GHG EMISSION INVENTORY
for UT of Puducherry

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Objective

- *To develop GHG inventory for the UT of Puducherry*

Timeline – 2014 to 2019

Sources – Secondary literature, stakeholder consultation – nodal departments

Sectors – Energy, AFOLU, Waste

- *GHG inventorization* - significantly supports the UT nodal ministries and departments in understanding sectoral contribution to GHG emissions and strategizing the required actions to mitigation the GHG emissions in the coming years.

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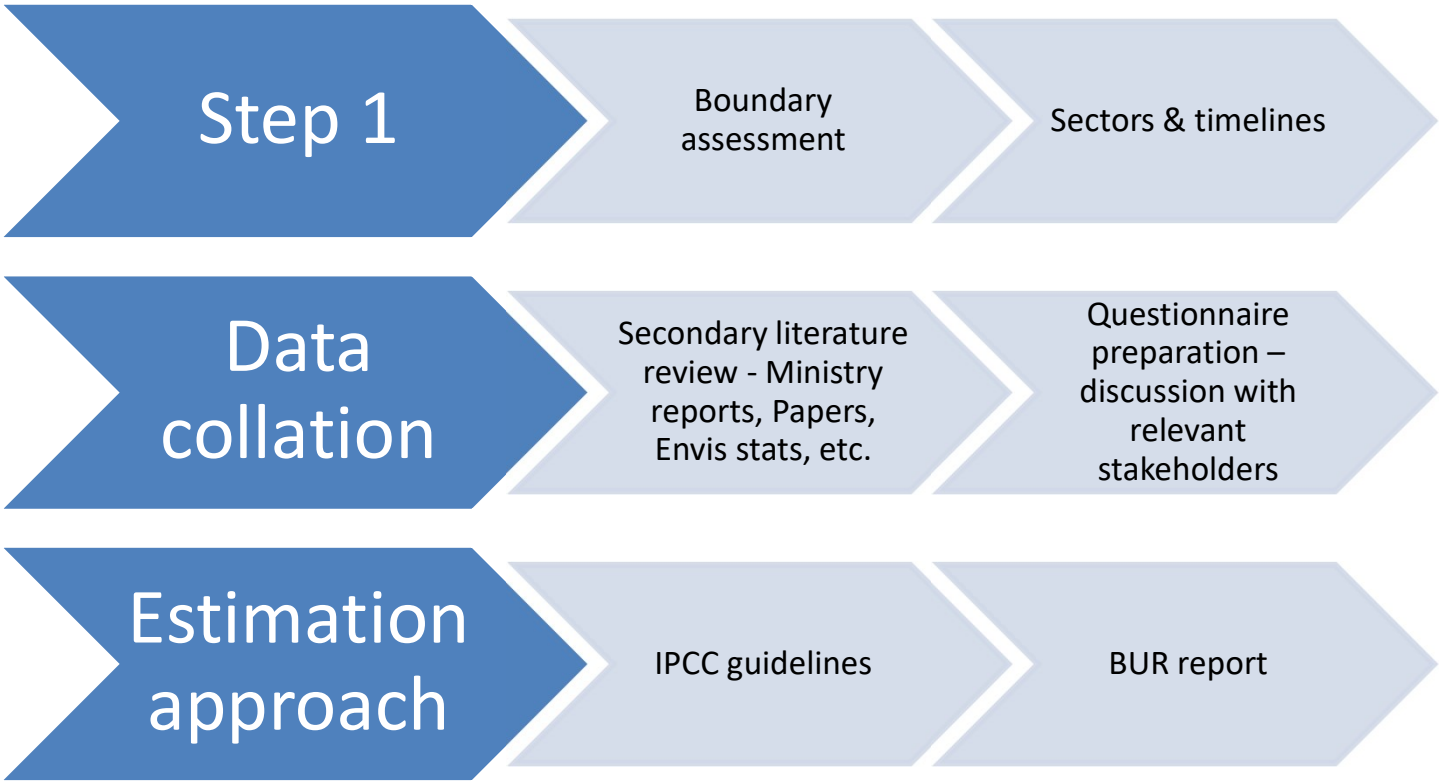
Process



Tier 1 approach is employed

$$Annual\ emissions\left(\frac{tCO_{2e}}{y}\right) = Activity\ data\ \times\ emission\ factor$$

Standard assumptions were considered during the course of estimation and analysis

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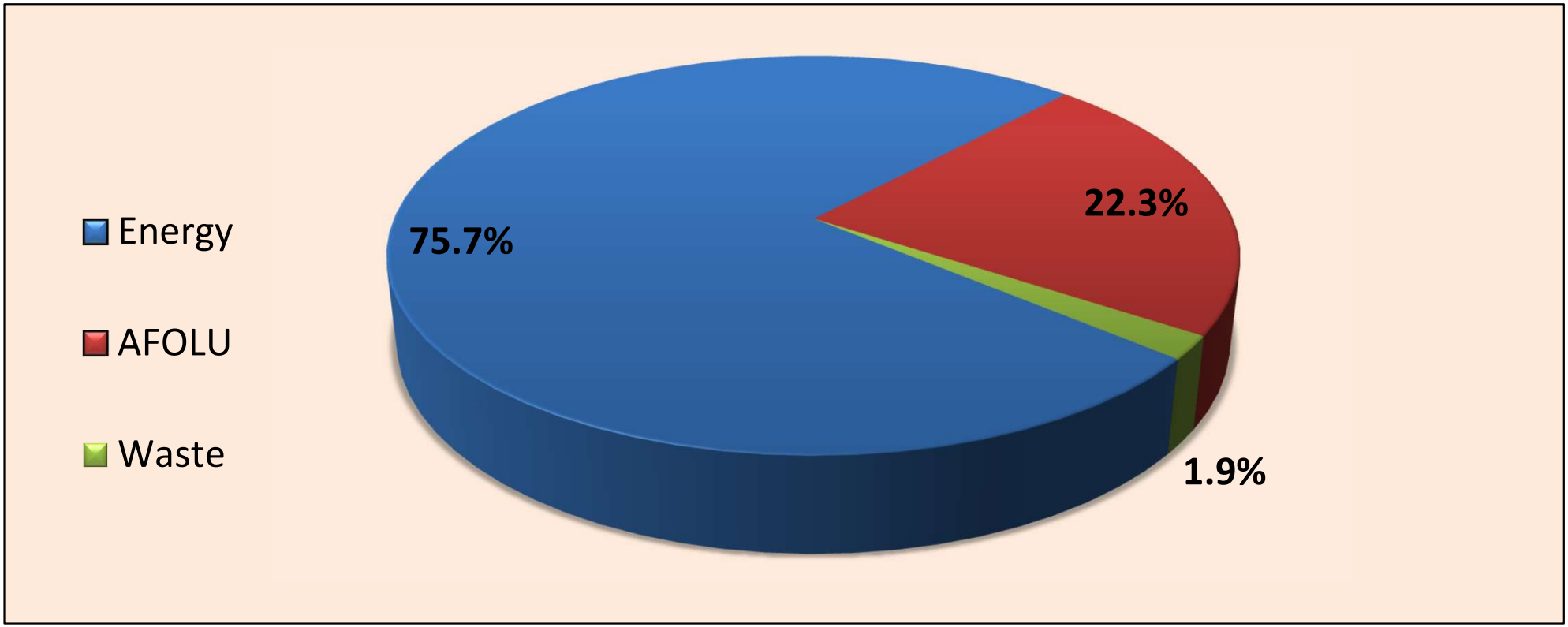
GHG emission – sectorial representation – 2014 to 2019



Energy → power generation, residential, industrial, transport

AFOLU → agriculture, manure management, enteric fermentation

Waste → Municipal solid waste

Standard assumptions were considered during the course of estimation and analysis

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GHG emission – sectorial representation – 2014 to 2019

Category	Sub-category	Emissions in tonnes of carbon dioxide equivalent per year (tCO_2e/y)					
		2014	2015	2016	2017	2018	2019
Energy	Electricity generation	78,438	75,750	1,10,954	1,14,984	1,10,933	1,01,887
Energy	Transport	7,01,652	7,18,462	5,58,109	5,61,006	5,59,948	5,54,594
Energy	Residential	1,13,910	1,25,848	1,31,817	1,31,488	1,31,324	1,34,371
Energy	Industrial	71,920	71,920	87,555	1,15,698	1,25,078	1,21,951
AFOLU	Enteric fermentation	1,17,044	1,21,598	1,26,336	1,31,264	1,31,264	1,31,264
AFOLU	Manure management	9,860	10,227	10,607	11,003	11,003	11,003
AFOLU	Agriculture	1,47,316	1,44,271	1,40,313	1,30,895	1,31,363	1,34,521
Waste	MSW	7,754	14,295	20,252	26,514	33,098	37,931
Total emissions		**12,49,908**	**12,84,386**	**11,87,959**	**12,24,869**	**12,36,029**	**12,29,543**

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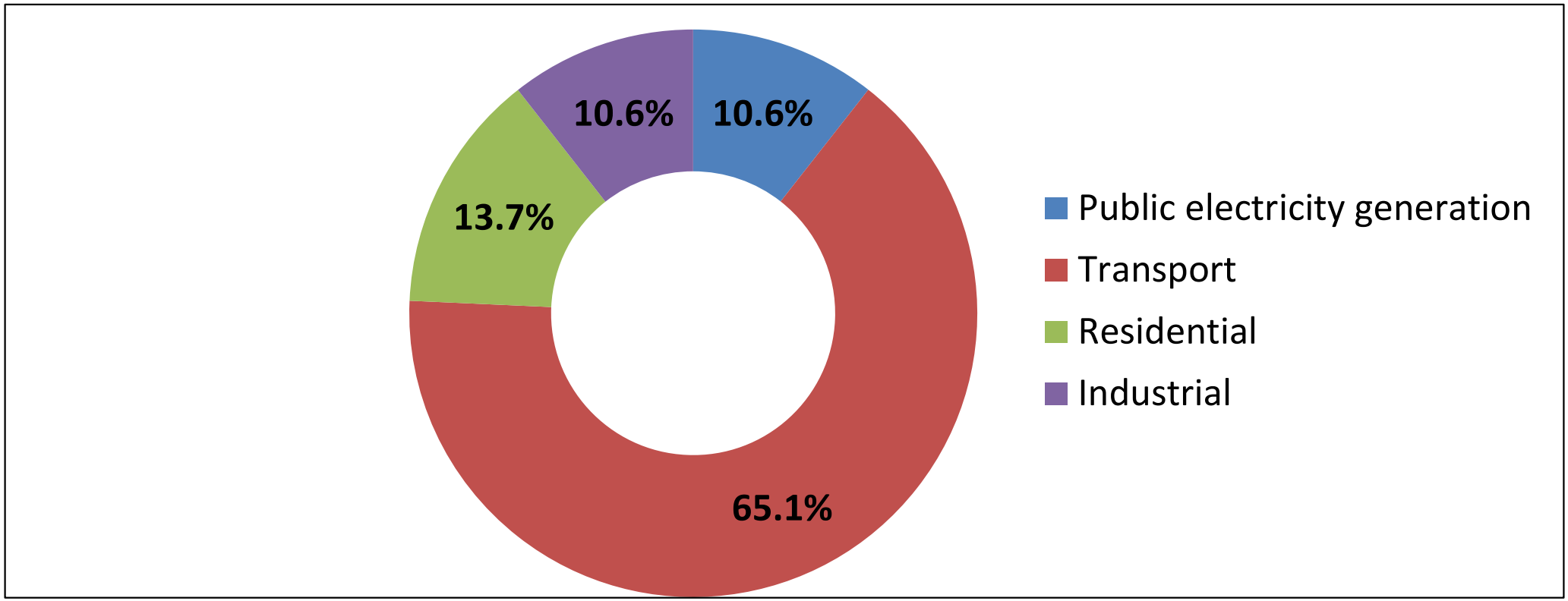
GHG emission – energy – sub: sectorial representation – 2014 to 2019



Energy sector – approx. – 9.34 lakh tCO_2e to the total 12.34 lakh tCO_2e **~ 76 percent**

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UT of Puducherry – Installed Capacity of Power Utilities in UT of Puducherry as on 31.10.2021 (Figures in MW)

Ownership/ Sector	Mode-wise breakup								Grand Total
	Thermal					Nuclear	Hydro	RES*	
	Coal	Lignite	Gas	Diesel	Total				
State	0	0	32.50	0	32.50	0	0	0	32.50
Private	0	0	0	0	0	0	0	5.51	5.51
Central	140.80	111.80	0	0	252.60	86.00	0	0	336.50
Total	140.80	111.80	32.50	0	285.10	86.00	0	11.52	382.62

* - Renewable energy systems

Source: *Central Electricity Authority*
https://cea.nic.in/wp-content/uploads/installed/2021/10/installed_capacity.pdf

Indirect energy (electricity) emissions

- The UT of Puducherry meets its 90 percent (average) of electricity requirement through import from (i) Central thermal power stations; (ii) NPCIL; (iii) TANGEDCO; (iv) KSEB.
- Electricity generation from the domestic gas power station located in Kaarikal caters to the 7-8 percent of the UT's need.
- About 70 percent of the electricity needs are met through the central thermal power generation stations (coal) leaving a significant indirect carbon footprints, translating to average annual emissions of 1.7 to 1.9 $MtCO_2e/y$ between 2014 to 2019 (Source: Electricity Department, Government).

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