Wind Power for the People

25 Years of CECL

Harvesting the Invisible

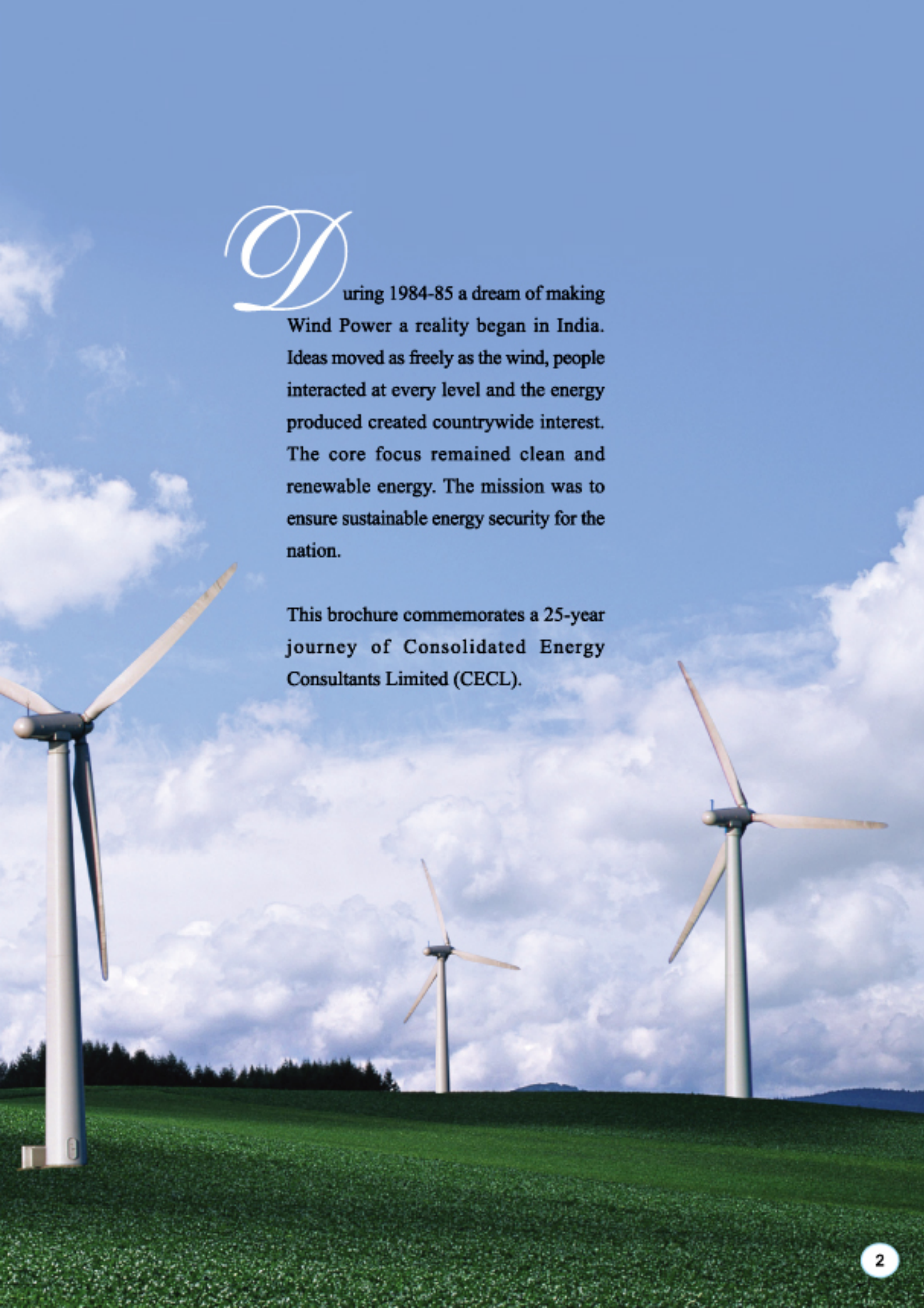
ENERGY

CONSOLIDATED ENERGY CONSULTANTS LIMITED


Wind Power
for the People
25
Years of
CECL

During 1984-85 a dream of making Wind Power a reality began in India. Ideas moved as freely as the wind, people interacted at every level and the energy produced created countrywide interest. The core focus remained clean and renewable energy. The mission was to ensure sustainable energy security for the nation.

This brochure commemorates a 25-year journey of Consolidated Energy Consultants Limited (CECL).



Chasing the wind

Kukru was not a known destination in Madhya Pradesh. It was a tiny scenic village on the Maharashtra – Madhya Pradesh border, with a population of about 250, in Betul District. It is located in the Satpura Range, about 90 km from the district headquarters, at an altitude of about 1100 meters. Livelihood was agriculture and collection of non timber forest products such as mango, anola, jamun, hare and bahera. Twentyfive years ago, this tiny tribal village stood forgotten by development.

The search began at Kukru to discover a windy location to produce electricity through conversion of wind flow.


MADHYA PRADESH
Kukru

Minds and ideas engaged...
...and the first venture rode the wind

The core idea came from Mr. Ranjit Dutta who had experienced the fascinating new technology of wind power in the USA. At the same time, Mr. M.S. Choudhary, ex-Chief Secretary and Chairman of Dairy Development Corporation, had visited Kukru to source milk collection and observed the strong wind factor and wondered if electricity could be produced to chill the milk for safe transportation to Betul. He relayed the information to Mr. C.S. Chaddha, the first Managing Director of M.P. Urja Vikas Nigam, to crystallize a plan to implement the concept.

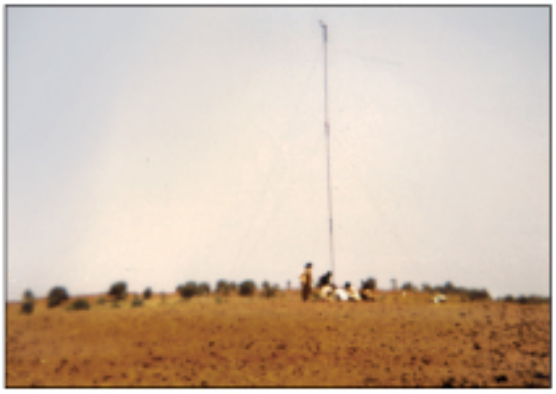
A visit to the site led to an initial short-term wind-data collection and a decision was taken to install an experimental 50 kW Wind Turbine. A location at a slightly higher elevation was selected near a lone tree.

It was quite an adventure - knowledge was inadequate, technical and commercial aspects were totally unknown, there was no experience, road connections were poor,


Ranjit K. Dutta


M. S. Choudhary


C. S. Chaddha



and there was no infrastructure. The decision to import the Wind Turbine and Control Panel from the USA and design and fabricate the tower locally, aggravated the situation. The biggest challenge was to lift the 2-tonne turbine to a height of 80 feet without a crane. A super structure was specially designed to lift the Generator and Blades using a cantilever platform. There were just four people to do the job, a supervisor and three semi-skilled fitters, and a professional group for erection of transmission line towers.

The machine was finally successfully commissioned on 4th July 1986 – precisely 25 years back. It was the first project without Government of India assistance. The lone tree remained as a mute witness of a successful adventure.

Assignment received	01.12.1984
Wind Turbine imported from USA	06.11.1985
Commissioning	04.07.1986

Once the first step was taken – the road map was prepared to venture into new projects.

Mission	Produce pollution-free electricity
Vision	Create energy security
Strategy	Develop & upgrade skills

Then ▲

The four people who worked on the project 25 years ago are still working with the company.

Now ▼

The lone tree: witness to the adventure

The agency to promote renewable energy at national level – DNES – was at a formative stage and three Scientists-cum Planners, Dr. J. Gururaja, Mr. Ajit K. Gupta and Dr. K.K. Singh whole-heartedly extended their co-operation.

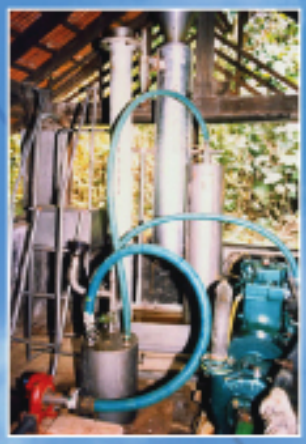

Dr. K. K. Singh


Dr. J. Gururaja


Ajit K. Gupta

The initial 5 years were spent in gaining experience through monitoring a few grid-connected Wind Turbines installed in the country and experimenting with small Stand-Alone Battery charges. The first Demonstration Wind Farm in Maharashtra was established in Vijaydurg.

Experience was gained in another renewable energy technology - *Biomass gasification*. Indigenously developed technologies were trying to harness the vast Biomass resource base to provide decentralized source of electricity in remote villages. *It was the first milestone.*




MEDA-HELIOUI

The 2nd milestone

Danish Aid stepped in to set up 20 MW Wind Farm Projects in Gujarat & Tamilnadu and they demonstrated, for the first time, the reliability and commercial viability of Wind Power Projects (WPP).

The first major investment in a large project was made by Dalmia Cement Bharat Ltd. It marked the beginning of commercial ventures by the private sector and set a trend.

Soon after the World Bank line of Credit was made available to finance private commercial wind farms - **A comprehensive document to guide prospective investors was prepared by CECL.** *The second milestone was crossed.*

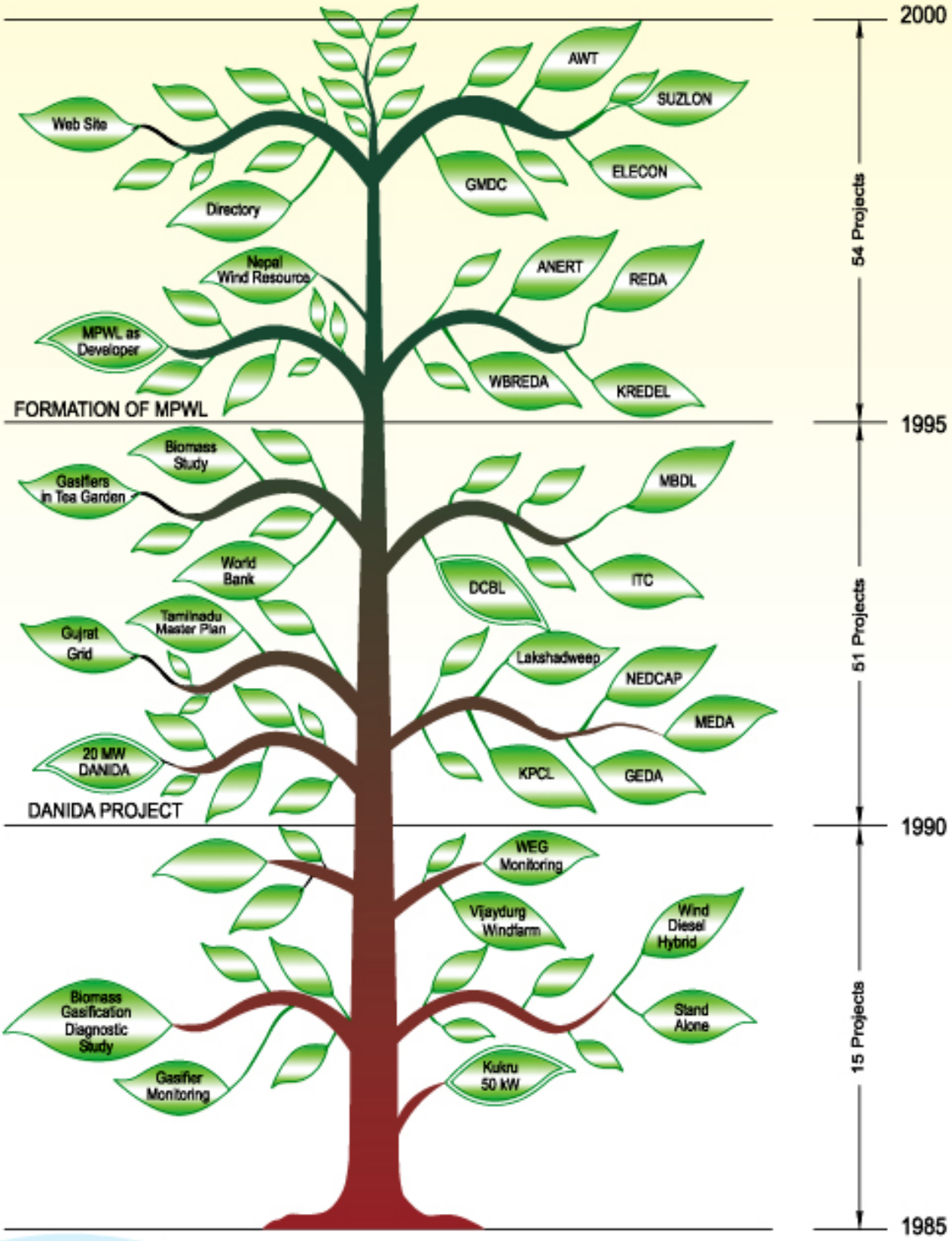
New horizons opened up. But the growth was sporadic and haphazard, investors had to arrange for land and entire infrastructure except the Wind turbine.

The 3rd Milestone: Growth gains speed

Like the wind things began to pick up speed. It was decided to create Wind Power Estates with Private Sector Partnership. At Government of India level, a full-fledged Ministry of Non-Conventional Energy Sources was set up with the Director, Wind Power, Mr. Ajit Gupta preparing a detailed guideline. The Memorandum of Understanding for the first and the only Joint Sector Company – M.P. Wind Farms Ltd – was signed on 14.07.1994.

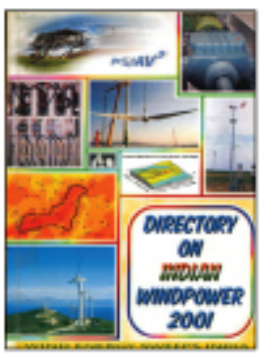
Equity participation was by Govt. of India (through IREDA - 24%) and Govt. of Madhya Pradesh (through MPUVN - 25%) and balance by CECL - 51%. Land was identified near the town of Dewas, a detailed survey was done, and a DPR was prepared for a 15 MW project in the Jamgodrani Hills. Detailed design and engineering was done for procurement of equipment and construction was carried out in a professional and time-bound manner.

M.P. Wind Farms Limited (A Joint Sector Company)		
MOU signed	14.07.1994	3 months
Incorporation	20.10.1994	6 months
Land allotted at Jamgodrani Hills, Dewas	20.4.1995	-d0-
1st WEG Commissioned	26.07.1995	3 months


2000
1995
1990
1985
54 Projects
51 Projects
15 Projects
AWT
SUZLON
Web Site
ELECON
GMDC
Directory
Nepal Wind Resource
ANERT
REDA
MPWL as Developer
WBREDA
KREDEL
FORMATION OF MPWL
Biomass Study
Gasifiers in Tea Garden
MBDL
World Bank
ITC
DCBL
Tamilnadu Master Plan
Gujrat Grid
Lakshadweep
NEDCAP
MEDA
20 MW DANIDA
KPCL
GEDA
DANIDA PROJECT
WEG Monitoring
Vijaydurg Windfarm
Wind Diesel Hybrid
Biomass Gasification Diagnostic Study
Stand Alone
Gasifier Monitoring
Kukru 50 kW

The first turbine was commissioned on 26.07.1995. It marked the beginning of a new era that offered single window service, particularly to small Investors, to facilitate hassle-free installation and efficient operation and maintenance. This model, developed through M.P. Wind Farms Limited (MPWL), is now followed by all Wind Turbine Manufacturers to provide Turnkey Solutions.

The Company paid 'dividend' in the first year and declared 'bonus shares'. A comprehensive Directory on Wind Power was published and the first web-site was hosted. The eleventh edition of the Directory is now available.



The 4th Milestone: Gaining Momentum

At that point of time, Wind Power Projects were being established primarily for captive consumption and availing depreciation benefit. When the growth rate faltered, Electricity Regulatory Commissions were established both at Central and State level through enactment of new Electricity Act. Maharashtra State Electricity Regulatory Commission was the first to avail specialty services of CECL for determination of Tariff for sale of energy to State Utility. Other states followed. The 4th milestone was crossed.

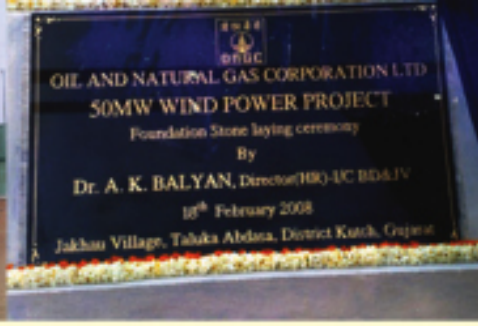
Services provided were primarily for core engineering activities and estimation of energy output. Allied Services for Rural Electrification, Wind-Diesel Hybrid Systems and Village Energy Security Programs through use of Gasifiers were also offered.

MAHARASHTRA

ELECTRICITY REGULATORY COMMISSION

ORDER

MERC



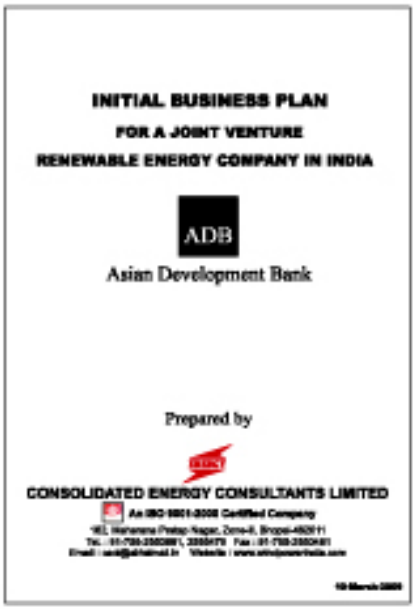
The 5th Milestone: Growth generates more growth

Declaration of Tariff and establishment of norms by RECs drew the attention of large Public Sector Undertakings. The first major PSU to be motivated by CECL was ONGC and they established a 50 MW Project. State Bank of India followed and they now own quite a few wind farms. MP Wind Farms also commissioned their 2nd 15 MW unit at Nagda Hills, Dewas, for five different investors.

Services were utilized by many Investors including Asian Development Bank who assigned CECL to prepare a 500 MW project business plan. Commercialization of wind energy had become a reality.

The journey began with a 50 kW Wind Turbine and lately a 2100 kW Turbine has been commissioned. A multiplying factor of 42 times has been achieved in 25 years. Interestingly, within a span of two and half decades, CECL's path has completed a full circle and now the process has started for repowering the first major Private Sector wind farm of Dalmia Cements. Old small capacity Wind Turbines are being replaced by large capacity Wind Turbines with modern Technology. The consultant remains the same – CECL.

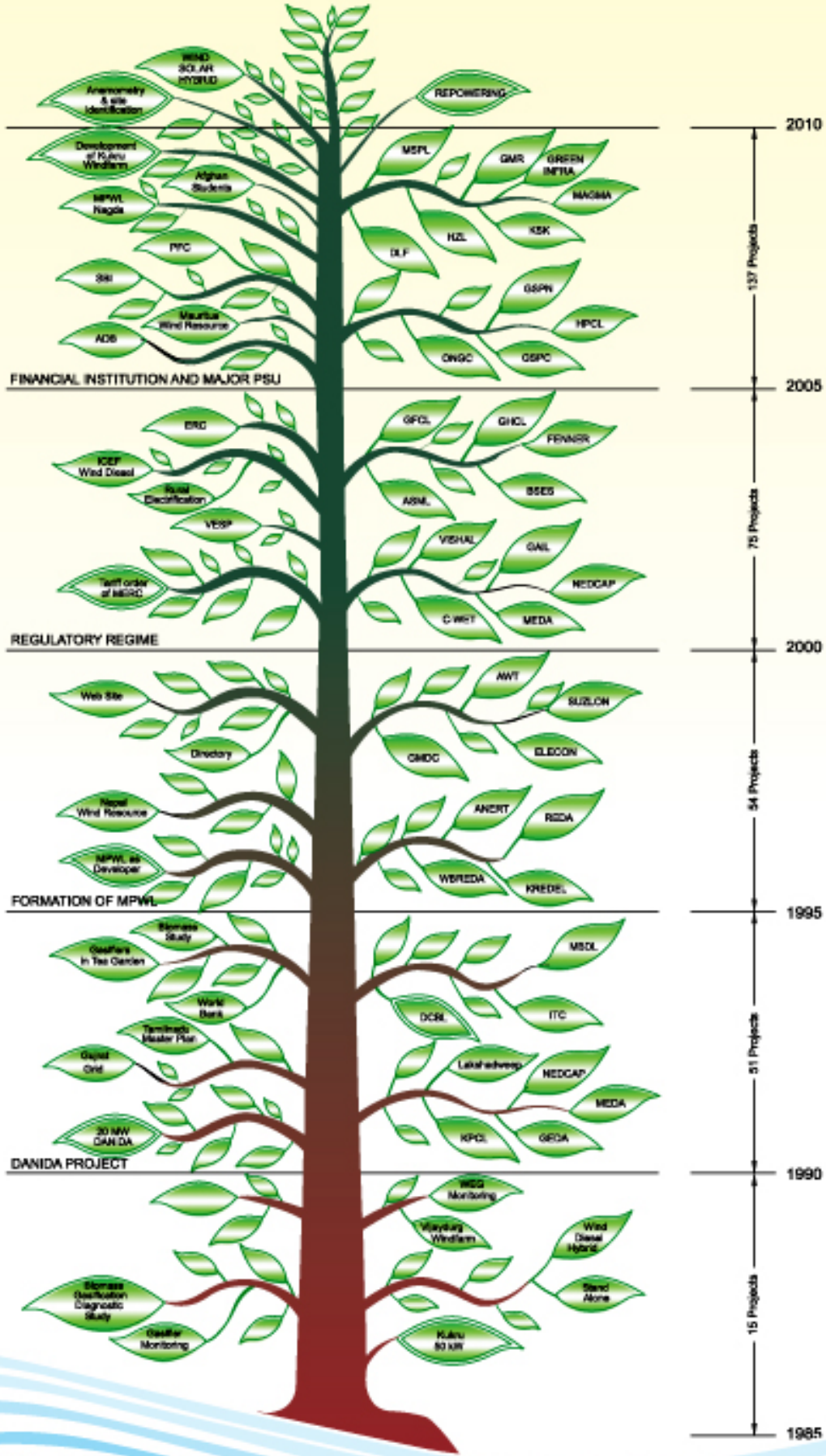
Meanwhile CECL moved into its own new premises – a five-storied eco-friendly building. And it did not forget the original settlers of the land. Social integration was taken up by donating goats, creating drinking water wells, installing wind-solar hybrid systems, solar lanterns etc to the people at Kukru.


INITIAL BUSINESS PLAN
FOR A JOINT VENTURE
RENEWABLE ENERGY COMPANY IN INDIA

ADB
Asian Development Bank

Prepared by

CONSOLIDATED ENERGY CONSULTANTS LIMITED


WIND SOLAR HYBRID
Anemometry & site identification
REPOWERING
Development of Kuleru Windfarm
MSPL
GMR
GREEN INFRA
MACMA
Afghan Students
MPWL Nagda
KSK
HZL
PPC
DLF
SMI
GSPN
Mauritius Wind Resource
HPCL
ADB
ONGC
GSPC
FINANCIAL INSTITUTION AND MAJOR PSU
EIB
GPCL
GHCL
FINNIDA
ICEF Wind Diesel
Rural Electrification
BSES
ASNL
VESP
VISHAL
GAIL
Tariff order of MERC
NEDCAP
C WET
MEDA
REGULATORY REGIME
Web Site
AWT
SUZLON
Directory
GMDC
ELECON
Nepal Wind Resource
ANERT
REDA
MPWL as Developer
WBREDA
KREDEL
FORMATION OF MPWL
Biomass Study
Gasifiers in Tea Garden
MSDL
World Bank
DCSL
ITC
Tamilnadu Master Plan
Gujrat Grid
Lakshadweep
NEDCAP
MEDA
20 MW DAN DA
KPCL
GEDA
DANIDA PROJECT
WEG Monitoring
Vijaydurg Windfarm
Wind Diesel Hybrid
Biomass Gasification Diagnostic Study
Stand Alone
Gasifier Monitoring
Kuleru 50 kW
2010
2005
2000
1995
1990
1985
137 Projects
75 Projects
54 Projects
51 Projects
15 Projects

Flowing with a dream

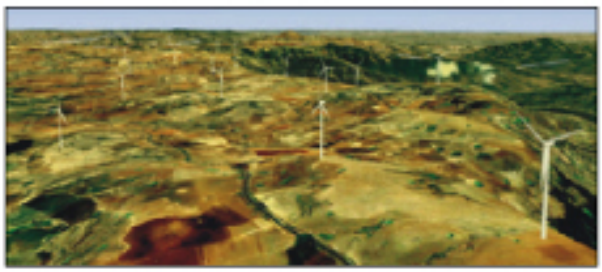
The dream continues.

Flowing air shall light up millions of homes in places where delivering electricity is not just difficult, maybe impossible. Quiet places will come alive; people will enjoy prosperity and energy security.

We dream of wind projects with high social relevance and benefits to farmers, investors, businesses, utilities and other public or private entities. The more people that become involved, the more democratic the energy supply system becomes. Energy sellers make a profit, landowners receive leasing fees, communities get improved infrastructure, local people get jobs, governments receive taxes, and consumers receive electricity at competitive prices.

The extreme urgency for identifying virgin windy sites was realized and sustained efforts were made by CECL to upgrade the skill to prepare MESO and MICRO Scale Wind Maps of several regions to facilitate installation of Anemometry Stations. Already 3 sites have been identified and approved in the States of Rajasthan and M.P. (for installation of 300 MW wind farms) and further studies are continuing.

Besides installation of large Turbines to feed into the grid, the urgency of setting up large number of decentralized Wind-Solar Hybrid Systems in remote locations, particularly in North-Eastern States and Leh and Ladakh, was well appreciated and Wind Resource Maps have now been prepared.



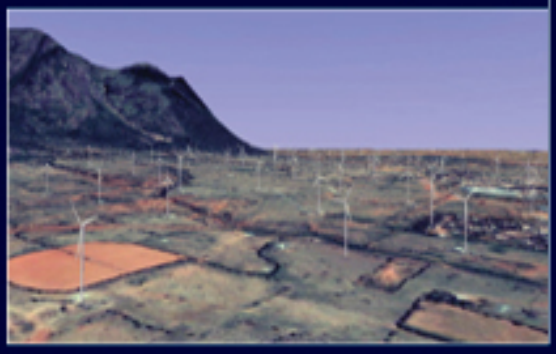
The Future:

Towards more wind power and a better life

Buoyed by "green power" initiatives across India and the World, virtual internationalization of the wind turbine industry and research community will make wind energy the most cost effective source of electrical power in the near future.

CECL eagerly looks forward to removal of barriers and simplifying the procedure to facilitate use of land belonging to Tribal communities so that 1000 MW wind farms can come up in M.P. alone. It would permanently bring 10000 families above poverty line, to say the least.

The major technology developments enabling wind power commercialization have already been made. There will be infinite refinements and improvements, of course. One can guess that the eventual push to full commercialization and deployment of the technology will happen in a manner that no one can imagine today.



CECL is confident to position wind energy technology (developed in a long lineage from the Chinese and the Persians to the present wind energy researchers and developers) for its next round of development.

CECL is confident of making contributions of fundamental significance to achieve the national target of 20,000 MWs of wind power by the end of the 12th Plan and beyond to the aspired 60,000 MW capacity by 2020. The company is deeply committed to - Explore new concepts and transform them to reality; Continuously upgrade knowledge and skills; Maintain time schedules; and, most importantly, Share the benefits of development with our underprivileged countrymen.

ENERGY

CONSOLIDATED ENERGY CONSULTANTS LIMITED

AN ISO 9001 - 2008 CERTIFIED COMPANY

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