Waste to Energy: Municipal Solid Waste

About 6.15 MW of Waste to Energy (WtE) projects based on Municipal Solid Waste (MSW) have been installed in Andhra Pradesh as of 2015. MSW is a heterogeneous mix of combustibles, organic matter, inert matter and moisture. Energy generation through biochemical conversion or combustion will depend on the levels of segregation and collection efficiency of MSW. Several larger scale MSW based projects are expected to be commissioned by 2018 in Andhra, as shown in the table on the right. The research for these have been carried out under WWF-India Fellowship program. It is assumed under all scenarios that by 2050 urban areas will have MSW collection efficiency of approx 100% and segregation levels of approx. 90%, and rural areas will have MSW collection efficiency of approx. 100% and segregation levels of approx. 70%.

Location	WTE capacity planned(MW)
Visakhapatnam	15
Guntur	15
Tirupati	6
Anantapur	4
Tadepalligudem	5
Kadapa	5
Machilipatnam	4
Vizianagaram	4
Kurnool	1

Level 1

Level 1 assumes that 50% of the waste to electricity capacity planned will be commissioned by 2018, the rest by 2025 and then a slow growth to reach 575 MW by 2050. Conversion of waste to gaseous and solid fuel would require demonstrated technology, inter-agency coordination and favorable policies. This is not envisaged in Level 1.

Level 2

In level 2, 75% of the waste to electricity capacity planned is assumed to be commissioned by 2020, the rest by 2022. With a faster growth than Level 1, the total installed capacity is assumed to reach 800 MW by 2050. With improving segregation levels, 25% of urban segregated organic MSW and 20% of rural segregated organic MSW will generate biogas, and 18% of segregated urban combustibles will generate solid fuel.

Level 3

In Level 3, 100% of the waste to electricity capacity planned is assumed to be commissioned by 2020. With a faster growth than Level 2, the total installed capacity is assumed to reach 1030 MW by 2050. Urban Local Bodies will emphasize MSW based resource recovery. Policies and incentives are aligned. Rural areas adopt organic MSW based gas as a key energy option. 50% of urban segregated organic MSW and 40% of rural segregated organic MSW will generate biogas, and 30% of segregated urban combustibles will generate solid fuel.

Level 4

In Level 4, 110% of the capacity planned is assumed to be commissioned by 2020. With a faster growth than Level 3, the total installed capacity is assumed to reach 1180 MW by 2050. Here all economic social and technical barriers are removed. Increase in fossil fuel prices is also factored. 75% of urban segregated organic MSW and 60% of rural segregated organic MSW will generate biogas, and 62% of segregated urban combustibles will generate solid fuel.

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