



# 2022-23 INTERNATIONAL MAYORS FORUM

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## Ethiopian Energy Sector for sustainable Urban Development : the case of secondary Cities

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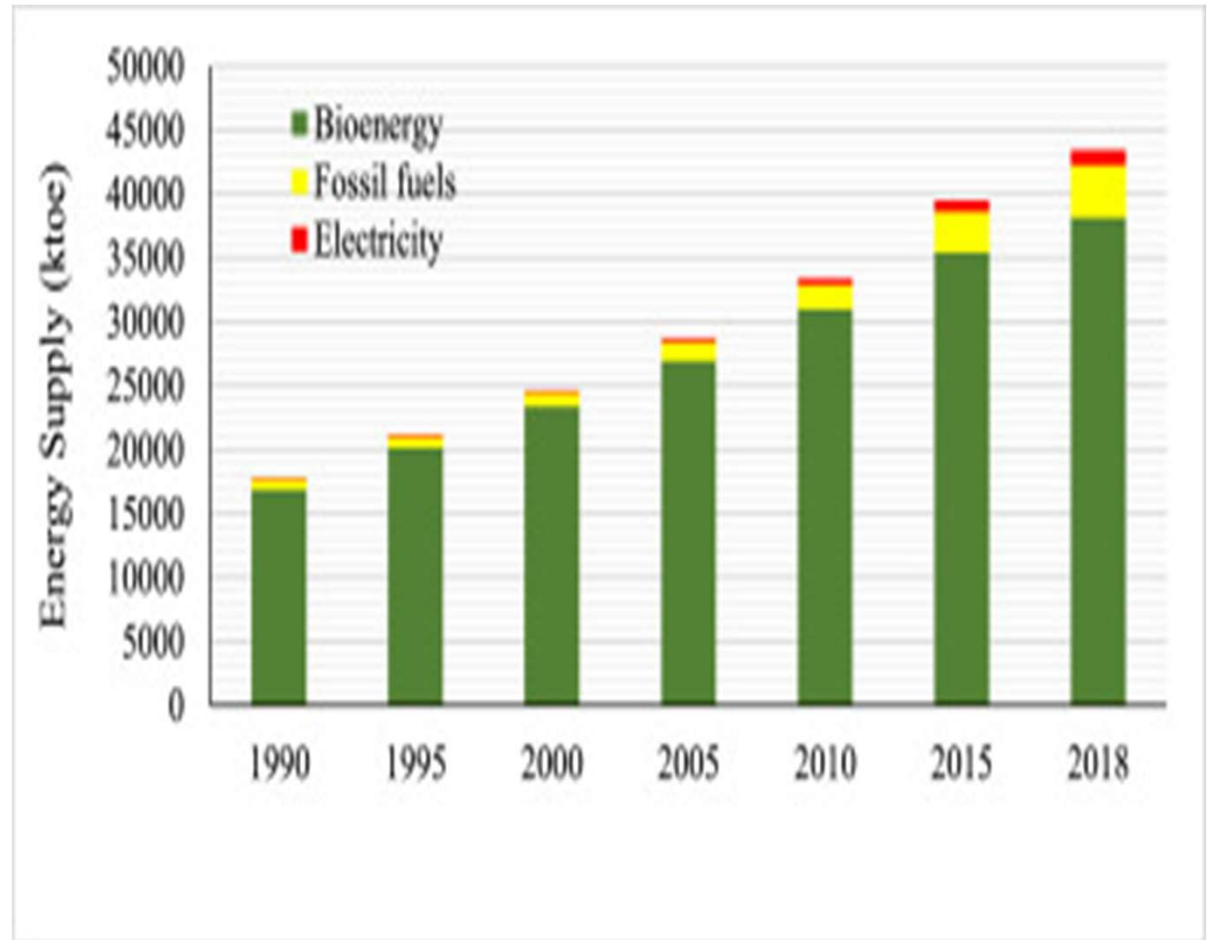
# The Ethiopian energy sector

- The energy mix has important implications as access to energy in shaping the sustainable development pathways of a given economy
- It is particularly important in countries like Ethiopia which heavily relies on solid biomass energy.
- Ethiopia has one of the lowest per capita energy supply and consumption
- Ethiopia lacks a modern, flexible, reliable, and affordable energy system that could withstand its fast-growing energy demand due to high growth rates of population and urbanization
- About 56% of the total population have no access to any form of electricity.
- About 95% of the electricity comes from hydropower.
- Petroleum fuels are entirely imported and make up 10 to 14% of the spending for imports
- More than 90% of the households use solid biomass fuels for cooking.

# Energy resources in Ethiopia

Resource	Unit	Exploitable Reserve	Exploited Percent
Hydropower	GW	45	< 10
Solar	kWh/m <sup>2</sup> /day	5.5	< 1
Wind power	GW	1350	< 1
Wind speed	m/s	> 6.5	—
Geothermal	GW	7	< 1
Woody biomass	Million tons	1120	50
Agricultural wastes	Million tons	15–20	30
Natural gas	Billion m <sup>3</sup>	113	0
Coal	Million tons	300	0
Oil shale	Million tons	253	0

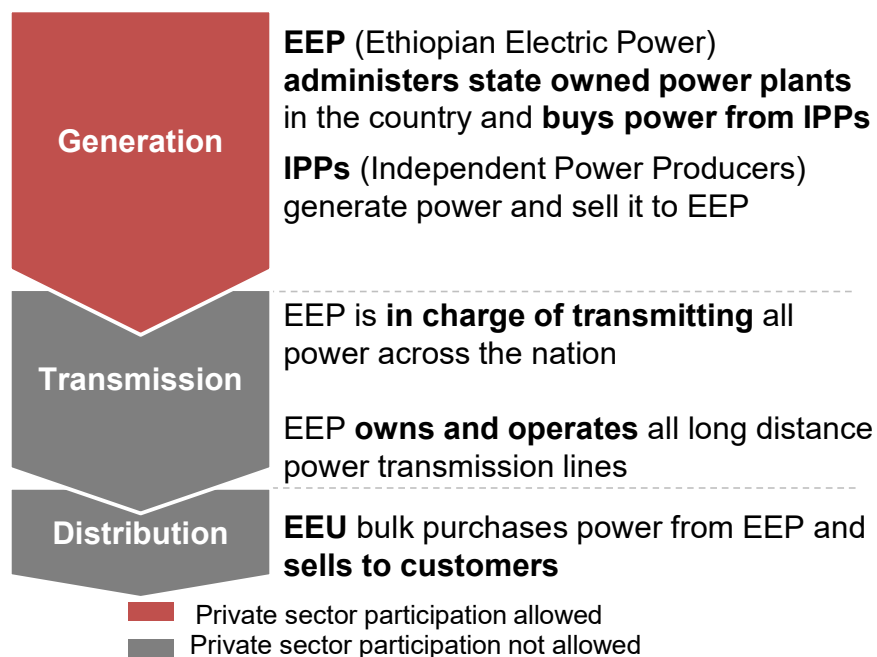
# Indigenous energy resources in Ethiopia



# The Ethiopian Energy Sector at a Glance

Private sector participation is allowed for on-grid power generation

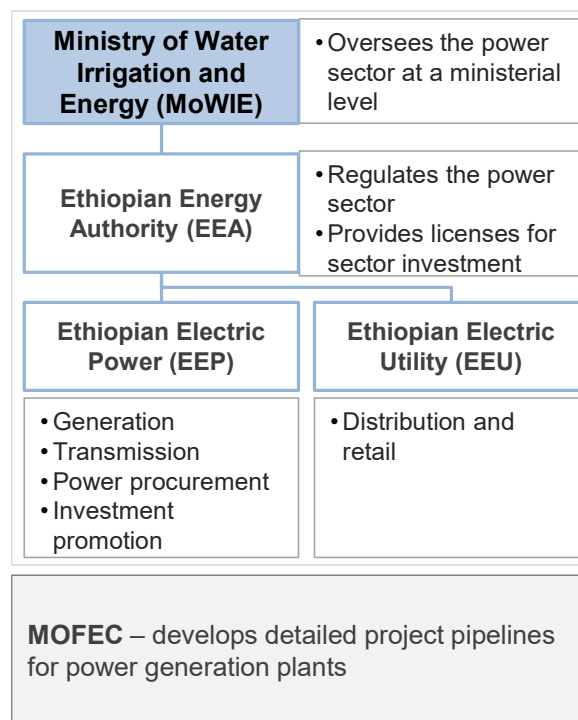
Overview of actors and respective duties along the power supply value chain in Ethiopia



Off-grid transmission and distribution are open for private investors

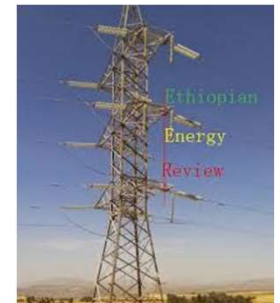
MOWIE oversees the power sector and EEA serves as the regulator

Institutional framework of the Ethiopian power sector



# Projected energy supply and demand

- Ethiopia has one of the highest urban population growth rates (4.8%),
  - Its total population is projected to reach 205 million in 2050
  - The projected population and economic dynamics of the country calls for long-term projections of energy demand and supply.
- 
- For instance, the share of electricity consumption by the industries is forecasted to increase from its 26% share in recent years to 46% in 2037.
  - A notable growth in electricity demand is also expected in the agricultural sector which currently consumes close to zero electricity.
  - All available projections show that the historical trends (households as the main consumer of energy, biomass as the main source of energy, and hydropower as the main source of electricity) will continue.



## Projected energy supply and demand

### Large population (100+ million)

- Ethiopian population is **currently at 100+ million**
- Compounded annual population **growth rate is 3%**
- Population is expected to reach **112 million by 2020**
- Per Capita energy consumption has **increased from 41kWh in 2008 to more than 90kWh in 2018**

### ~20 industrial parks

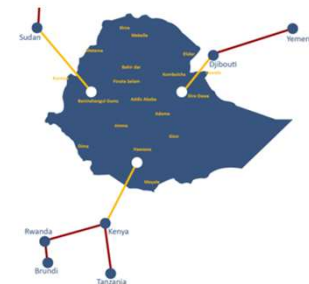
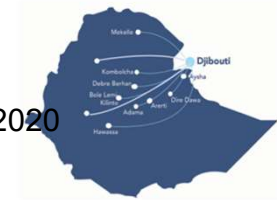
- **~1,700 MW of electricity required** to power 20 industrial parks by 2020
- 4 IPs already operational; 9 under construction;

### National electric powered railway network

- The electric powered **Ethiopian Railway Network (4,744 Km)** being constructed in phases, and passes through most IP's
- **Addis Ababa – Djibouti railway line (752.7km)** completed in 2016

### Regional electricity export targets

- **Plans of power exports** to Kenya, Tanzania, Sudan and Djibouti
- Several PPAs have been signed in recent years



## Linkages between energy transition and the SDGs

SDG	SDG Targets	The situation in Ethiopia	How could energy transition support the SDG?
7	7.1, 7.2, 7.a, 7.b	<ul style="list-style-type: none"> <li>• One of the least diversified energy systems in Africa</li> <li>• Solid biomass fuels and electricity accounts for 88% and 3% of energy supply</li> <li>• Low per capita electricity consumption, 100 kWh/year</li> <li>• Only 33% of the households have access to grid connections</li> </ul>	<ul style="list-style-type: none"> <li>• Increase per capita electricity supply</li> <li>• Increase the share of modern, clean, and decentralized energy source</li> <li>• Improve energy security</li> </ul>
11	11.2, 11.6	<ul style="list-style-type: none"> <li>• High urbanization rate</li> <li>• Poor municipal solid waste management practices</li> </ul>	<ul style="list-style-type: none"> <li>• Expand economic activities</li> <li>• Improve productivity</li> <li>• Support urban rail transport (e.g., Addis Ababa)</li> <li>• Improve municipal waste to energy</li> </ul>



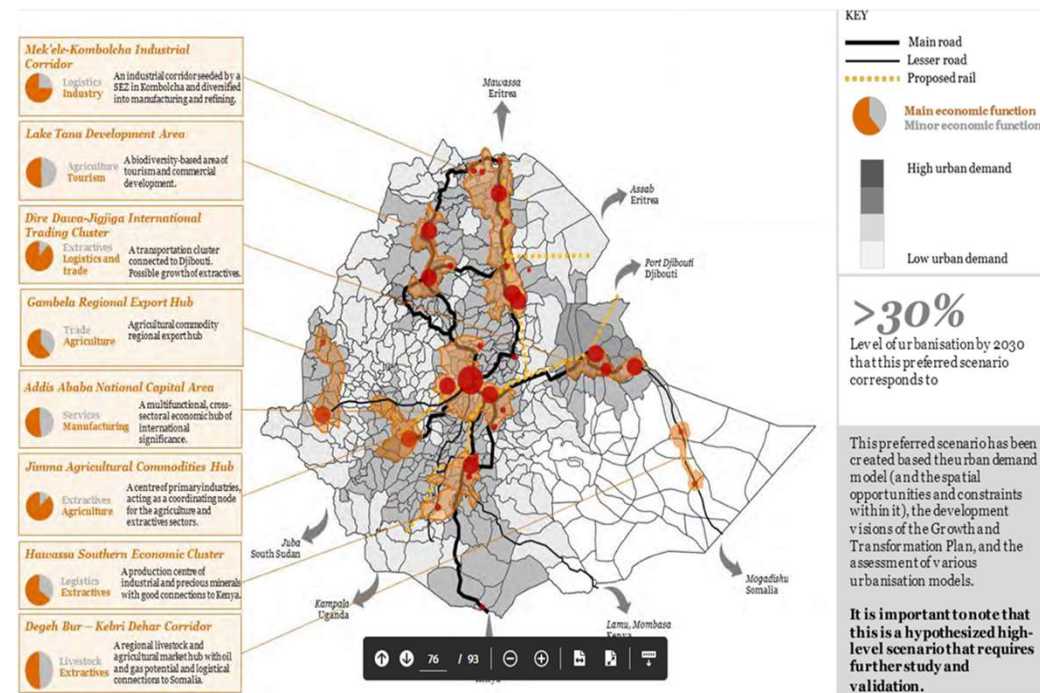
# The State of Ethiopian Secondary Cities

Most secondary cities are subnational centers of government, commerce, manufacturing, mining, recreation, education, and tourism.

Secondary Cities play a crucial second tier-level role in the operation of national supply chains, value-adding and distribution and regional goods and services.

Per capita investment in infrastructure, services, GDP, income, wealth and Gini coefficient are lower than metropolitan region making it difficult for secondary to compete and gain and share of jobs, trade and investment.

High level of informal economy and informal settlements are common features of secondary cities



# Development Challenges of Secondary Cities

Many secondary cities have poor school facilities, lack teachers and resources needed to develop the skill base and work force to build stronger and more competitive economies.



Secondary cities face significant challenges:

COVID 19 and post-covid recovery

Reduction in development aid and FDI flows

Increased internal displacement and migration due to civil unrest, climate change and joblessness

Failure of urban planning and development control resulting in unmanaged development and sporadic expansion of urban areas

Access to land and housing

Weak local government, poor urban governance and financial management is resulting in inefficient and insufficient delivery of public goods and services.

Little attention has given to social planning, poverty alleviation and community development or making communities more self-reliant.

High level of Informality

# Urban Policy and Development

## National policy responses to urbanization and secondary city development.

- Ethiopia has **national urbanization policy**
- The **urban development is biased towards primate cities** and metropolitan regions. Secondary cities are not a priority urban agenda.
- Many secondary cities do not have the requisite **human capital and lack essential infrastructure** for the growth of urbanization
- National **policies incorporating roles and responsibilities for secondary city development** is the way to support a more robust, dynamic, vibrant national system of cities. Without such policies, Ethiopia is likely to face significant challenges in managing urbanization.

# Secondary cities in Ethiopia

## Key Issues

- Shortage of energy
- Access to land for housing
- Difficulties in attracting Investment weak enabling environments and governance
- The limited capacity and responsibilities of local government to support economic development initiatives
- a weak enabling environment with inadequate infrastructure to support industrial development

## Key Initiatives

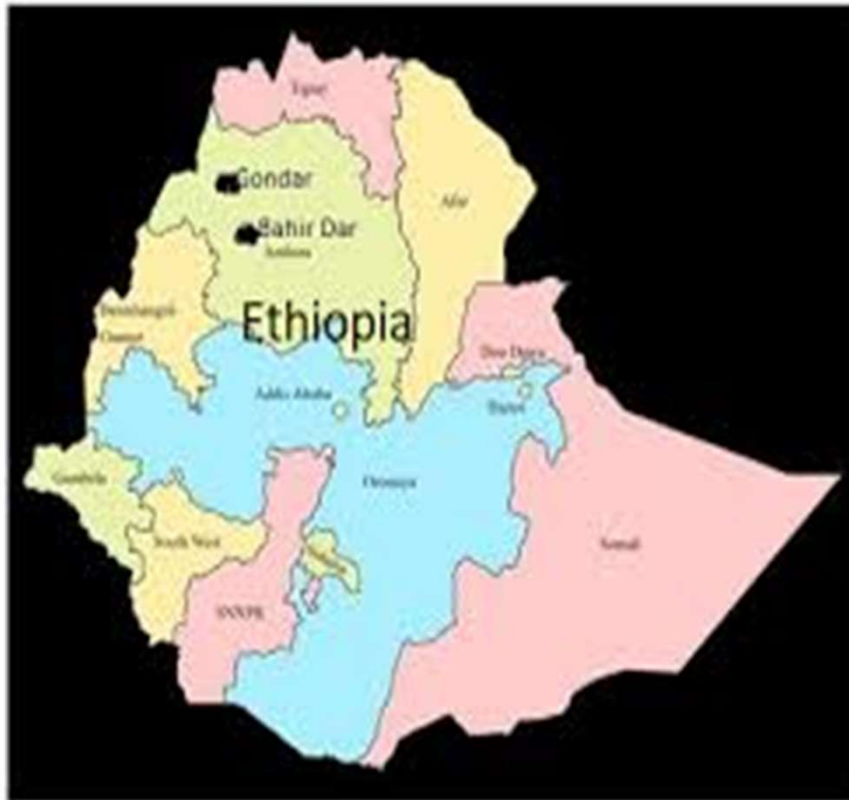
1. Integrated planning
1. Focus on Small Micro-Enterprise Development and networking
1. Focus on Human Capital Development in government and business
1. Improve environmental management and adaption to climate change
1. Engage with the university to promote regional innovation endogenous employment and economic growth

# Conclusion



- Poor management of the natural and urban areas is resulting in the degradation hinterland of forest and grazing lands, and urban environments with pollution of waterways and urban areas from sewage and solid waste and severe climate change impacts becoming significant problems.
- Urban management and governance is weak. Local government are under resourced, lack of essential skills and poor leadership. Public Financial Management is poor, especially the linking of planning, capital works, maintenance and budgeting systems.
- Accelerating E-governance is crucial to enhancing economic prosperity, development and governance in secondary cities in Ethiopia are not a national development priority.
- Connectivity (infrastructure, economic, policy integration and networking) between national systems of cities is weak. The competitive and socio-political model of regional intermittent and development is not enhancing connectivity of systems between cities
- Secondary cities have very little capacity to increase local revenues relying on property taxes, local charges and value capture. A more equitable share of Goods and Services taxes and consumer. User pays taxes is need to expand the revenue base of secondary cities.

# Recommendations



## Key Actions

1. Recognition of the role and Importance of secondary and intermediate cities in National Urban Strategies
2. Secondary city collaborative governance, especially linking strategic planning to financial planning and budgeting and e-governance
3. Local Government Finance Corporations to support the development of infrastructure, goods and services delivery in secondary cities
4. Environmental Systems Management and Regional Networks in supporting responses to climate change, water and solid waste management and improved urban amenities
5. Enhancing Connectivity within National and Regional Systems of cities, especially internet services, trade and co-investment and collaborative public sector governance
6. Ensure energy supply to secondary cities to improved productivity and sustainable development

# Thank You



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