

Wind power R & D in India: Status and prospects

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WIND-INDIA 2006, Pune, August 22-23, 2006

Wind Resource data collection and analysis

- ◆ Wind resource data collection and analysis is systematically undertaken and has produced results : Since 1980's
- ◆ Many sites are identified where wind energy can be harnessed
- ◆ Lot more is still to be done
- ◆ No data on Offshore wind potential

Wind Resource data collection and analysis

Wind resource assessment	IISc-B, IIT-Kh, BARC-Mumbai, KCAET-Tavanur, Local Engg Colleges at Coimbatour & Chennai, WISE-Pune
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Wind machine and farm siting studies

- ◆ Significant developmental work by industrial groups
- ◆ Some research by a few academic institutes
- ◆ Basic research in leading to a suitable Indian soft-ware is lacking (except from C-WET to some extend)

Wind machine and farm siting studies

Wind Farm –
Optimization,
Siting

Anna Univ-Chennai, IIT-
Kh, C-WET, KCAET-
Tavanur, Local Engg
College -
Tiruanantpuram

Machine testing

- ◆ Research in machine testing undertaken at C-WET
- ◆ Private industries have their own set-ups for partial tests

Development of indigenous Large Wind Machine

- ◆ Multidisciplinary activity
- ◆ No national or regional level coordinated R and D effort
- ◆ There is significant commercial initiative
 - towards indigenisation
 - towards adaptation
- ◆ In many technical institutes, research is undertaken by enthusiasts
- ◆ No communication with each other !

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Development of indigenous Large Wind Machine

Aerodynamics, Load Analysis, Turbine Design and Performance	NAL_B'lore, IIT-B, IIT-D, BHEL, NAL, BITS-Pilani, NIT-Bhopal
Controls and electronics	Anna Univ-Chennai, IIT-B
Electrical Generation, Grid integration and Transmission	IIT-R, IISc-B, IIT-B, Central Power Research Inst.-B'lore

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Development of indigenous Large Wind Machine

Materials	?
Mechanical and structural design	?
Distributed / hybrid generation	IISc-B, IIT-B
Operational Issues	Anna Univ-Chennai, NIT-Bhopal
Other related technical issues	Anna Univ-Chennai, IIT-D, IIT-B, IIT-K, C-WET, NIT-Jaipur, Local Engg College - Chennai

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Development of wind pumps and small wind generators

- ◆ No significant and critical technical research inputs for wind pumps (exception : Auroville)
- ◆ A few efforts are going on for indigenous development of small wind generators by enthusiastic entrepreneur and academicians
- ◆ No communication with each other !

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Development of wind pumps and small wind generators

Savonius machine and small machines

IIT-B, IIT-K, IIT-Kh, NAL, KCAET-Tavanur

Other Studies

- ◆ Many groups are working on policy issues including CDM issues.
- ◆ No significant study is cited on environmental impact

Other Studies

Economics	IIT-D, JNTU-Hyderabad
Policy	WISE-Pune, Tezpur Univ, Jadavpur Univ, TERI
Environmental issues	?

Concluding Remarks

- ◆ Organization of technical training / conferences of research enthusiasts and teachers in this sector required
 - Improve the basic technical understanding of the issues
 - Understanding the challenges involved
 - Establish communication
- ◆ National initiative required for encouraging and coordinating research

Thanks



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