

# MANAGING CARBON DIOXIDE THROUGH FORESTRY

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# POWER GENERATORS & GHG EMISSIONS

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- ELECTRIC POWER EMISSIONS OVER 500 MILLION TONS OF CARBON PER YEAR
  - CONCENTRATE ON ENERGY SUPPLY & DEMAND WHEN ADDRESSING GREENHOUSE GASES
  - PLANTING 100 MILLION TREES (~ 300,000 ACRES) WITH HIGH GROWTH RATE WILL ONLY YIELD 2 MILLION TONS OF CARBON PER YEAR AVERAGED OVER 70 YEARS
  - "CLIMATE CHALLENGE" OF 650 COMPANIES SAW FORESTRY PROJECTS 5% OF COMMITTED TONS IN 2000
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# A FLEXIBILITY MECHANISM -- MANAGING CARBON VIA FORESTRY

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- GLOBAL POTENTIAL: 1-1.5 BILLION TON / YR CARBON OFFSET (IPCC) – 12-15% OF TOTAL GLOBAL CARBON EMISSIONS
  - CAN BE DONE ANYWHERE VIA NUMEROUS TYPES OF ACTIVITIES:
    - ✓ FOREST PROTECTION - MILLIONS ACRES OF FOREST CLEARED ANNUALLY, EMITTING 10-30% OF MAN-MADE CO<sub>2</sub>
    - ✓ FOREST MANAGEMENT - IMPROVED PRACTICES IN GROWING OR HARVESTING TREES
    - ✓ PLANTING TREES ON DEGRADED LAND, ABANDONED LAND, ETC.
    - ✓ SOILS, BIOMASS ENERGY AND ENERGY-CONSERVING TREES
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# OTHER REASONS TO SPONSOR PROJECTS

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- SECONDARY (ANCILLARY) ENVIRONMENTAL BENEFITS:
    - ✓ BIODIVERSITY, WILDLIFE AND BIRD HABITAT
    - ✓ RESTORATION OF DEGRADED LANDS
    - ✓ REDUCED EROSION AND REDUCED SOIL COMPACTION
    - ✓ WATER QUALITY BENEFITS
  - CAN CONTRIBUTE TO SUSTAINABLE DEVELOPMENT
  - TRANSITION STRATEGY
  - FOREST CARBON MANAGEMENT PROJECTS ARE COST EFFECTIVE IN MANY CASES -- E.G., A DOLLARS OR TWO PER TON OF CO<sub>2</sub> OFFSET
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# UTILITREE CARBON COMPANY

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- **NON-PROFIT** SPONSORED BY 41 NORTH AMERICAN ELECTRIC UTILITIES FORMED IN 1994
  - \$3.2 MILLION IN FUNDING
  - 10 PROJECTS - 8 DOMESTIC AND 2 INTERNATIONAL
  - PROJECTED 3 MILLION TON CO<sub>2</sub> BENEFIT OVER 40-70+ YEARS
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# UTILITREE PROJECTS

LOCATION	TYPE OF PROJECT	PARTNERS
ARKANSAS/ LOUISIANA/ MISSISSIPPI	<b>REFORESTATION</b> (7 PROJECTS)	LOUISIANA TECH UNIVERSITY U.S. FISH & WILDLIFE SERVICE NATIONAL FISH & WILDLIFE FED. ENVIRONMENTAL SYNERGY INC. WINROCK INTERNATIONAL
OREGON	<b>REFORESTATION</b>	METRO (CITY OF PORTLAND) TREXLER AND ASSOCIATES
BELIZE	<b>PRESERVATION / SUSTAINABLE MANAGEMENT</b>	PROGRAMME FOR BELIZE, TNC , WEPCO, CINERGY, DETROIT EDISON / PACIFICORP
MALAYSIA	<b>MANAGEMENT</b> (REDUCED IMPACT LOGGING)	RAINFOREST ALLIANCE UNIVERSITY OF FLORIDA INNOPRISE CORPORATION PG&E NATIONAL ENERGY GROUP

# POWERTREE CARBON COMPANY, LLC

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- NEW INITIATIVE, FUNDED IN 2003 BY 25 U.S. POWER GENERATORS
  - COMMITTED \$3+ MILLION TO ESTABLISH BOTTOMLAND HARDWOOD REFORESTATION PROJECTS IN THE LOWER MISSISSIPPI ALLUVIAL VALLEY (LMAV) STATES OF LOUISIANA, MISSISSIPPI, AND ARKANSAS
  - SPONSORING SEVEN PROJECTS
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# POWERTREE CARBON COMPANY, LLC

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- EVENTUALLY CAPTURE MORE THAN 1.6 MILLION TONS OF CO<sub>2</sub> FROM THE ATMOSPHERE – AS WELL AS PROVIDE CRITICAL HABITAT
  - THE POOL OF SEVEN PROJECTS WILL PROVIDE CO<sub>2</sub> MANAGEMENT AT A COST OF LESS THAN \$2/TON
  - PARTICIPANTS WILL SHARE THE GREENHOUSE GAS BENEFITS ON A PRO RATA BASIS AND MAY REPORT THESE SHARES INTO THE VOLUNTARY ENERGY POLICY ACT SECTION 1605(b) DATABASE
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# LOWER MISSISSIPPI ALLUVIAL VALLEY – SITUATIONAL ANALYSIS

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- THE LMAV ONCE CONTAINED NEARLY 22 MILLION ACRES OF HIGHLY PRODUCTIVE BOTTOMLAND HARDWOODS
  - DUE TO DECADES OF FLOOD CONTROL MEASURES, BOTH GOOD AND BAD, AND CONVERSION FROM FOREST TO MARGINAL FARM LAND, TODAY ONLY ABOUT 4 MILLION ACRES REMAIN
  - MUCH OF THE LAND WAS POORLY SUITED FOR CROPS DUE TO LOW SOIL PRODUCTIVITY, AND CULTIVATION HAS CONTRIBUTED TO EXTENSIVE SOIL EROSION AND NITROGEN FERTILIZER CONTRIBUTING TO THE HYPOXIA ZONE AND DEGRADED FISHERIES IN THE GULF OF MEXICO
  - THE EXTENSIVE CLEARING ALSO WAS DEVASTATING TO WILDLIFE HABITATS, DESTROYING AND FRAGMENTING WOODED HABITATS CRITICAL TO MIGRATORY SONGBIRDS, WATERFOWL, AND RARE SPECIES SUCH AS THE BALD EAGLE, PEREGRINE FALCON, AND THE LOUISIANA BLACK BEAR
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# PARTNERS

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- NATIONAL CONSERVATION ENTITIES: THE CONSERVATION FUND, THE NATURE CONSERVANCY, DUCKS UNLIMITED AND THE WILD TURKEY FEDERATION)
  - REGIONAL AND STATE CONSERVATION GROUPS: OLD SOUTH WOODLANDS, CENTRAL ARKANSAS RESOURCES CONSERVATION AND DEVELOPMENT COUNCIL, THE CARBON FUND, BLACK BEAR CONSERVATION COMMITTEE, FRIENDS OF RED RIVER AND MISSISSIPPI FISH AND WILDLIFE FOUNDATION
  - LOCAL LANDOWNERS
  - FEDERAL AGENCIES: THE DEPARTMENT OF INTERIOR'S FISH & WILDLIFE SERVICE, THE DEPARTMENT OF AGRICULTURE'S NATURAL RESOURCES CONSERVATION SERVICE AND THE U.S. FOREST SERVICE
  - LEADING PRACTITIONERS OF TREE PLANTING AND MONITORING: ENVIRONMENTAL SYNERGY, INC. AND WINROCK INTERNATIONAL
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# TESTIMONIALS

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"The effort to sequester carbon by planting trees will change the face of the lower Mississippi River Valley forever. These new forests will not only have positive implications with respect to atmospheric carbon, but will provide many environmental benefits in wildlife habitat, water quality, floodwater storage, and groundwater recharge, and will have significant social implications as dollars are invested in rural communities and economically depressed areas."

*Paul Davidson*

*Executive Director, Black Bear Conservation Committee*

"The Fish and Wildlife Service applauds our partnership with PowerTree Carbon Company, the Lower Delta Partnership, and conservation groups such as The Conservation Fund to implement carbon sequestration that conserves, restores, and maintains the ecological integrity of the nation's land, water, and native habitats for fish and wildlife."

*Sam D. Hamilton*

*Southeast Regional Director, U.S. Fish and Wildlife Service*

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# ANCILLARY BENEFITS OF POWERTREE CARBON COMPANY & UTILITREE CARBON COMPANY PROJECTS

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- DECREASES SOIL AND NUTRIENT INPUTS TO WATERS, HELPING TO REDUCE THE HYPOXIA ZONE AND TO IMPROVE FISHERIES IN THE GULF OF MEXICO
  - RESTORES WILDLIFE CORRIDORS BY CONNECTING FRAGMENTED HABITATS
  - RESTORES HABITAT FOR MIGRATORY NEOTROPICAL BIRDS AND WATERFOWL, INCREASING REGIONAL BIODIVERSITY
  - CONTRIBUTES TO THE HABITAT RESTORATION GOALS OF THE LOWER MISSISSIPPI JOINT VENTURE AND THE NORTH AMERICAN WATERFOWL PLAN; THE SOIL PROTECTION GOALS OF USDA'S WETLAND RESERVE AND CONSERVATION RESERVE PROGRAMS; AND REDUCES THE FLOOD PROTECTION BURDEN OF THE US ARMY CORPS OF ENGINEERS
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# TECHNICAL ISSUES - INTRODUCTION

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- CARBON OFFSETS, PROPERLY DOCUMENTED AND MONITORED, SHOULD BE A MAJOR COMPONENT OF ANY DOMESTIC AND INTERNATIONAL STRATEGY TO RESPOND TO GREENHOUSE GAS EMISSIONS
  - EXPERTS HAVE DETERMINED THROUGH A SERIES OF TECHNICAL WORKSHOPS AND PROJECTS THAT -- FOR PROJECTS LIKE THOSE OF POWERTREE CARBON COMPANY AND UTILITREE CARBON COMPANY -- GREENHOUSE GAS BENEFITS CAN BE ACCURATELY MONITORED, QUANTIFIED AND VERIFIED
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# TECHNICAL ISSUES

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## ADDITIONALITY

- WITHOUT POWERTREE CARBON COMPANY, LLC FUNDING OF THESE AFFORESTATION PROJECTS, THE LAND WOULD CONTINUE TO LIE FALLOW OR BE MAINTAINED IN FARMING FOR THE FORESEEABLE FUTURE

## PERMANENCE

- THE DURATION OF THE PROJECTS WILL BE 100 YEARS
  - EACH PROJECT HAS MECHANISMS TO ENSURE THAT THE PROPERTY AND TREES ARE PROTECTED IN THE LONG-TERM
  - IN SEVERAL PROJECTS, LAND WILL BE ADDED TO THE PUBLIC TRUST WHERE IT WILL REMAIN IN PUBLIC OWNERSHIP IN PERPETUITY
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# TECHNICAL ISSUES

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## LEAKAGE

- THE PROJECTS WILL SUPPLY MINIMAL COMMERCIAL FOREST PRODUCTS FOR FURNITURE OR PAPER OR OTHER MARKETS, AND, IF SO, NOT FOR MANY DECADES; THUS, THESE PROJECTS WILL NOT CAUSE LESS PLANTING OF TREES FOR COMMERCIAL PURPOSES
  - REGARDING AGRICULTURAL MARKETS, THERE ARE MILLIONS OF ACRES OF OTHER AGRICULTURAL LANDS IN THE GEOGRAPHICAL AREA OF THE PROJECTS TO CONTINUE TO SUPPORT AGRICULTURAL DEMAND
  - IT IS BELIEVED THAT THE ACRES GIVEN UP TO REFORESTATION ARE GIVEN UP FOR THE LONG TERM, AND ACREAGES ELSEWHERE WILL NOT BE CONVERTED FROM FOREST TO ANNUAL CROPLAND
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# TECHNICAL ISSUES

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## MONITORING AND QUANTIFICATION

- PERIODIC MONITORING OF THESE PROJECTS WILL BE UNDERTAKEN
  - FOR EXAMPLE, MONITORING AND QUANTIFICATION WILL FOLLOW PEER-REVIEWED METHODOLOGIES DEVELOPED BY WINROCK INTERNATIONAL TO MEASURE THE ABOVE-GROUND, BELOW-GROUND, AND SOIL CARBON POOLS
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# SUMMARY

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- FORESTRY PROJECTS PROVEN TO PROVIDE SUBSTANTIAL CO<sub>2</sub> AND NON-CO<sub>2</sub> BENEFITS
  - CREDIBLE PROJECTS SHOULD BE PROPERLY DESIGNED AND TRANSPARENT
  - CREDIBLE PROJECTS SHOULD BE QUANTIFIED AND VERIFIED PERIODICALLY
  - WE CAN ADDRESS THE ISSUES OF LEAKAGE, PERMANENCE AND MEASUREMENT, ETC. (VERY EASILY FOR SOME TYPES OF PROJECTS)
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