

## **Waste to Resource**



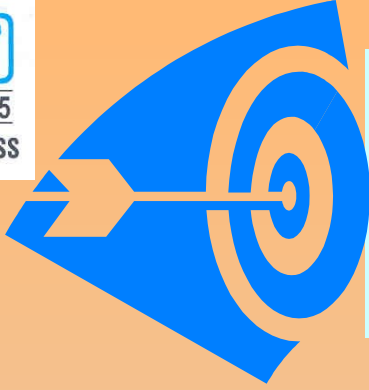
**S.N. Pandey, GM (Envnt. AU & Afforestation)**

**&**

**A.K. Mathur, Head (AUD)**

# NTPC VISION

**“A world class integrated power major,  
powering India’s growth,  
with increasing global presence”**



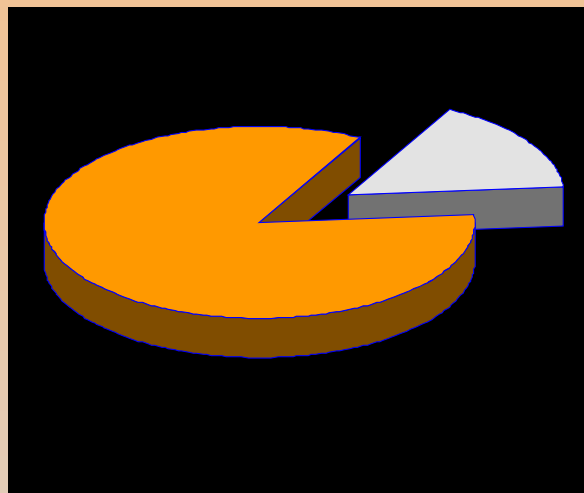
# TARGETS FOR GROWTH

- 46,000 MW thermal, hydro and non-conventional Power capacity by 2012.
- 66000 MW capacity by 2017
- Captive coal mines, Gas and Oil blocks, Coal washeries, Power Trading, Distribution.
- Equity in Natural Gas /LNG projects.
- To be a global player in Power consulting and generation.

# NTPC HAS POSITIONED ITSELF AS A DOMINANT PLAYER IN THE INDIAN POWER SECTOR

## TOTAL CAPACITY

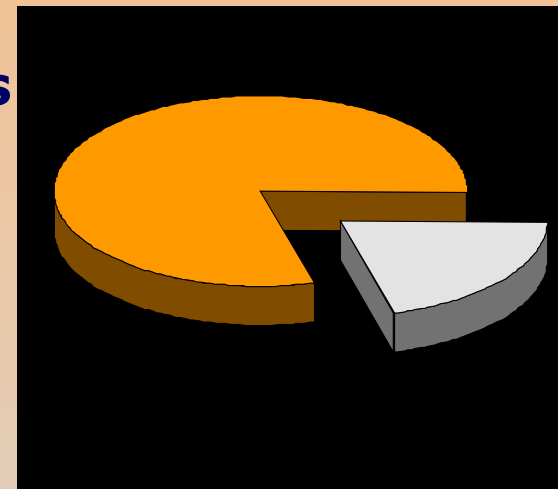
**NTPC**  
**24,249 MW**  
**20.06 %**



**All India 118,419 MW**

## GENERATION 2004-2005

**NTPC**  
**159.11 BUs**  
**27.08%**



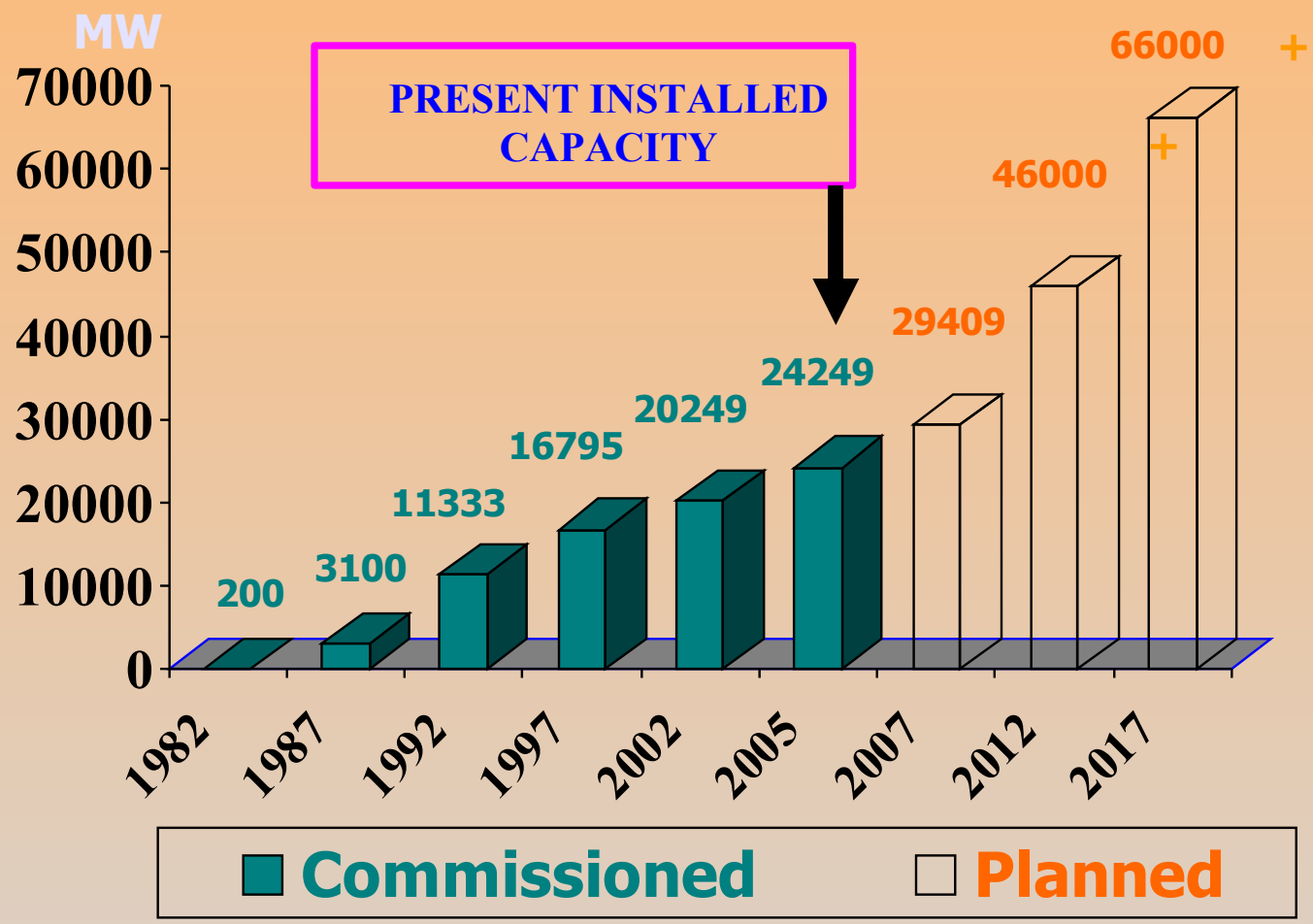
**All India 587 BUs**

**NTPC contributes more than one-fourth of India's total power generation with one-fifth capacity.**

# CAPACITY ADDITION – UPTO 2017

<b>Plan Period</b>	<b>Target</b>	<b>Already Achieved</b>
<b>X<sup>th</sup> Plan</b>		
<b>Coal Based</b>	<b>7710 MWs</b>	<b>4000 MWs</b>
<b>XI<sup>th</sup> Plan</b>		-
- Coal Based	<b>9740 MWs</b>	-
- Gas Based	<b>3100 MWs</b>	-
- Hydro	<b>4200 MWs</b>	-
-Total	<b>24,750 MWs</b>	-
<b>XII<sup>th</sup> Plan</b>		
- Coal Based	<b>11,256 MWs</b>	-
- Hydro	<b>6,800 MWs</b>	-
-Gas	<b>945 MWs</b>	-
-Non- conventional	<b>500 MWs</b>	-
-Nuclear	<b>2000MWs</b>	-
-Total	<b>21,501 MWs</b>	-

# CAPACITY EXPANSION

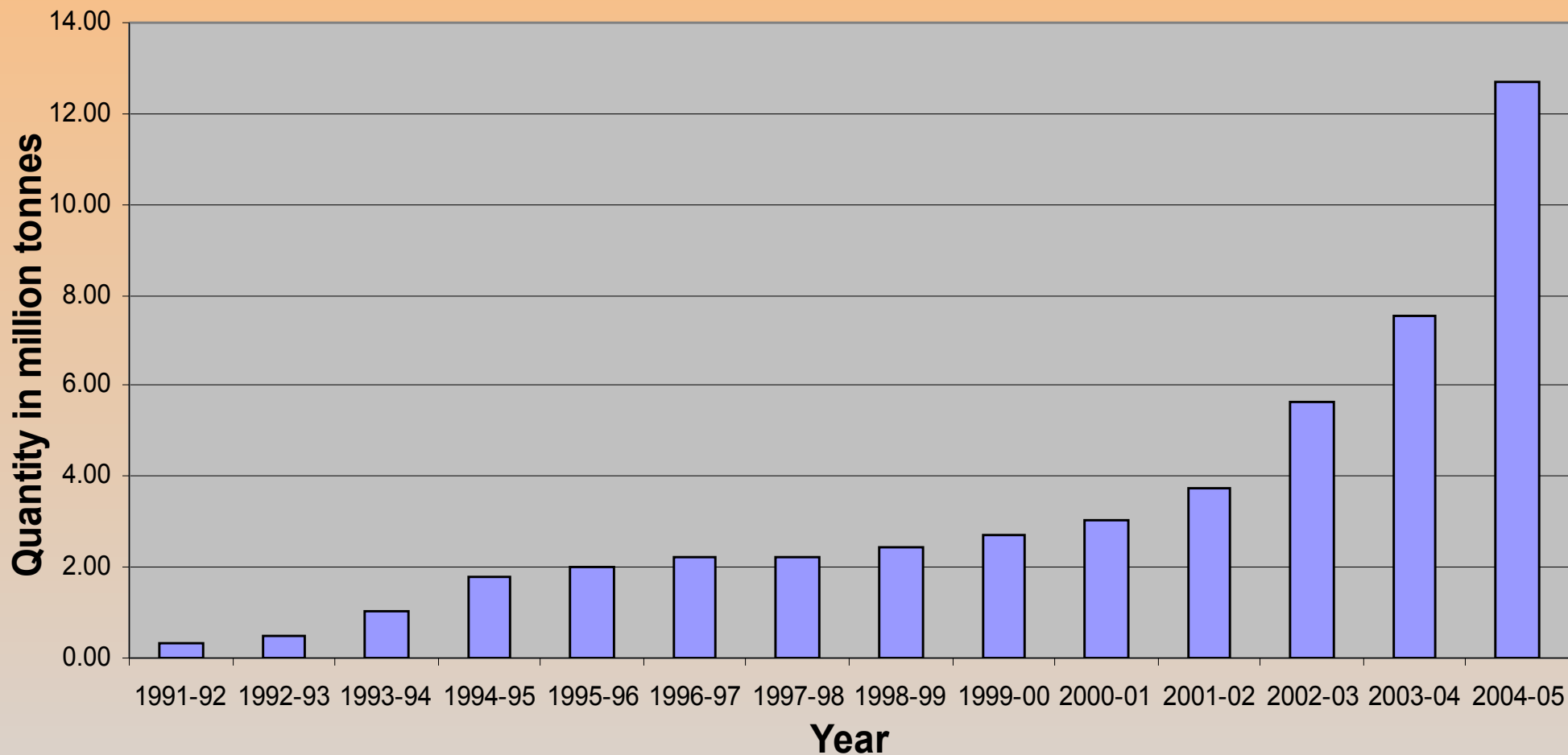


- 1- End of X Plan
- 2- End of XI Plan
- 3- End of XII Plan

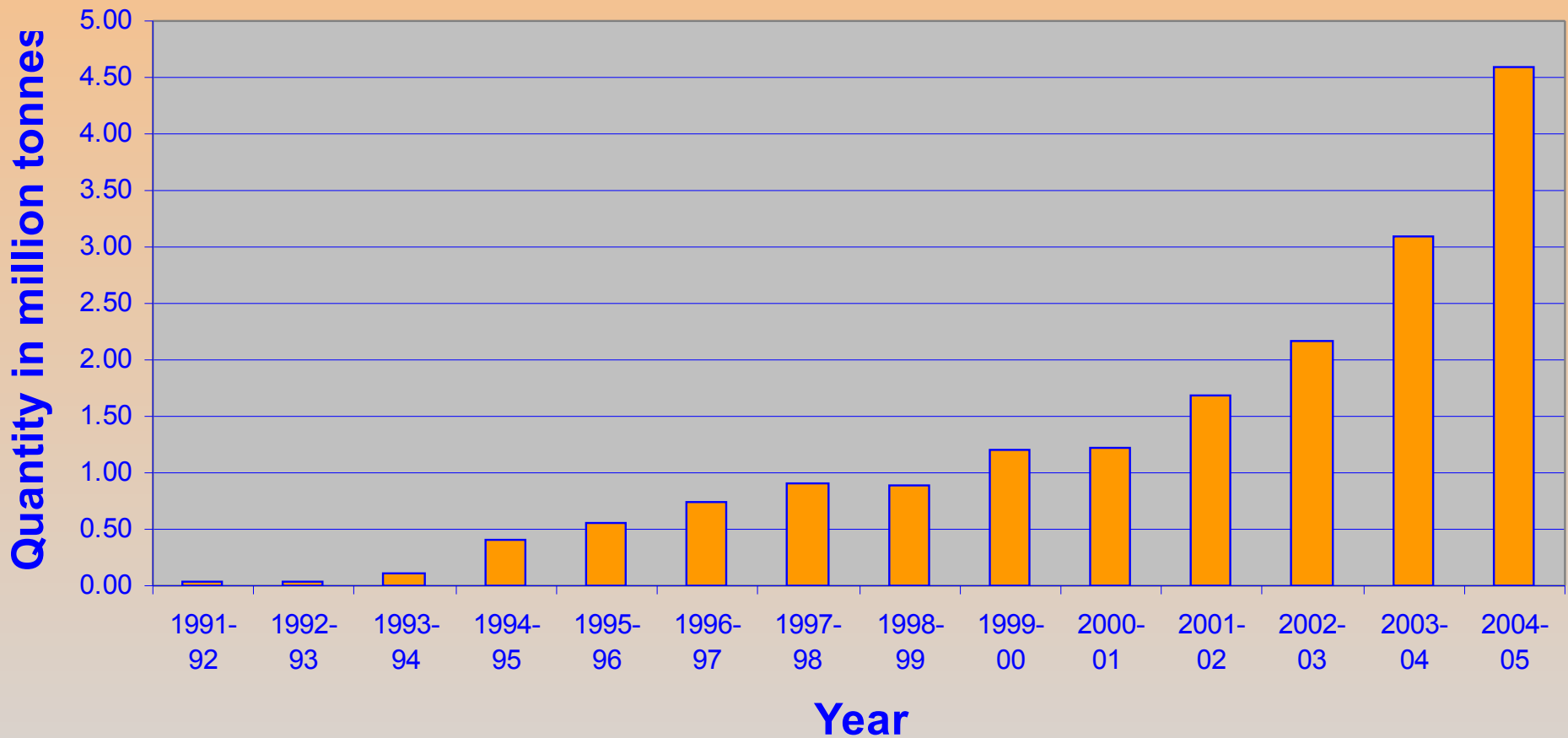
# Growth in Ash Production

<b>NTPC Limited</b>				<b>India</b>
<b>Plan Period</b>	<b>Coal Based Capacity Addition MW</b>	<b>Total Coal Based Capacity MW</b>	<b>Expected Ash Production M Tonnes</b>	<b>Expected Ash Production M Tonnes</b>
<b>2004-05 (Actual)</b>	<b>2,000</b>	<b>19,749</b>	<b>34</b>	<b>111</b>
<b>X<sup>th</sup> Plan (2007)</b>	<b>4,210</b>	<b>24,004</b>	<b>41</b>	<b>130</b>
<b>XI<sup>th</sup> Plan (2012 )</b>	<b>9,740</b>	<b>33,744</b>	<b>53</b>	<b>175</b>
<b>XII<sup>th</sup> Plan (2017 )</b>	<b>11,256</b>	<b>45,000</b>	<b>72</b>	<b>225</b>

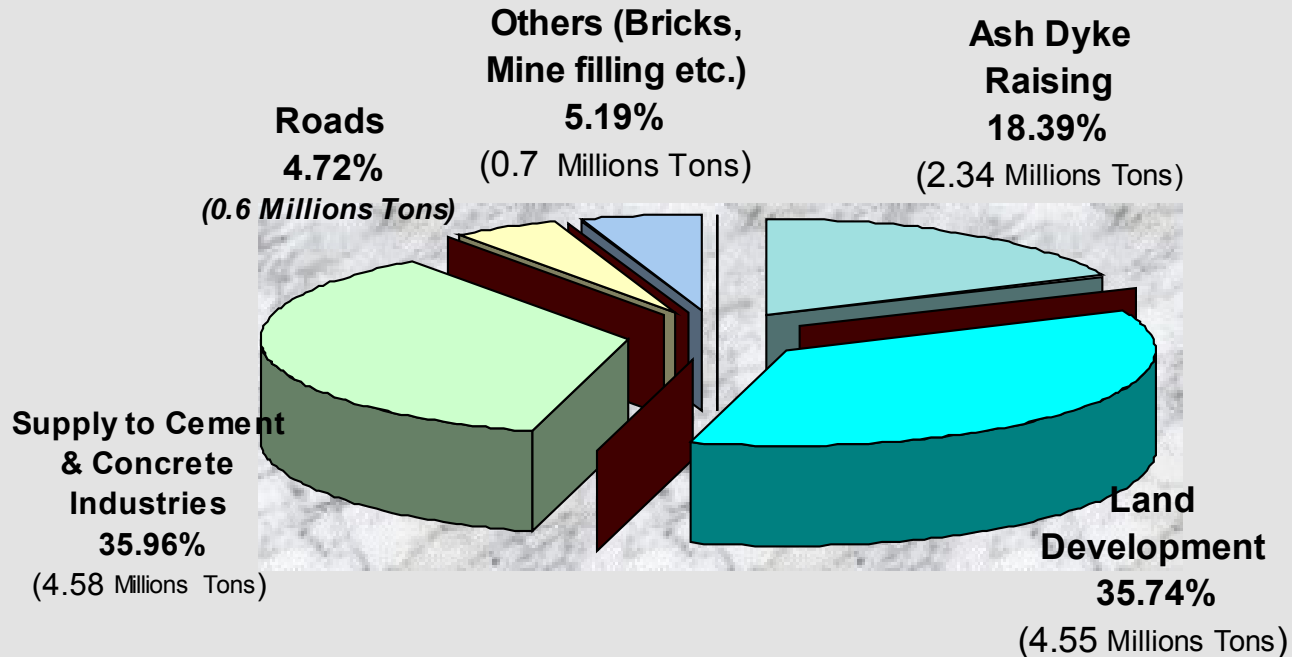
## Year wise Ash Utilization



## INCREASE IN ISSUE OF ASH TO INDUSTRY



## Areawise Utilization of Ash 2004 - 05



## As Inert Fill Material

- **Development of Low lying areas**
- **Road / Rail embankment Construction**
- **Open cast & Under Ground mine filling**
- **Use as Micronutrients & soil amender**
  - **Agriculture**
  - **Wasteland development**

## As Pozzolana

- **Manufacture of Portland Pozzolana Cement.**
- **Part Replacement of Ordinary Portland cement in concrete works.**
- **Manufacture of Ash Bricks / building products and pre-cast elements.**

## High Volume Concrete

- **Roller Compacted Concrete (RCC) for hydro Sector Projects**
- **Construction of Road Pavements using RCC.**
- **Structures requiring Self Compacting concrete.**
- **High performance concrete.**

# Ash Production in 1000 MW Capacity Station (Tonne Per Day Typical)

<b>Coal Consumption (Approx)</b>	-	<b>15000</b>
<b>Ash Production (Ash content 40%)</b>	-	<b>6000</b>
<b>Bottom Ash Production (20%)</b>	-	<b>1200</b>
<b>Fly Ash Production (80%)</b>	-	<b>4800</b>
<b>Fly Ash Collection in 1<sup>st</sup> and 2<sup>nd</sup> field (72%)</b>	-	<b>4320</b>
<b>Fly Ash collection in 3<sup>rd</sup> Field onwards (8%)</b>	-	<b>480</b>

# Ash Utilization Potential—As Pozzolana in India

## (Million Tonnes/ Annum)

Area	2004-05	2011-12
<b>Total Cement Production</b>	<b>127</b>	<b>200</b>
<b>PPC Production</b>	<b>60</b>	<b>100</b>
<b>Fly Ash Used</b>	<b>20</b>	<b>34</b>
<b>OPC Production</b>	<b>56</b>	<b>88</b>
<b>Fly Ash which can be used with OPC</b>	<b>-</b>	<b>22</b>
<b>Total Fly Ash Potential</b>	<b>-</b>	<b>56</b>

# Actions Plan to Tap Ash Use Potential with OPC

- **Develop Facilities for:**

- **Collection, Classification, Testing, Certifying, Packing and Transportation.**
- **Power utilities may be allowed to recover the cost of all value additions carried out for making tested fly ash available to all users.**

- **Transportation of Fly ash:**

- **Indian Railway will have to plan for at least 200 to 250 rakes for transportation of dry fly ash from pit-head power plants to the Urban / Demand Centers beyond 800-1000 Kms through special wagons with provision to evacuate ash by compressed air.**
- **Mass Transportation cost of fly ash from big power stations may be recovered through a cess or through tariff.**

**THANK YOU**