



Affordable and clean energy

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UNIDO Regional Office in India



7 AFFORDABLE AND
CLEAN ENERGY



ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL

Target

7.1

By 2030, ensure universal access to affordable, reliable and modern energy services

Target

7.2

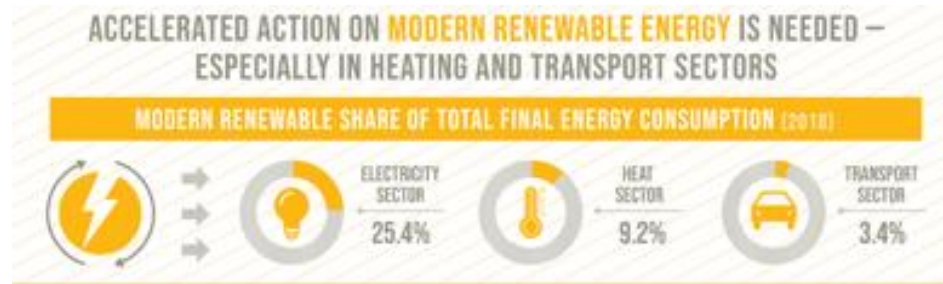
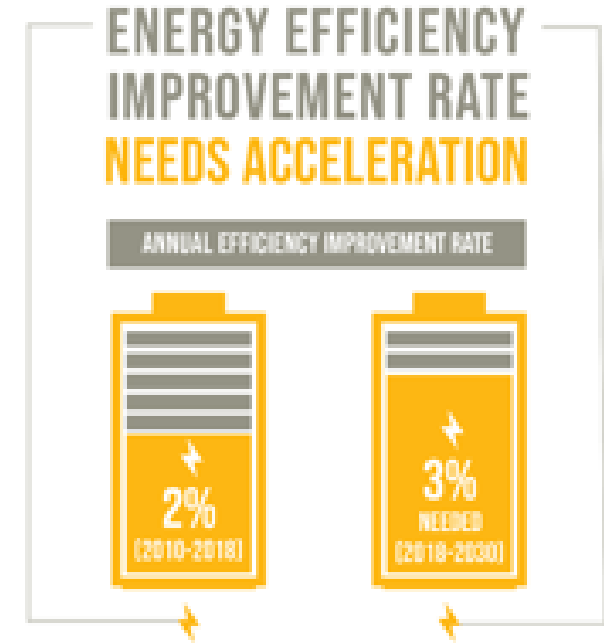
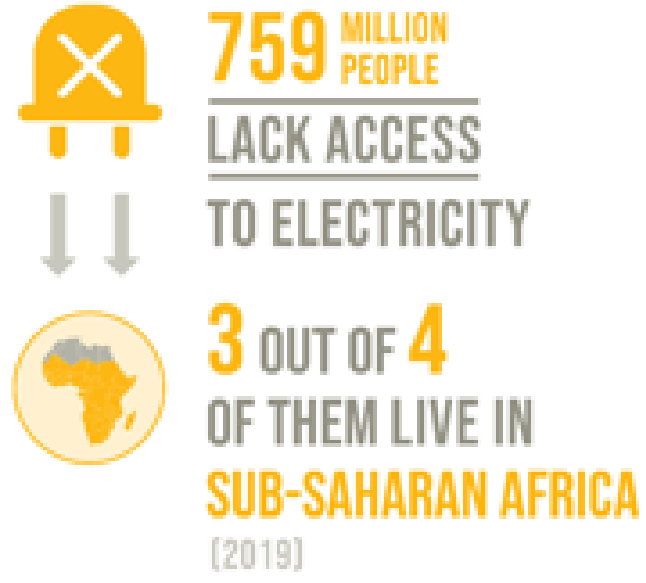
By 2030, increase substantially the share of renewable energy in the global energy mix

Target

7.3

By 2030, double the global rate of improvement in energy efficiency





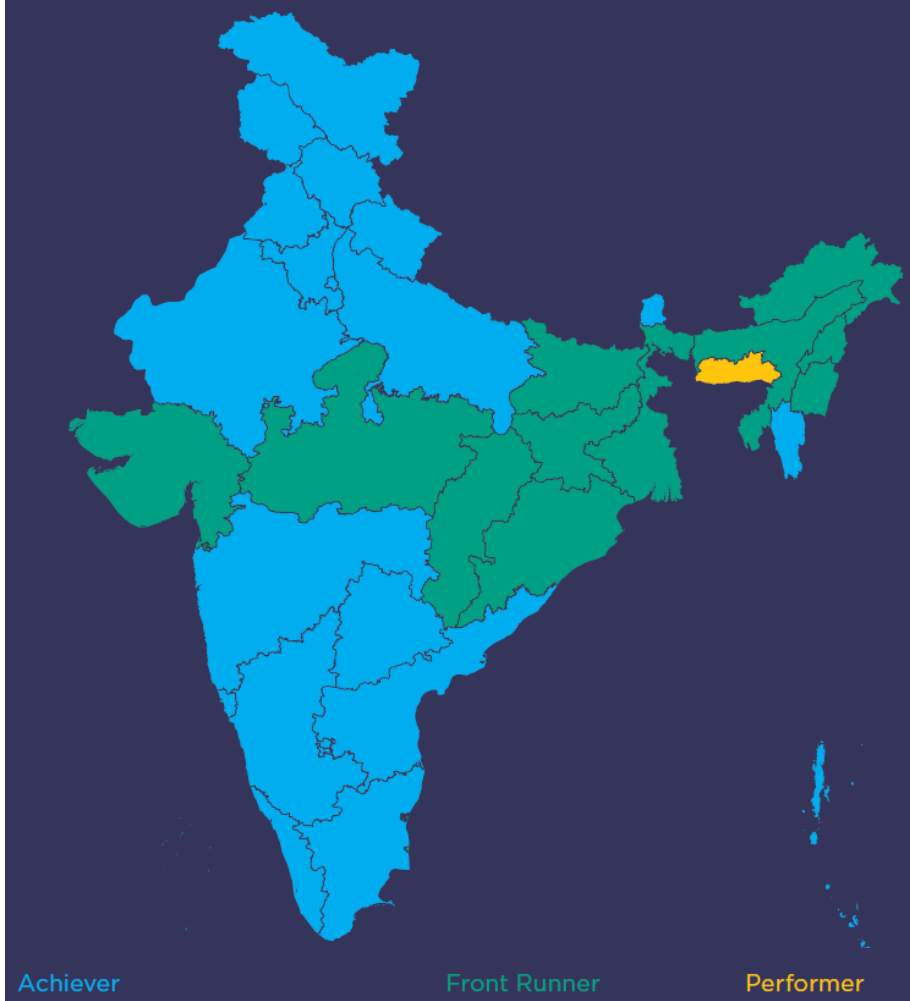
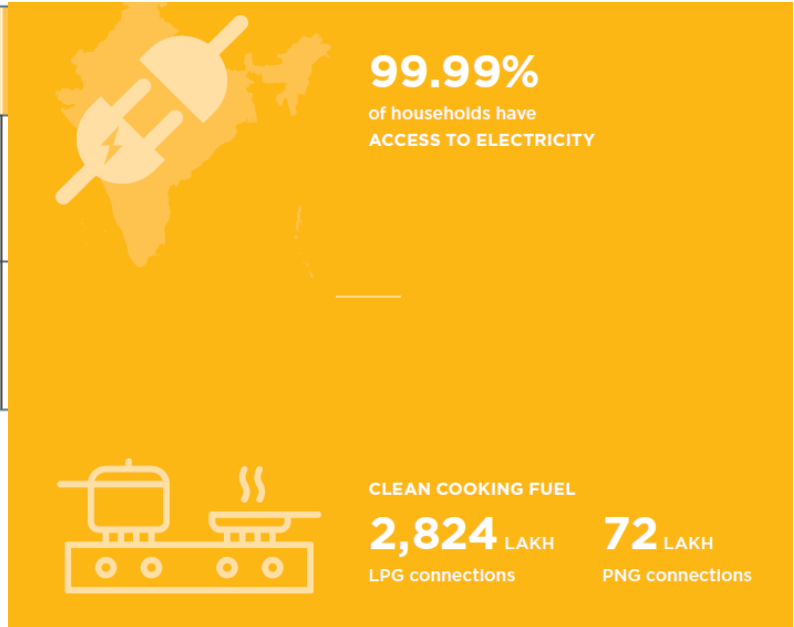
THE SUSTAINABLE DEVELOPMENT GOALS REPORT 2021: [UNSTATS.UN.ORG/SDGS/REPORT/2021/](https://unstats.un.org/sdgs/report/2021/)



SDG INDIA

Index & Dashboard 2020-21
Partnerships in the Decade of Action

Indicator	Target
Percentage of households electrified	100
Percentage of LPG+PNG connections against number of households	100

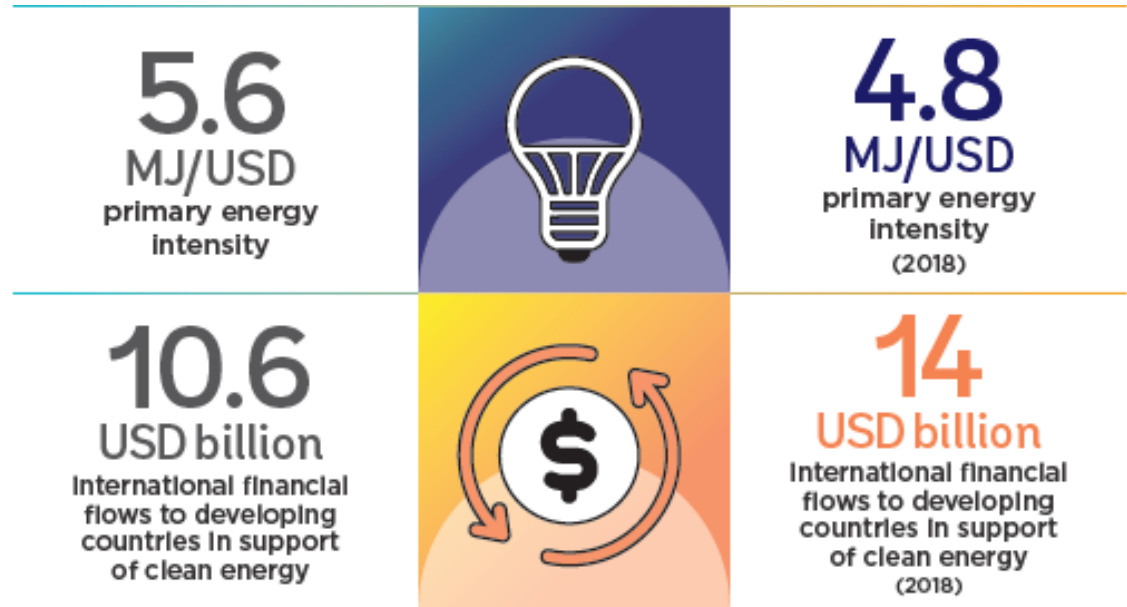
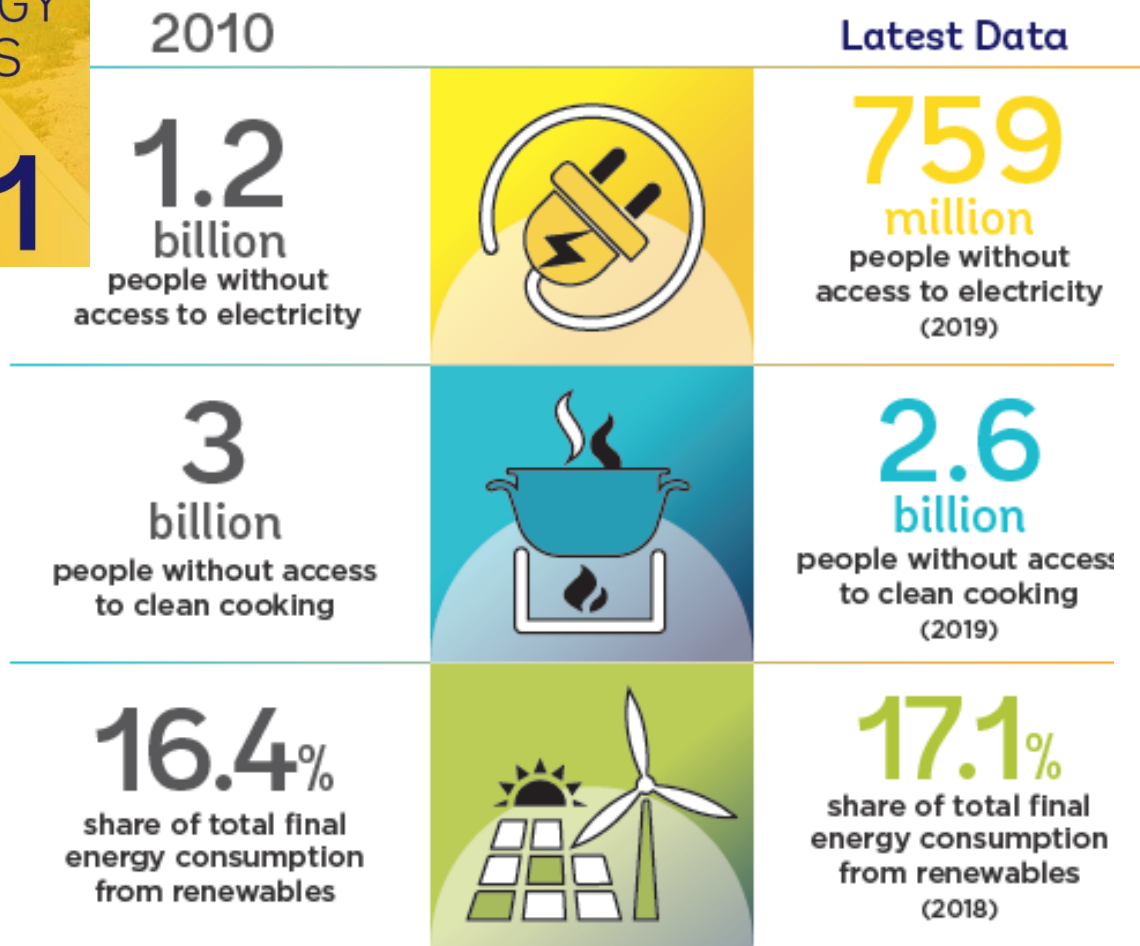


SNO	States/UTs	7.1 Percentage of households electrified	7.1 Percentage of LPG+PNG connections against number of households	SDG 7 Index Score
	India	99.99	92.02	92
	Target	100	100	100

https://www.niti.gov.in/writereaddata/files/SDG_3.0_Final_04.03.2021_Web_Spreads.pdf



TRACKING SDG7
THE ENERGY
PROGRESS
REPORT
2021

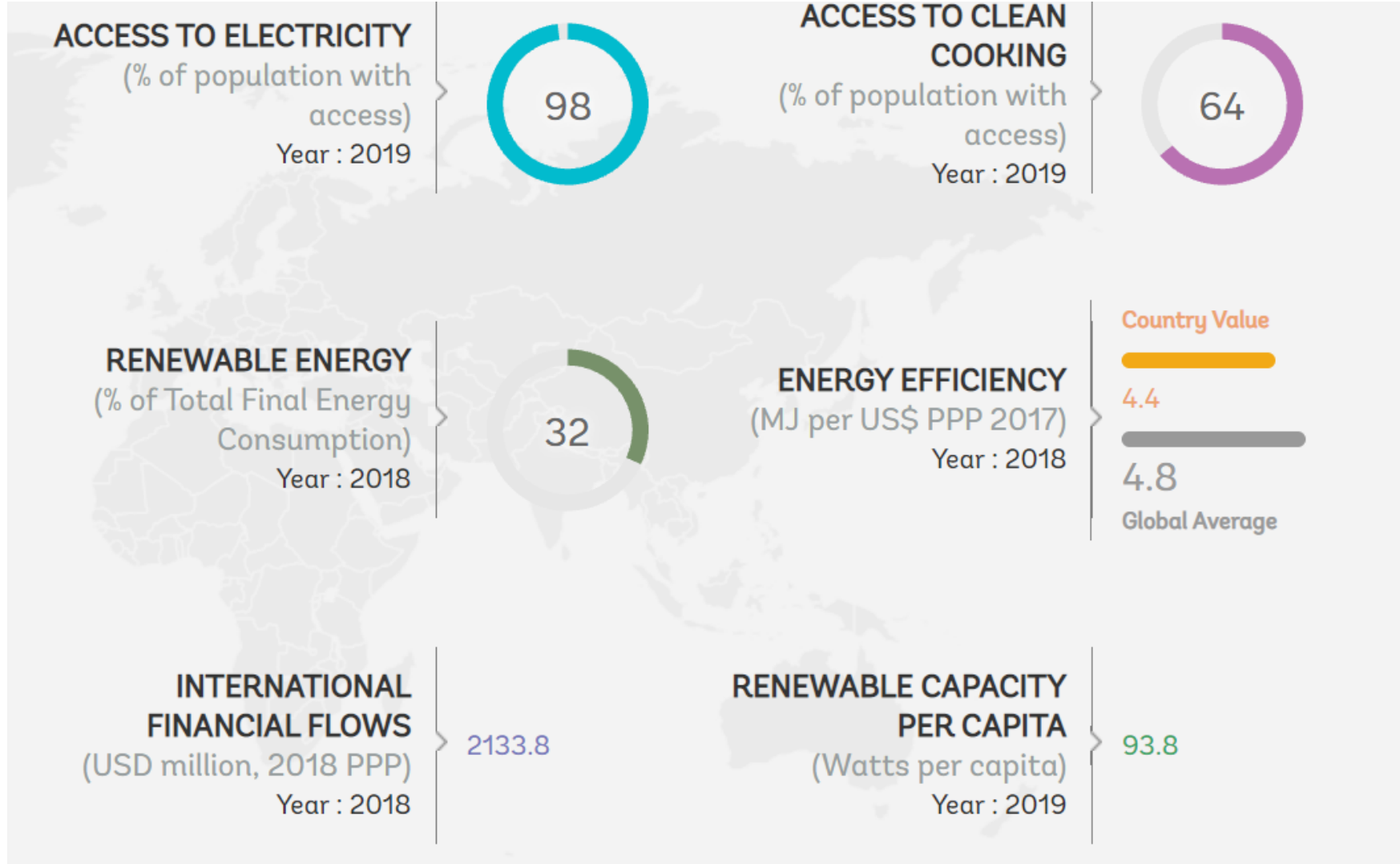


<https://trackingsdg7.esmap.org/>





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Action Agenda

Energy
Efficiency

Modern
Renewable
Energy

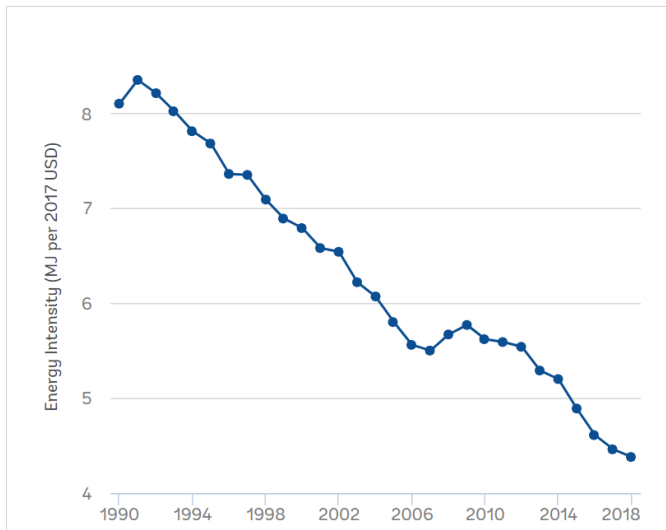
Energy
Storage

Resource
Efficiency

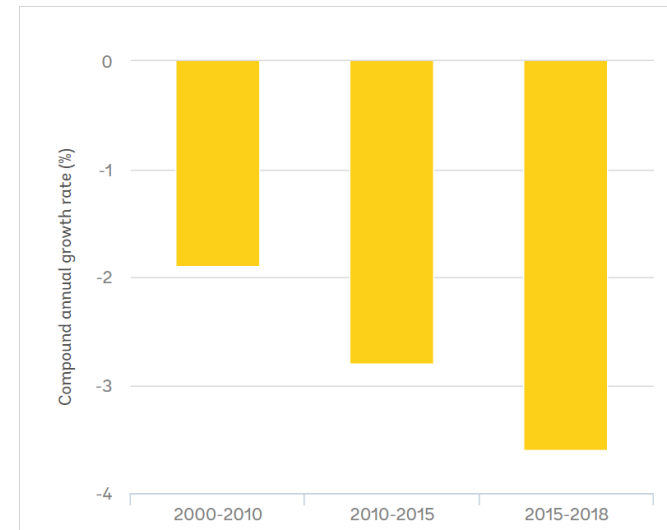


Energy Efficiency

National Energy Intensity (MJ per 2017 USD) 1990-2018



Compound Annual Growth Rate of National Energy Intensity



- Opportunities remain untapped
 - Energy efficiency as economic opportunity
 - Markets for energy efficient technologies
 - (Cleantech) innovation and entrepreneurship

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India

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PROMOTING MARKET TRANSFORMATION FOR ENERGY EFFICIENCY IN MSME

PROJECT PARTNERS

JORHAT TEA CLUSTER

AUTOMATION IN WITHERING TROUGHS

PLC based automation and control system in withering troughs helps in recipe based control of the withering process leading to saving in natural gas and electricity consumption by 10-15%. The investment can be recovered within 2.5 years



FRP BASED WITHERING FAN

Replacement of Cast Iron / Cast Steel / Aluminum based fans with Fiber Reinforced Plastic (FRP) based withering fans can help in delivering same airflow with reduced energy consumption by almost 10-15%. The investment can be recovered within 1.5 year



AUTOMATION & CONTROL SYSTEM FOR TEA DRYERS

PLC based automation & control system for tea dryers helps in synchronized operation of feed conveyor, vibro-feeder and cold air fan. This system reduces the specific energy consumption by 8-10%. The investment for this project can be recovered within 2.5 years



ENERGY EFFICIENT MODULATING BURNERS IN TEA DRYERS

Natural gas fired modulating burners in tea dryers helps in optimizing the air and fuel feed into the dryers leading to reduction in specific energy consumption up to 10-15%. The investment can be recovered within 1.5 years

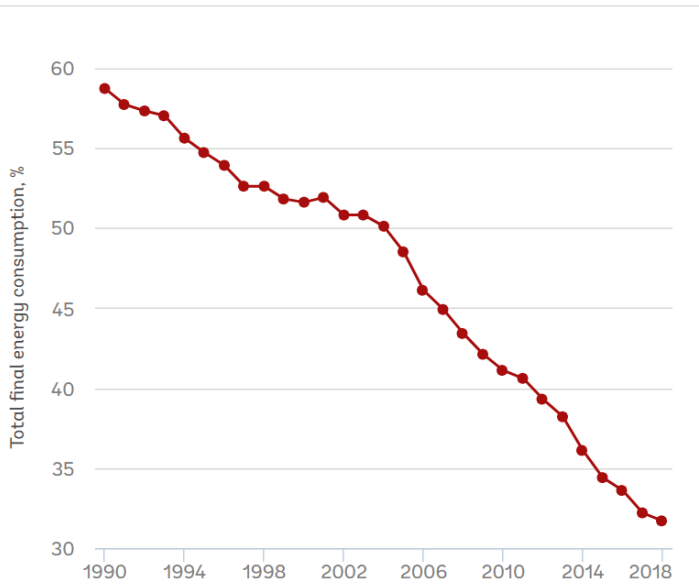


ACHIEVEMENTS SO FAR

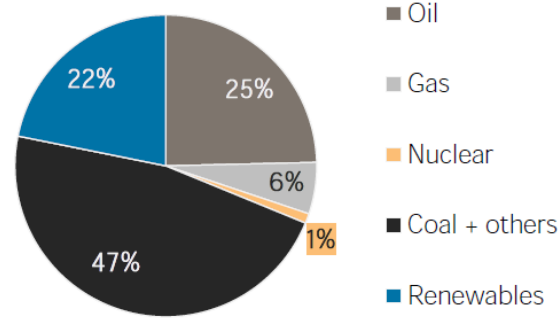
- 8 Demo Projects Implemented
- INR 93 Lakhs Invested
- 45 TOE of Energy Saved Annually
- 238 tCO₂ of GHG Emission Avoided Annually
- INR 45 Lakhs Saved Annually

Modern Renewable Energy

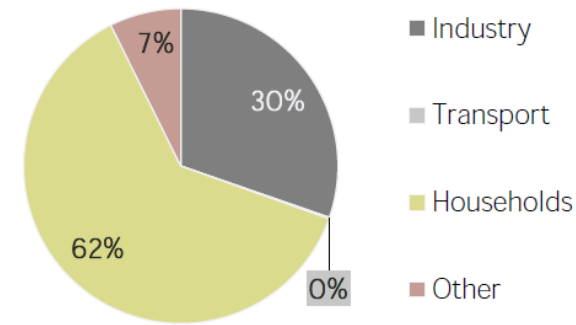
Renewable Energy share in Total Final Energy Consumption, 1990 - 2018



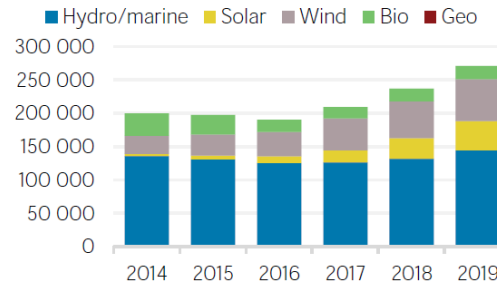
Total primary energy supply in 2018



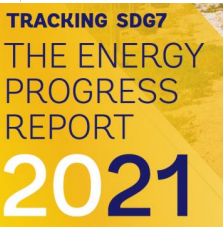
Renewable energy consumption in 2018



Renewable generation (GWh)



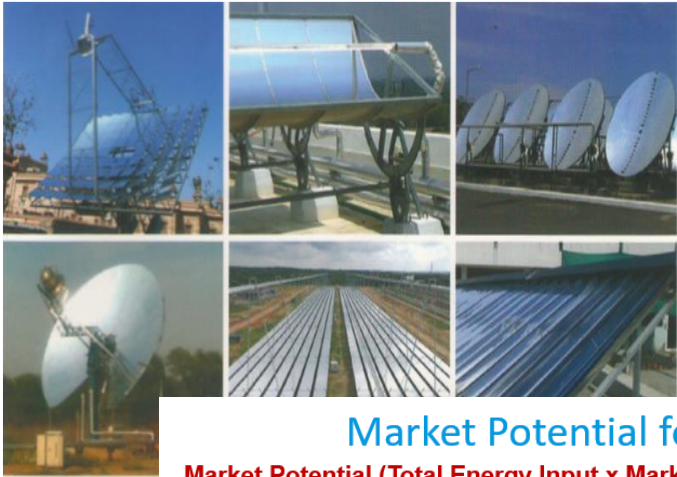
Generation in 2019	GWh	%
Non-renewable	1 319 960	83
Renewable	271 163	17
Hydro and marine	144 578	9
Solar	43 870	3
Wind	62 689	4
Bioenergy	20 027	1
Geothermal	0	0
Total	1 591 123	100



https://www.irena.org/IRENADocuments/Statistical_Profiles/Asia/India_Asia_RE_SP.pdf

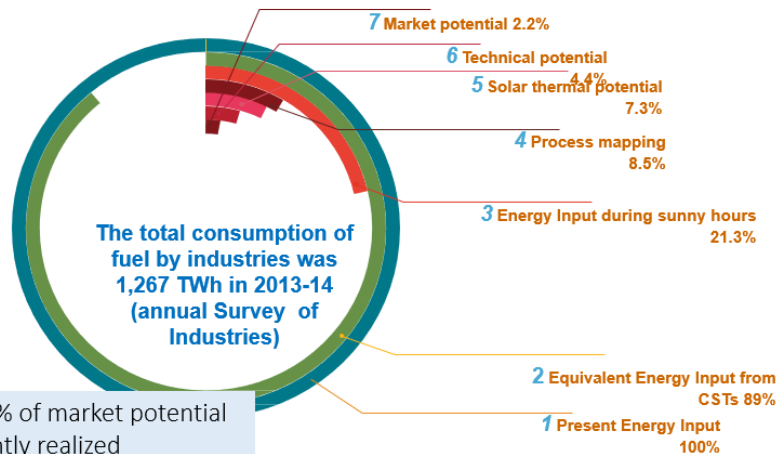
Accelerate widespread deployment of all applicable renewable technologies for electricity, heat and transport purposes

Solar Heating and Cooling



Market Potential for CST in India

Market Potential (Total Energy Input x Market Multipliers) = 6.45 GW_{th}



Only ~1% of market potential is currently realized



- Investment 15.7 million INR
- Savings 50,000 m³ natural gas annually
- Payback 5-6 years

Natural Capsules Limited (Pondicherry)

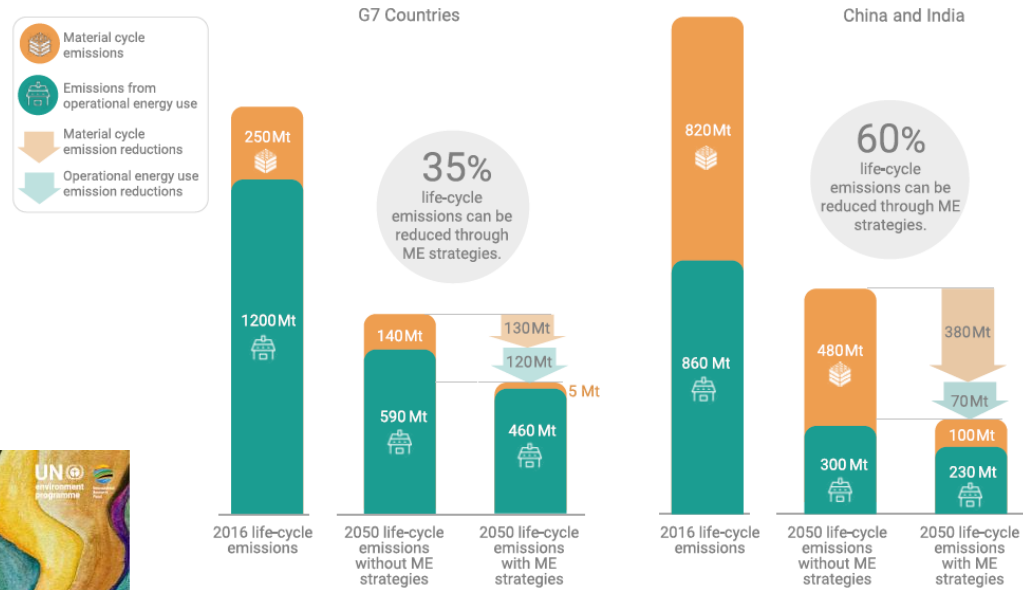


64 parabolic dishes with 282 m²
80 lakh kcal/day heat output
Investment 138 lakh
Payback 5.5 yrs (with FA)/6.7 years

Resource Efficiency

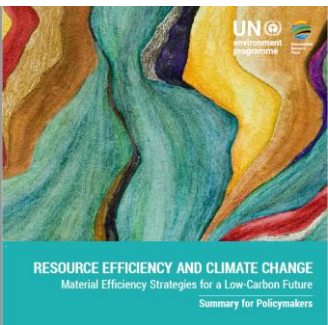
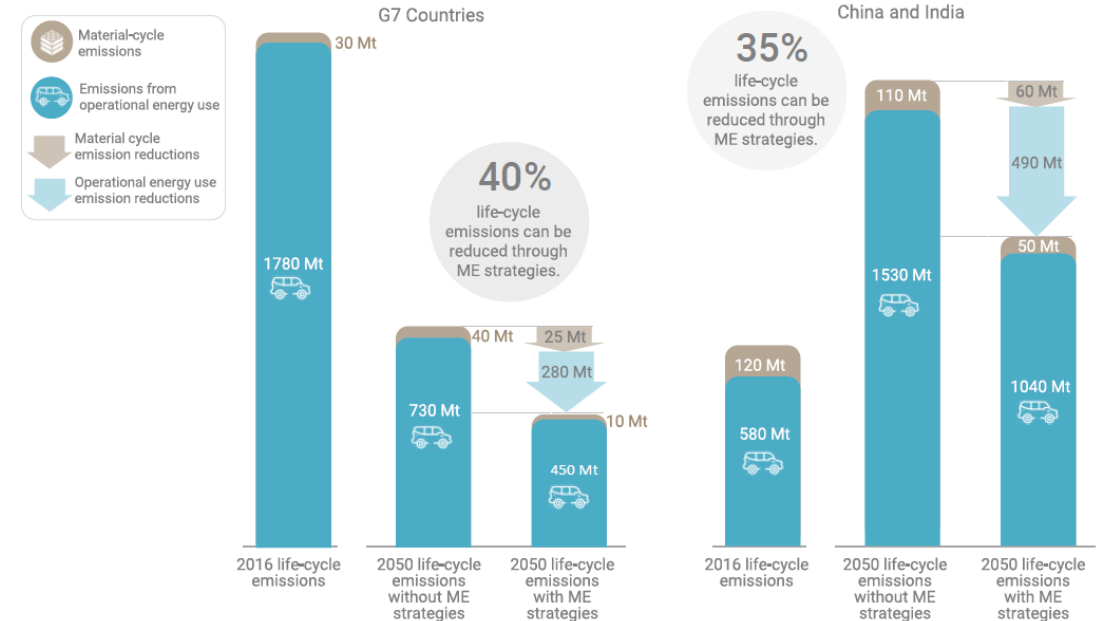
Material efficient homes

Figure 5. Life-cycle emissions from homes with and without Material Efficiency strategies in 2050 in G7 countries, China and India



Material efficient cars

Figure 7. Life-cycle emissions from cars with and without Material Efficiency strategies in 2050 in G7 countries, China and India



<https://www.resourcepanel.org/file/1966/download?token=dNgPqfZE>

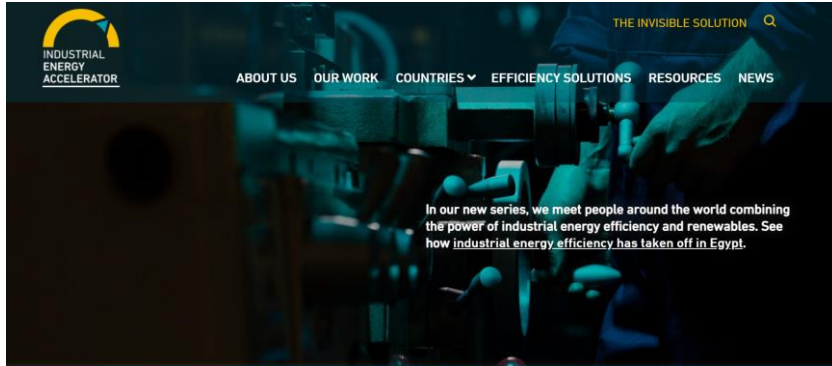


HEI for Clean and Affordable Energy

- Education
 - Mainstream sustainable energy throughout all education
- Outreach
 - Showcase sustainable energy leadership to industry, government and community at large
- Research
 - Employ entrepreneurial academic model to facilitate innovation for sustainable energy transition



Thank you



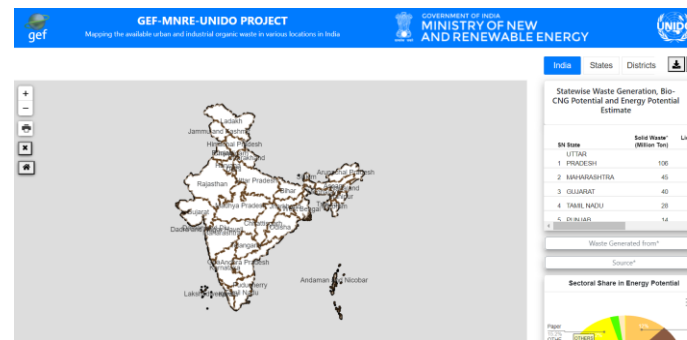
<https://www.industrialenergyaccelerator.org/>



<https://www.gn-sec.net/>



<https://www.low-carbon-innovation.org/>



<https://bio-energy.isid4india.org/>

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