” 202208409-J001 Energy Policy”

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General Information

Situated in the horn of Africa on 1.14 million sq. km area

Highest point: Ras Dejen 4,620 meter above sea level, which is the second highest peak in Africa. There are 25 mountains an altitude of 4,000 meters or higher.

Lowest point: the Dallol depression, **125 meters below sea level**. Lowest points in Africa not covered by water.

Temperatures can reach as high as 63 degree Celsius (145^{0}F);

Population around 120 million,
GDP is $473.02 (in 2023 WB)
Tourist attractions
The land of origin of human kind

Organizational Structure

1. Ministry of Water & Energy (Minster)

- **Basin Development V/Minister**
- **Water supply & Sanitation V/Minister**
- Energy Resource V/Minister
  - EEP
  - EEU
  - Rural Energy T/D and Transition LEO
    - Desks
  - Energy Resource Study LEO
    - Desks
  - Electrification and Energy Data LEO
    - Desks

2. Regional energy Bureaus

- Zonal energy office
  - District energy office

3. Petroleum & Energy Authority

- Ministry of Mine

Reserves of energy resources

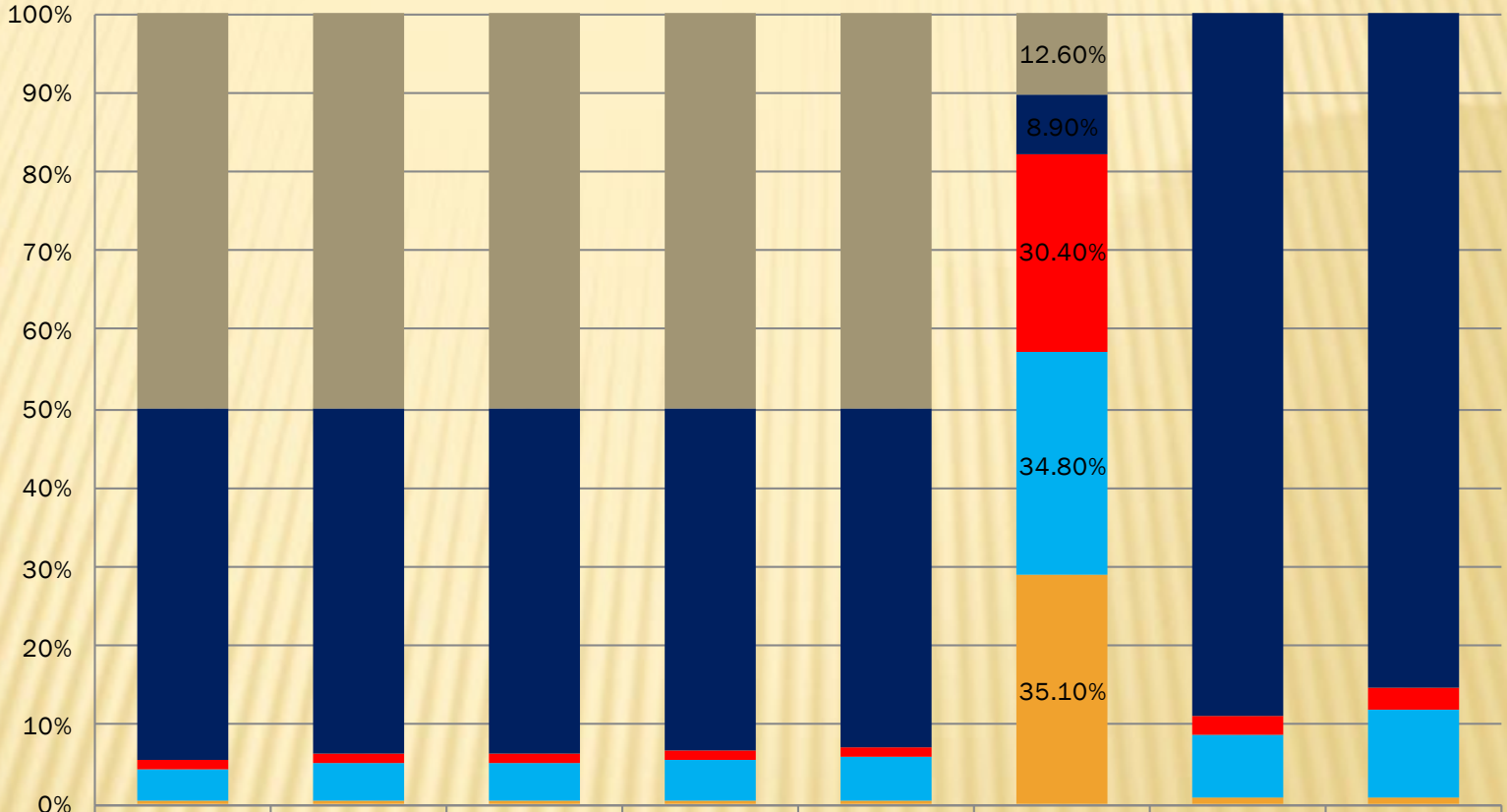
- Hydropower potential 45,000 MW
- Geothermal potential ~ 10,000 MW
- Solar energy potential 5.5 kWh /sq. m/day – annual average daily irradiation
- Average wind speed > 7 meter/second at 50 m above ground level – 1,350 GW
- Wood – 1,120 million tones (annually exploitable)
- Agro-waste – 15 to 20 million tones (annually exploitable)
- Natural gas - 4 TCF (113 billion m^3)
- Coal > 300 million tones.
- Oil shale – 253 million tones

Reserves of mineral resources

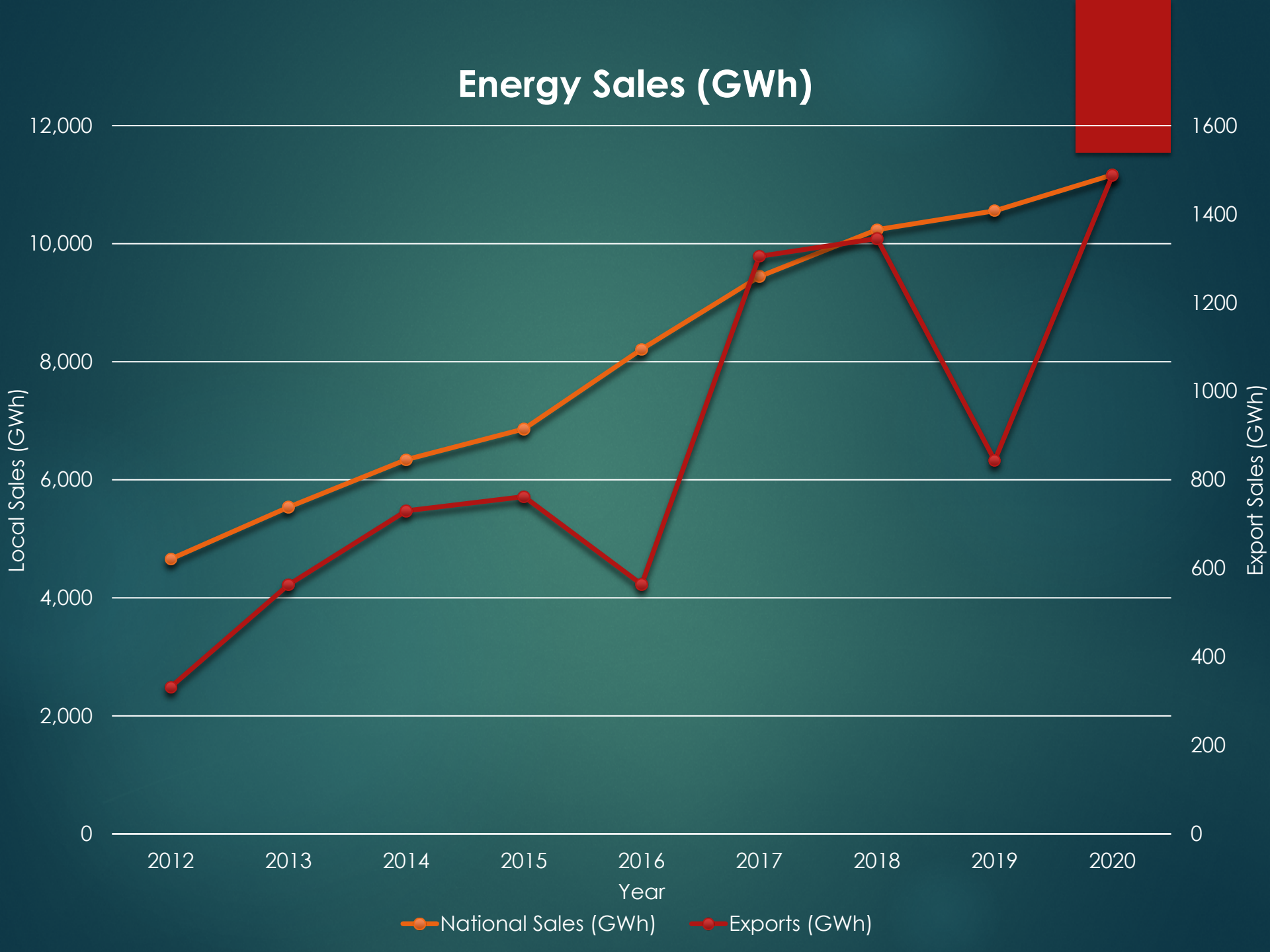
Industrial mineral, precious minerals and coal reserves.

Some of them are Gold, Oil and gases, Potash, lithium, tantalum, oil shale, platinum, opal, copper, emerald etc.

TOTAL ENERGY GENERATION IN ktoe, 2016-2020



	2016	2017	2018	2019	2020	Incriment 2016-2020	Share in 2016	Share in 2020
Total Production	39761	41573	42582	44034	45498	12.60%		
Bioenergy	35353	36230	37093	37946	38821	8.90%	88.90%	85.30%
Electricity	899	1078	1136	1247	1291	30.40%	2.26%	2.80%
Oil & Gas	3217	3890	3988	4421	4936	34.80%	8.10%	10.84%
Coal	292	375	365	420	450	35.10%	0.70%	0.99%

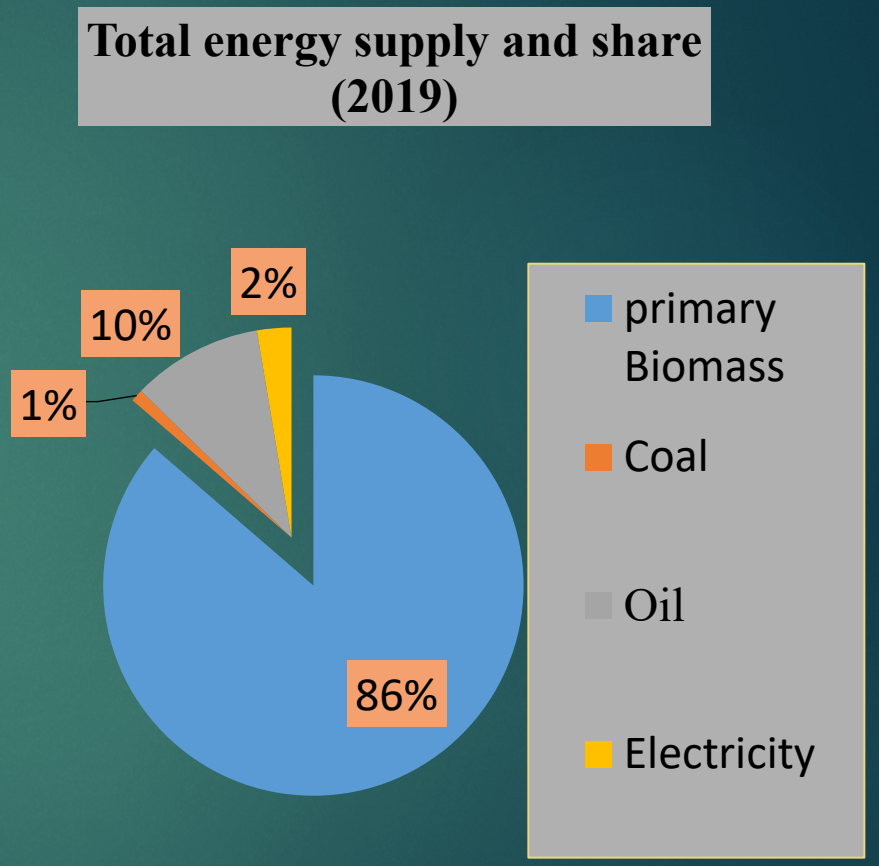

Energy Sales (GWh)
12,000
10,000
8,000
6,000
4,000
2,000
0
Local Sales (GWh)
1600
1400
1200
1000
800
600
400
200
0
Export Sales (GWh)
2012
2013
2014
2015
2016
2017
2018
2019
2020
Year
National Sales (GWh)
Exports (GWh)

Energy Transferd and length of Neighboring countries

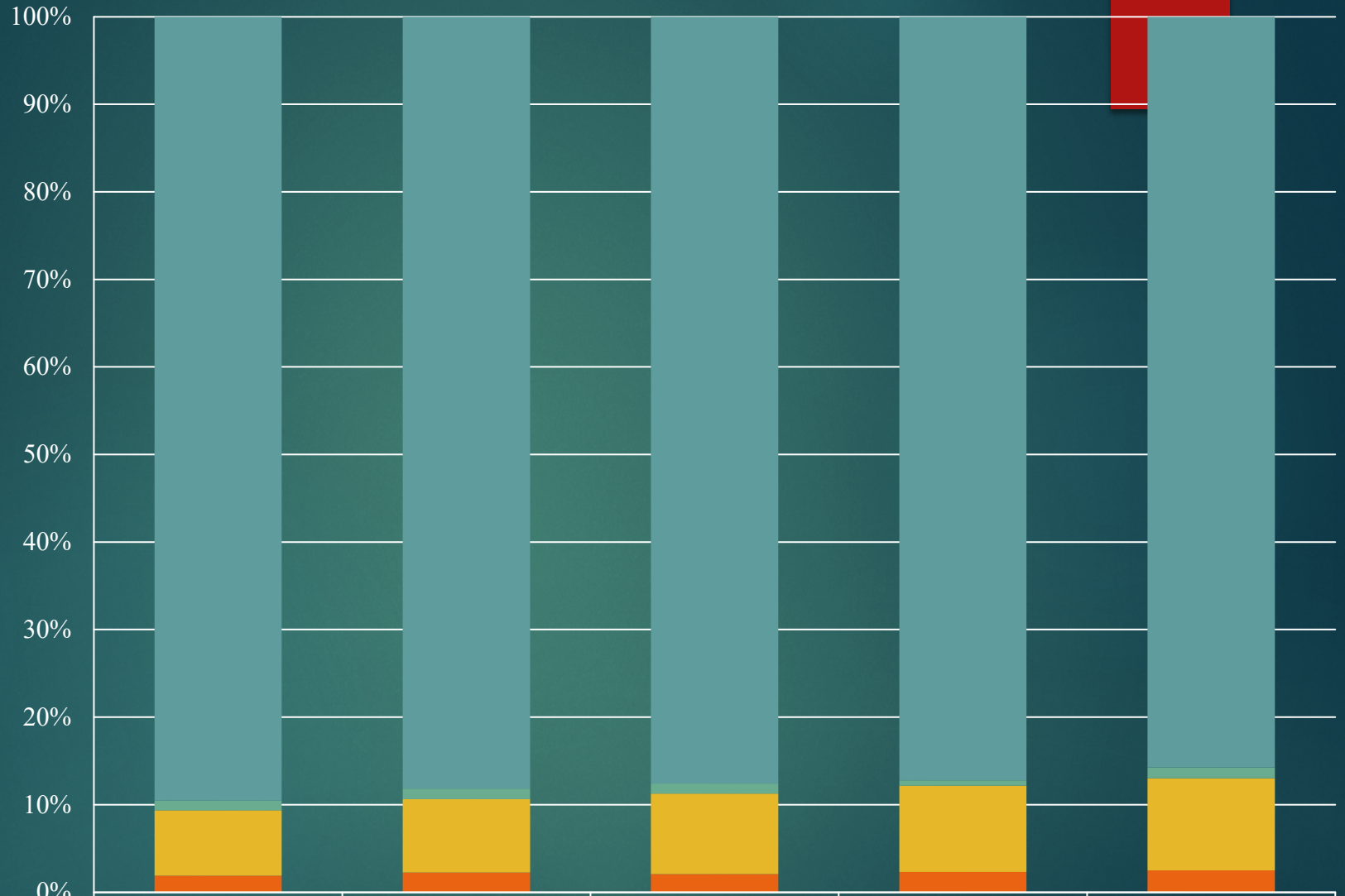
Interconnection	Net Transfer Capacity and length	Status
Sudan	230kV(D/C) 100MW, 297km	operational
Djibouti	230kV(D/C) 100MW, 283km	operational
Ethio-Kenya	500KV HVDC 2000MW, 1045km	under construction
Sudan (North)	500kV (D/C) 2000MW, 2909 km	planned
Djibouti	230kV (D/C) 150MW	planned

Primary energy supply

- Ethiopia has a very small modern energy supply with only about 14.25% of the energy supply derived from electricity and fossil fuels.
- Solid biomass is still dominant in the energy system contributing 85.75% of the total energy supply (in 2019).

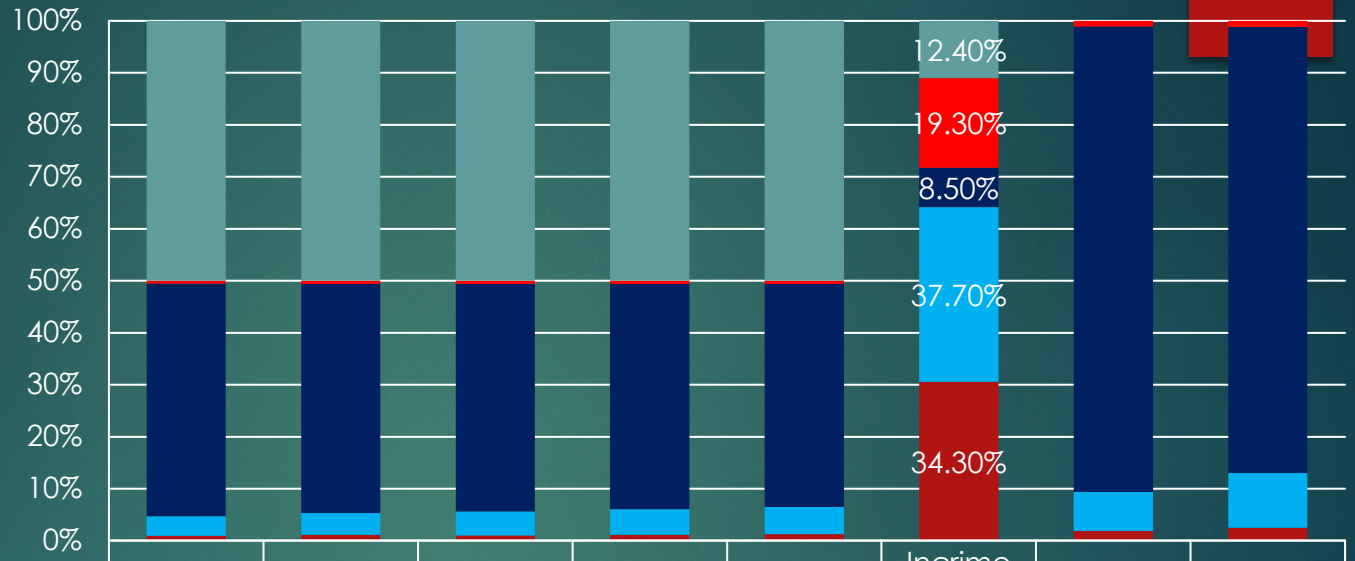


Energy Consumption Share Trend by Sectors (in%)



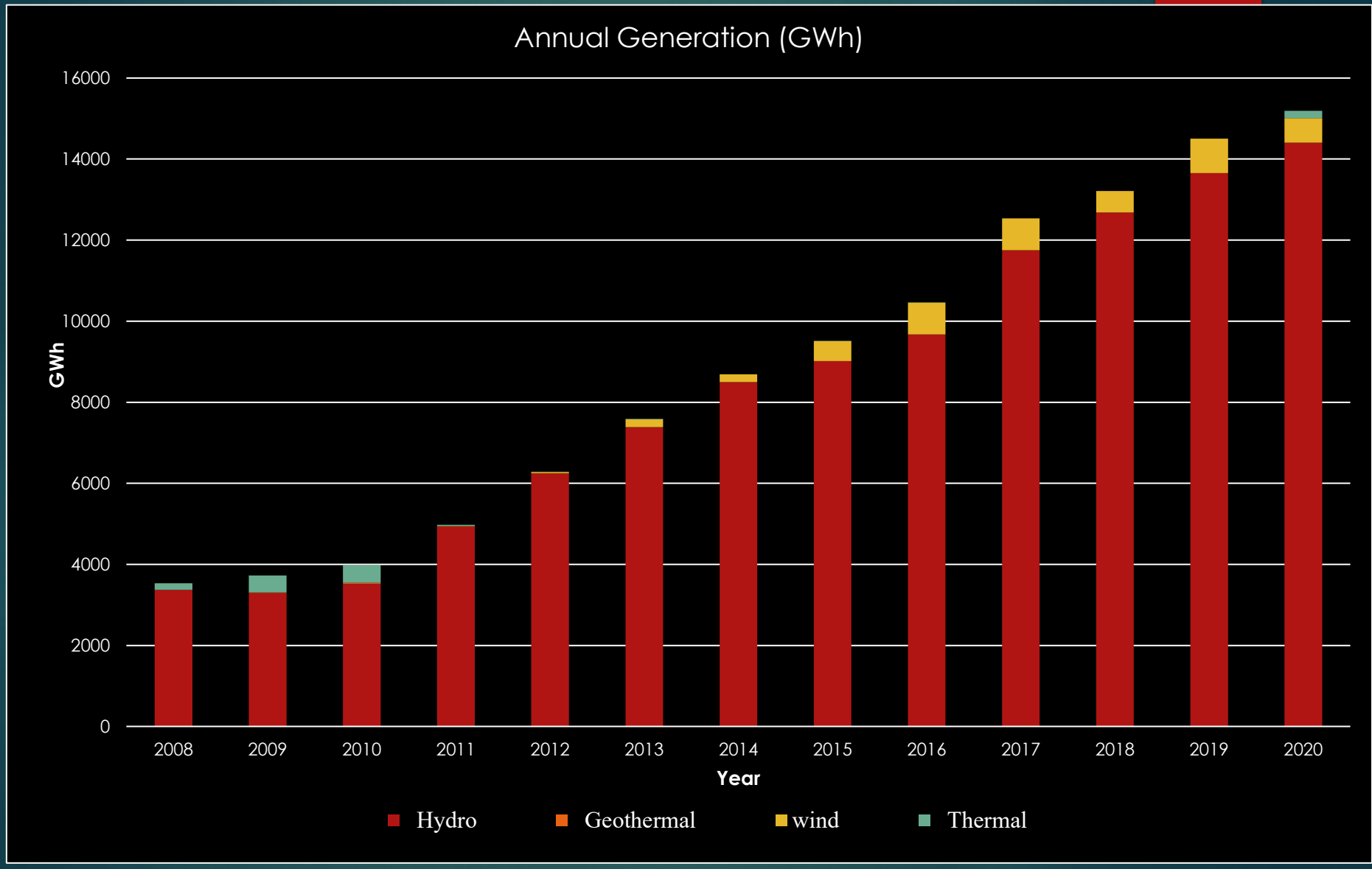
	2016	2017	2018	2019	2020
Householdes	89.53	88.16	87.58	87.07	85.75
Other consumers	1.12	1.22	1.15	0.58	1.22
Transport	7.49	8.37	9.18	9.84	10.53
Industry & construction	1.88	2.25	2.08	2.32	2.5

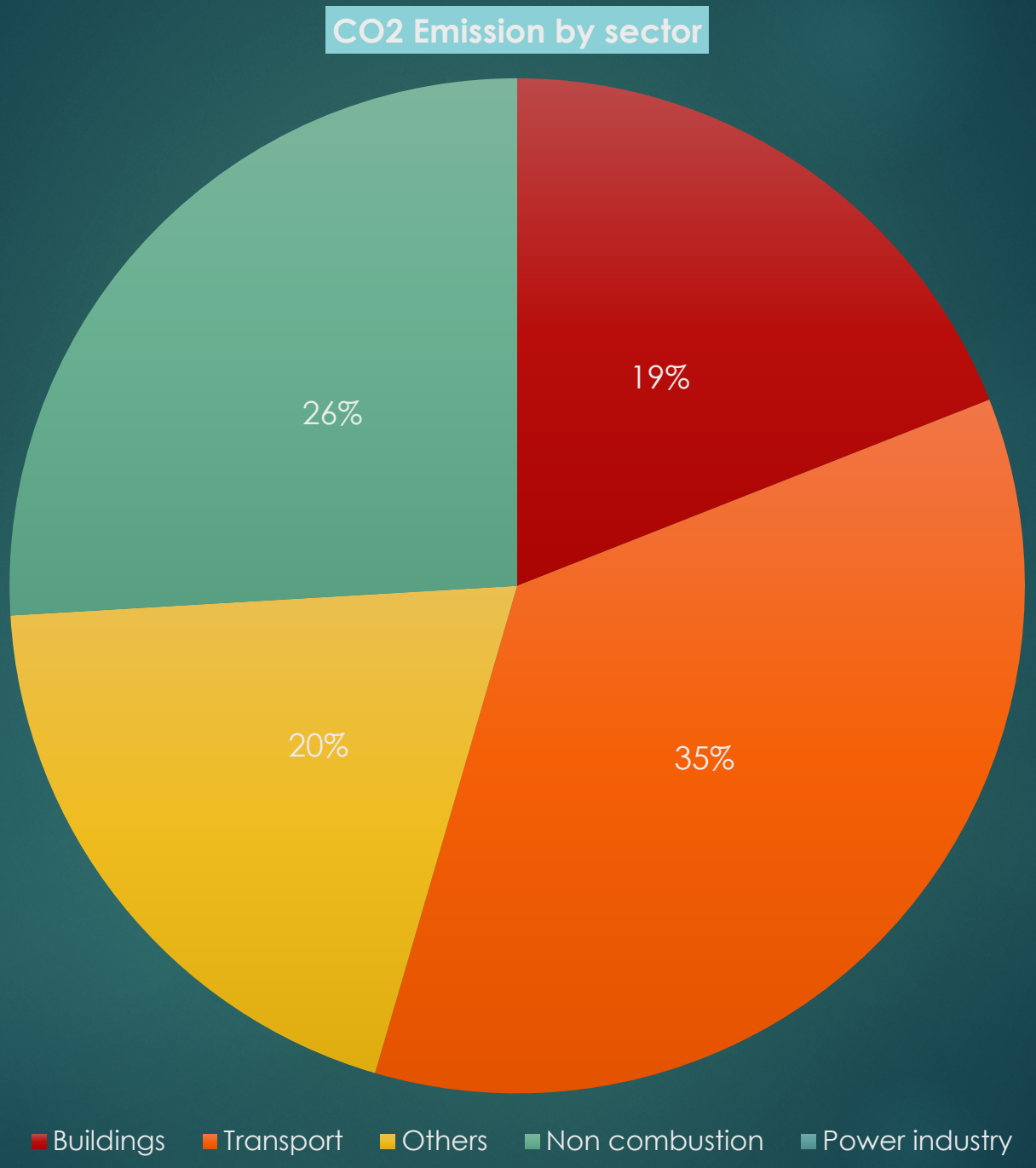
Total Energy Consumption by source 2016-2020



	2016	2017	2018	2019	2020	Increment 2016-2020	Share in 2016	Share in 2020
Total	37510	38965	40039	41433	42826	12.40%		
Other consumers	421	474	462	511	522	19.30%	1.12%	1.20%
Householdes	33579	34351	35065	35908	36723	8.50%	89.50%	85.80%
Transport	2808	3263	3676	4057	4513	37.70%	7.50%	10.54%
Industry & construction	702	877	836	957	1068	34.30%	1.90%	2.50%

Energy Generation




CO2 Emission by sector
19%
35%
20%
26%
Buildings
Transport
Others
Non combustion
Power industry

COVID-19 impact

COVID-19 made a significant impact in all economic and social sectors. The impact on energy sector is; -

- During COVID-19 lockdown, labourers that are engaged in fetching biomass fuel were highly affected
- The transport sector:- mobilization reduced, the utilization of oil is also reduced.
- Almost all mega energy projects were collapsed by reducing the number of workers engaged in construction work to keep the social distance,

2020 - 2030 projected energy demand by source (ktoe)

Year	2021	2025	2030	2020-2030 demand increment %	2021 share	2030 share	share increment.
Coal	487	638.4	895.4	50	1.10	1.55	0.45
Oil & Gas	5349	7010.8	10644.3	53.8	12.11	18.40	6.29
Electricity	989	1183.7	1549.3	39.5	2.24	2.68	0.44
Bioenergy	37352	40086.2	44759.7	18.4	84.55	77.37	-7.18
total	44176	48919.2	57848.6				

Major difficulties and bottlenecks for formulating energy policies

- Existence of energy poverty (low accessibility, unfair, and poor energy supply)Energy accesses is about 48% and per capita energy supply is 100kwh,
- Poor service delivery quality and reliability; - power source of the country is mainly from hydropower. environment change, water sources are subjected to drought
- Poor regulatory system: - Poor quality assurance and regulatory works in the sector discourages the private sectors involvement.
- Lower institutional competency and manpower: frequent structural alteration, low-capacity at all level, poor technologically supported performance and project administration,

Difficulties and bottlenecks currently faced in formulating energy policies:

Absence of clear and up-to-date energy data,

Lack of qualified professional in this particular subject matter and

lack of finance.

My Expectation in this program.

- how to make implementable policy that suits the existing population and technological development.
- I expect inclusive, simple to understand at each tire, and helps proper utilize the resource of the country in relation with stakeholders.
- The policy makes conducive environment for foreign investment, private companies' participation in a clean cooking, production of green hydrogen and biofuel production and development.
- Alternative policies preparation, cost benefit analysis, criteria to say a policy, the relation and difference with other policies.
- The development of other lows, regulations, and directives from the policy framework.

Thank you!