



World Energy Mix



GOVERNMENT OF INDIA
MINISTRY OF NEW
AND RENEWABLE ENERGY



नीवे NIWE



ISC103 “R&D ROAD MAP in RE-Sector”

Fossil Fuel
and Nuclear
77.2%



Renewable
Electricity
22.8



Source: REN 21 Global Status Report 2015



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Indian Energy Scenario

ISC103 "R&D ROAD MAP in RE-Sector"

Total – 282023.39 MW

Thermal
196204.44 MW
70%

Hydro
42623.42 MW
15%

RES
38283.59 MW
13%

Nuclear
5780 MW
2%

100GW SOLAR
60GW WIND
15GW OTHER RE
175GW BY 2022

Source: CEA & MNRE

*As on 30 November 2015



Indian RE



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Potential

ISC103 “R&D MAP in RE-Sector” ROAD

S. No	Source	Potential	Installed
1.	Wind Power	302251 MW @100m	24759.32 MW
		102788 MW @ 80 m	
		49130 @ 50 m	
5.	Solar Energy	748910MW (3%WL,Rooftops)	4684.74 MW
3.	Biomass Power	23700 MW	4550.55 MW
4.	Bagasse Cogen		
2.	Small Hydro (up to 25 MW)	15000 MW	4161.90
6.	Tidal/Wave	Tidal:8000-9000 Wave:40000	none
7.	OTEC	180000 MW	none
8.	Geothermal	10000 MW	none



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Indian RE Installed

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Total – 38283.59 MW

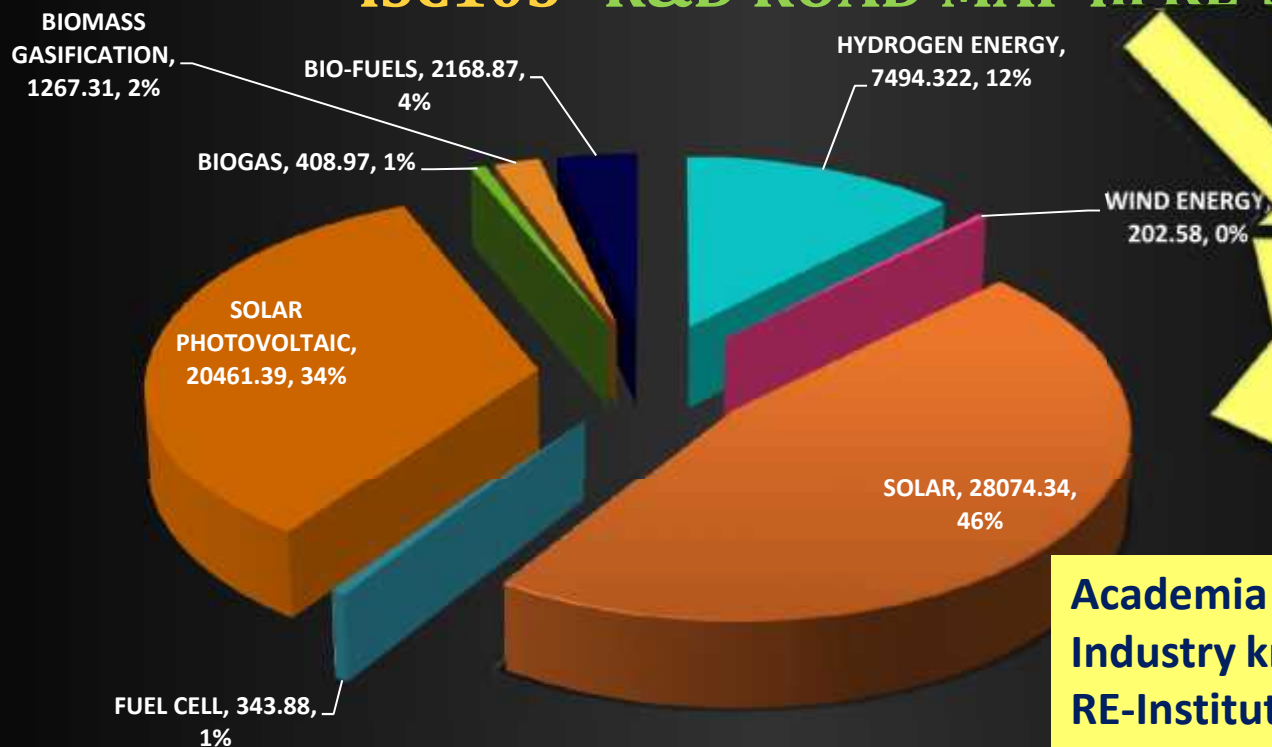




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ISC103 “R&D ROAD MAP in RE-Sector”



Academia has Knowledge + HR
Industry knows Business
RE-Institutes must have R-infra

8 Private partners (with low financial)
in 102 ongoing research Projects with
604 crores by MNRE, GoI

R&D Budget- RE India
525 Crore- 11th Plan
910 Crore- 12th Plan



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ISC103 “R&D ROAD MAP in RE-Sector”

- OFF-GRID RE / GENERATION INCL SMALL HYDRO - GREATER FOCUS >>>> 3%
- SOCIETY INTEGRATED RE RESEARCH (ELECTRICITY/HEAT/MECHANICAL)
- ENERGY EFFICIENCY & CONSERVATION

- COMMUNITY RE INVESTMENT-MICROGRIDS/HYBRIDS- SUSTAINABLE RE
- COST REDUCTION OF RE-CAPEX SOLAR ROOF-TOPS / HOME W2E /SWES
- COST REDUCTION IN ALTERNATE VEHICLE –FUEL (EOV&BIO)
- SMART GRID TECHNOLOGIES - HIGHER RE-MIX IN GRID
- ENERGY STORAGE SPECIFIC RE 175GW TARGET
- URBAN ENERGY DEMAND MANAGEMENT - W2E /SPV/SWH/SWES/
- COMPACT W2E SYSTEMS FOR HOME USE
- OFFSHORE WIND FOR INDUSTRIAL RE TARIFF
- MULTI-PURPOSE (MULTI-DEPARTMENTAL) OFFSHORE STRATEGIC PROJECTS
- HYBRID-RE FOR HYDROGEN GENERATION
- FUEL –CELL COST REDUCTION & DRINKING WATER SUSTAINABILITY
- GREATER INVOLVEMENT OF “MANF.” MAKE-IN-INDIA , ECONOMIES UP
- INNOVATIONS LEADING TO IPR- SKILL INDIA & DIGITAL INDIA