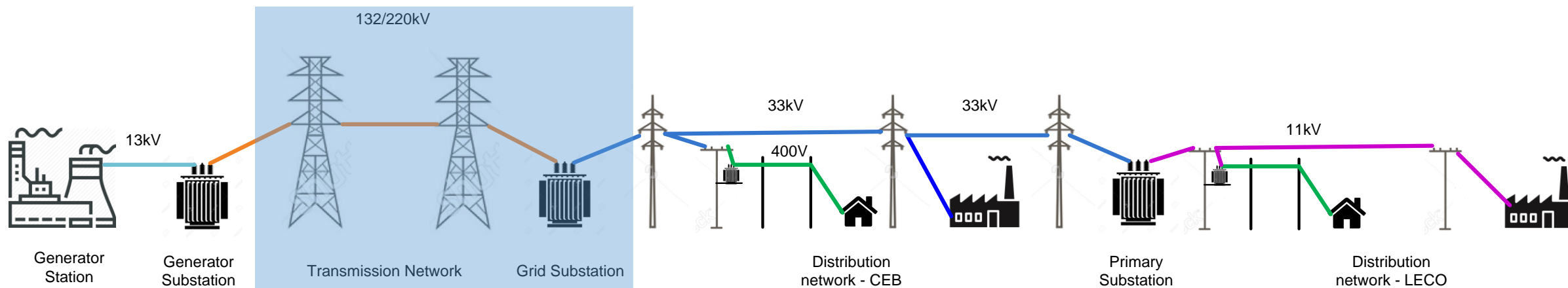
Combined Cycle Power Plant



Our Power System

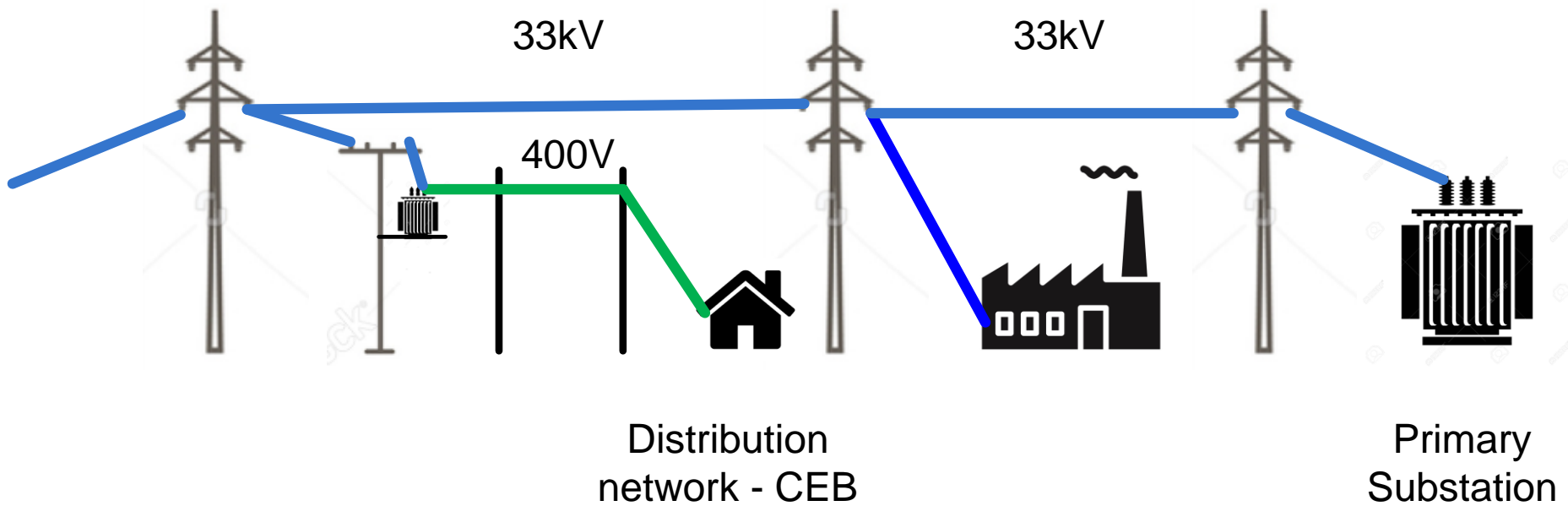


Our Power System

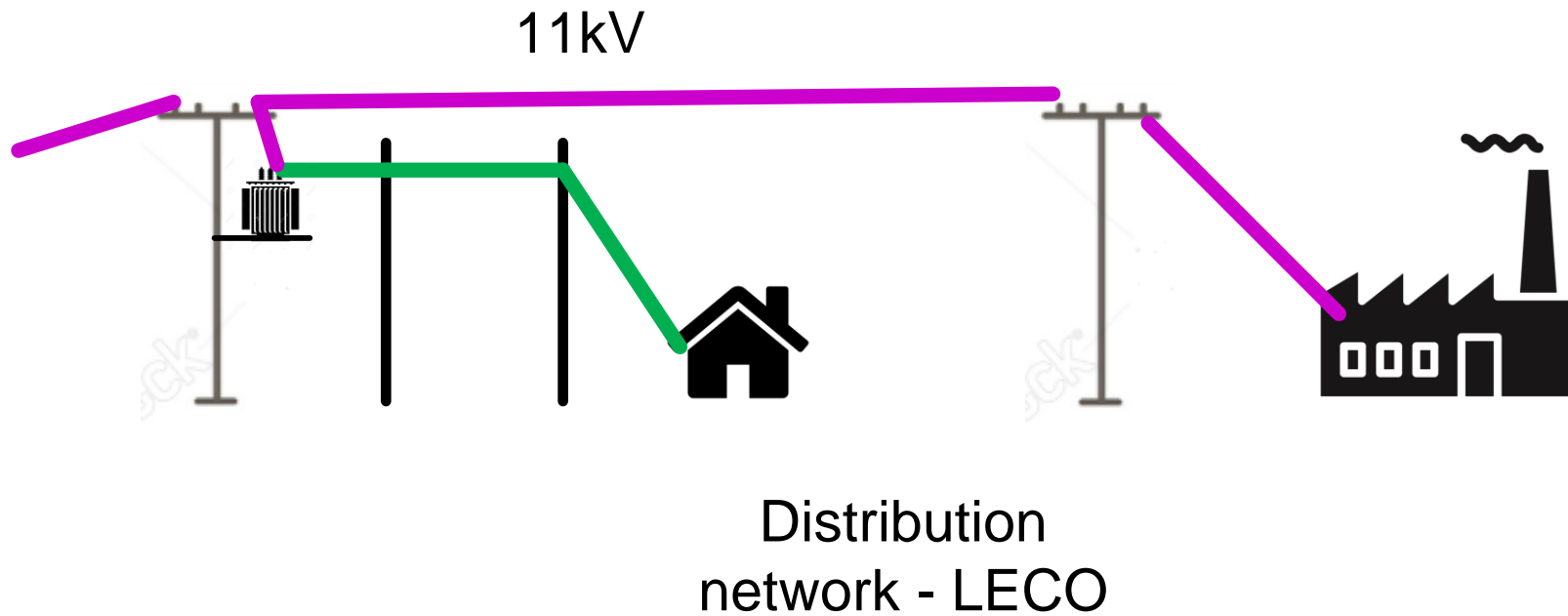
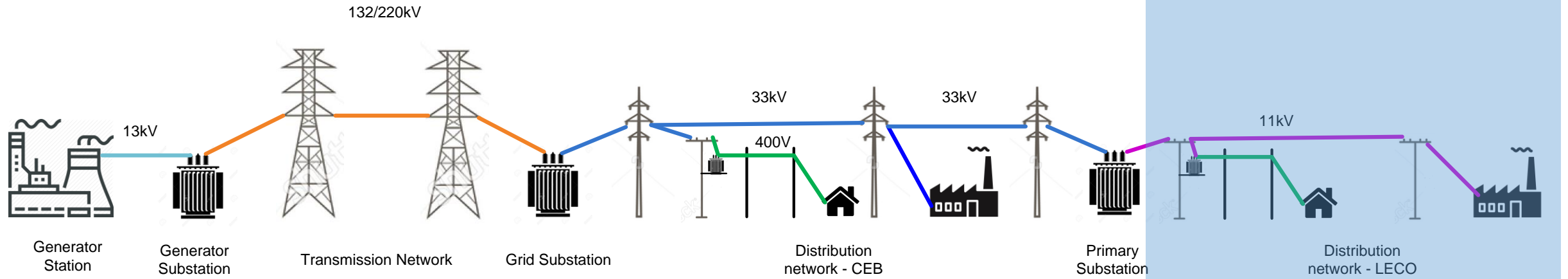


	2017	2018	% Change
220 kV Route Length OH	601	601	0.0%
132 kV Route Length OH	2,261	2,286	1.1%
132 kV Route Length UG	52	52	0.0%
33 kV Route Length OH	31,316	31,659	1.1%
33 kV Route Length UG	41	44	6.2%
11 kV Route Length OH	1,423	1,394	-2.0%
11 kV Route Length UG	849	856	0.9%
Low Voltage Circuit Length OH & UG Total	142,807	147,875	3.5%
Single Phase OH & UG	32,481	32,867	1.2%
Two Phase OH & UG	3,338	3,462	3.7%
Three Phase OH & UG	106,988	111,546	4.3%

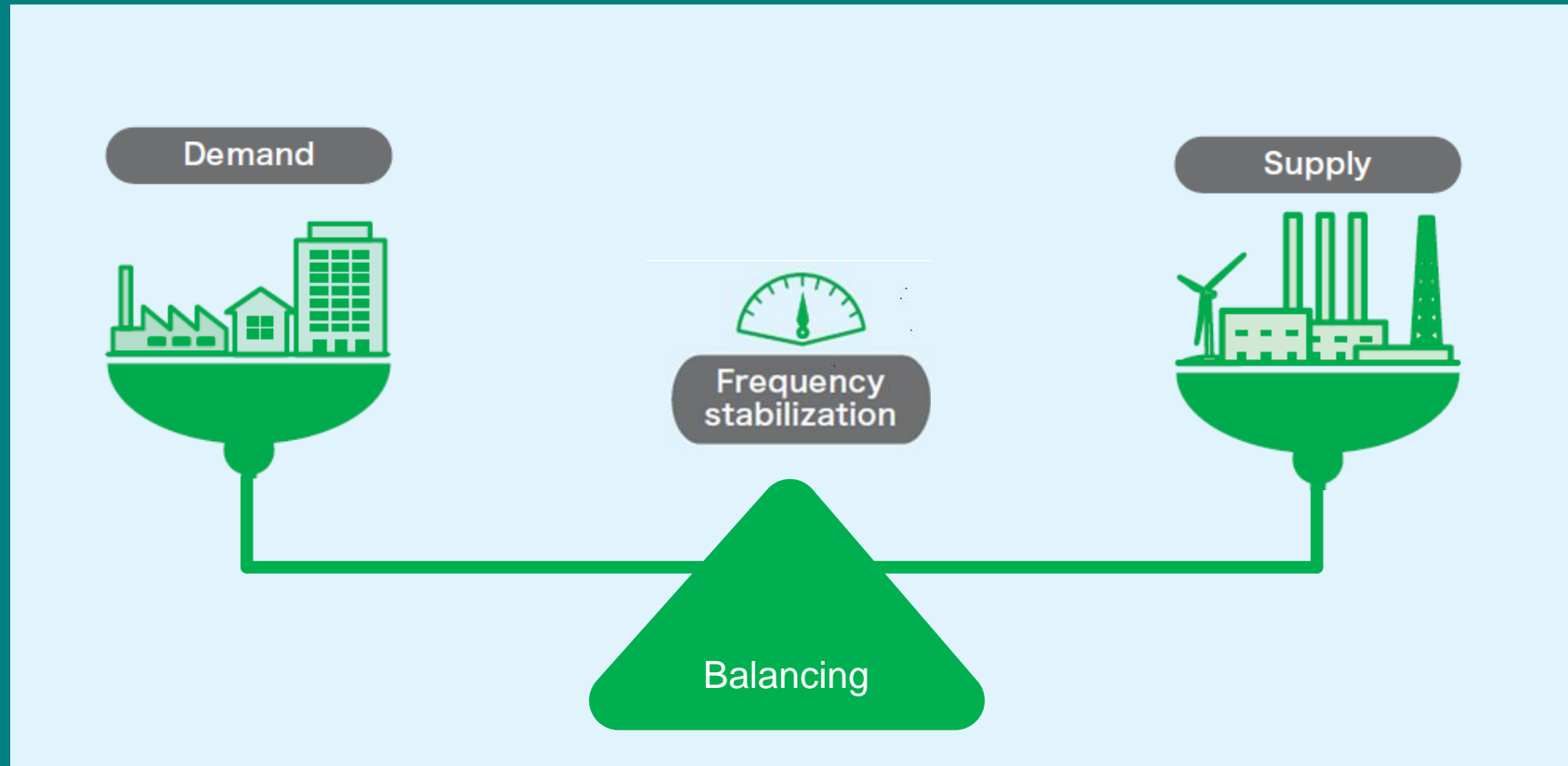
Our Power System



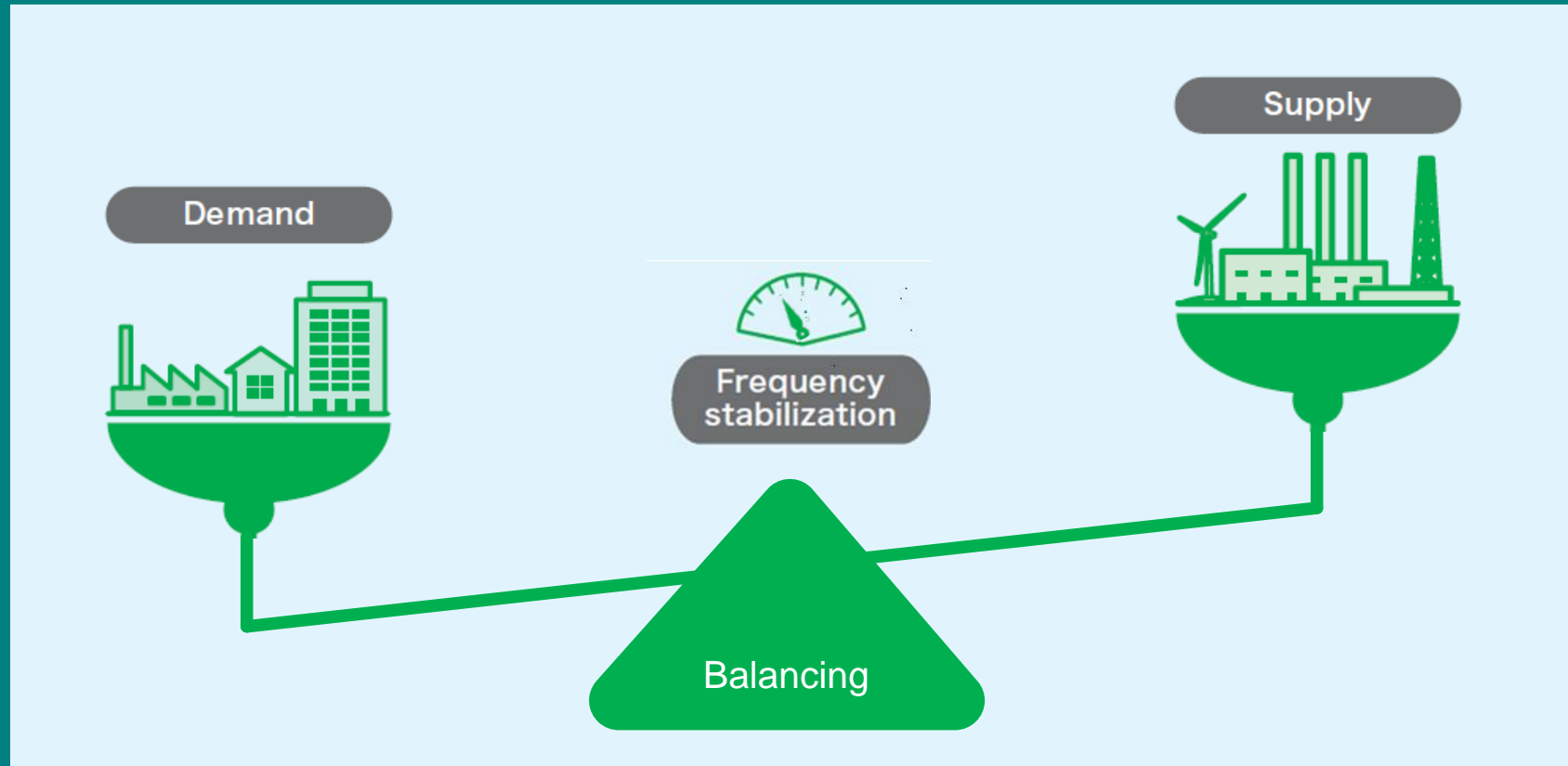
Our Power System



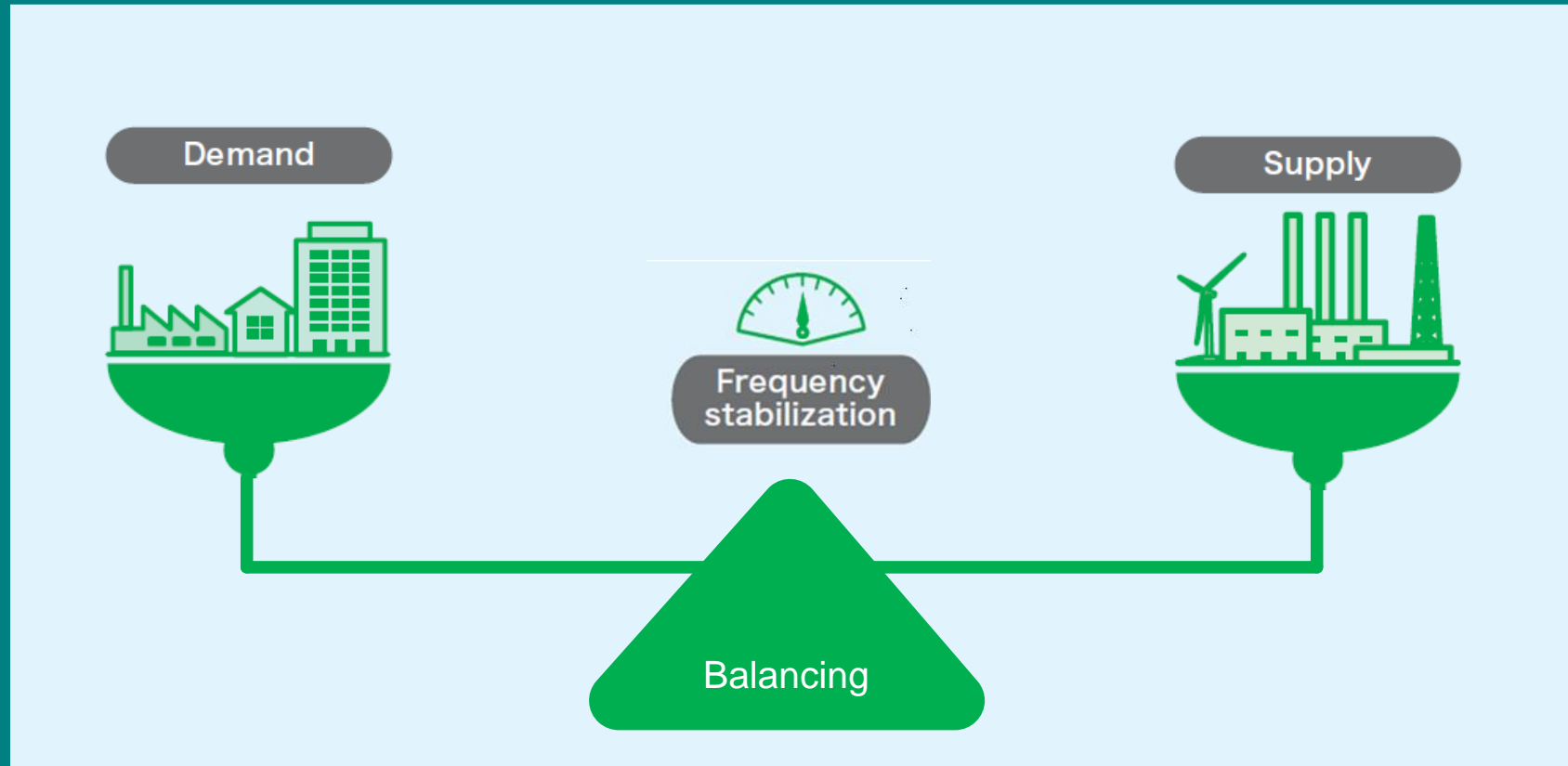
Load and Generation Balance



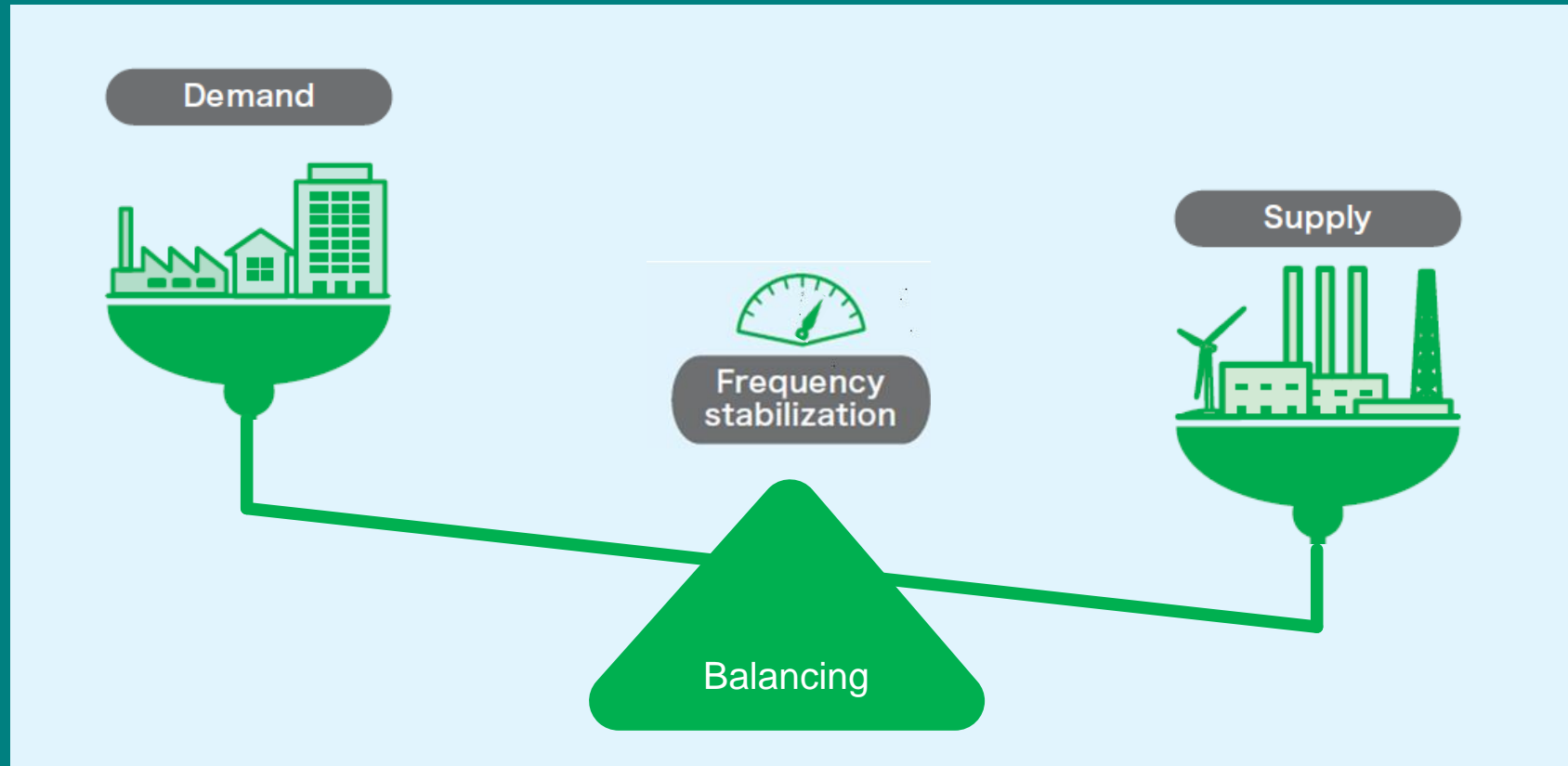
Load and Generation Balance



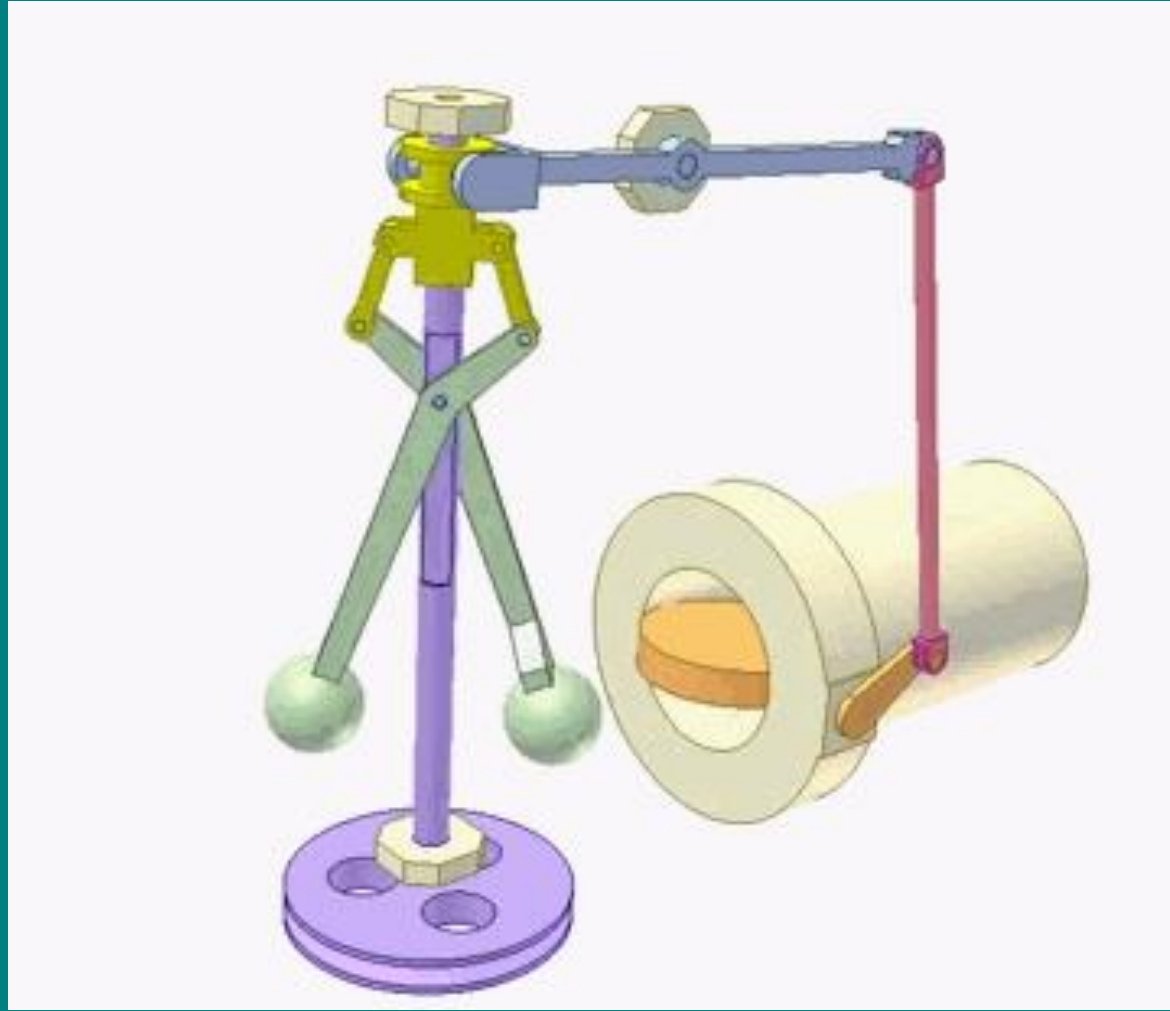
Load and Generation Balance



Load and Generation Balance



Govenor Control



Thank You