



AED Presentation (NetZero Bio-Refinery®) “Harvest Biomass-Worldwide”

An Environmental Stimulus for Growth
World's Most Efficient Biomass Water Fuel- BWF®
Bio-Refinery
For
‘Net-Zero’ Fuels for Low-Carbon Economies
Combating Climate Changes
Mitigating Perpetual Poverty (Post ‘Covid-19’)

aedinc@gmail.com



BWF[®] - Fuels of the Future Today

Agenda :

- ☐ Background of BWF[®]
- ☐ What is BWF[®]
- ☐ Management team



Background of BWF®

Biomass Water Fuel(BWF®) & Low Rank Coal Water Fuel (LRCWF®) technology was developed by IAT/AED through a joint venture with the University of North Dakota School of Mines & Engineering Foundation at Grand Forks, ND,USA.

(Funding support also provided thru US DOE and EPRI)

BWF® involving advanced multi-technology operations to process Biomass/Low Rank Coals, is an innovative commercialization product by AED (Afro-Asian Energy Development Consortium, Inc;Founder Bhasker Patel), borne out of the 1993 oil crisis. AED was incorporated in August 1994 in USA.

AED is now positioned for commercializing BWF® as **NanoFuel®** for the global market.



What is BWF[®](Biomass Water Fuel) ?

- BWF[®] is a liquid Biomass-based/blendable Renewable Fuel. It is the end product much of the inherent moisture in Biomass is permanently removed involving **hydrothermal treatment. Some moisture is reused in formulating BWF[®].
- This stable liquid fuel is a renewable non-hazardous, non-toxic low cost alternative to petroleum derived fuels, that can be used as substitute to Fuel Oil and bulk Coal thru appropriate technologies.
- BWF[®] combustion also offers environmental benefits, such as low emissions (NO_x, SO_x, RO_x) and reduced green house gases by reducing methane generation.
- The CO₂ released during HT can be recovered economically and sold for enhanced oil recovery (site specific) and other economic activities.

Management Team

- **Bhasker Patel, Chairman & CEO**
 - BE Univ. of Gujarat, MS Univ. of Michigan
 - RCA, Eimco Envirotech, Watts Griffis & McOut, CERA, IAT, IAPS
- **Dr Blazo Ljubicic, Ph.D, Director of Technology**
 - BS, MS, PhD Univ. of Novi Sad, Yugoslavia
 - Koch Inds, Brown Fintube Company, Heat Transfer Research Inc, EERC
- **Dr Warrack G. Willson, Ph.D, Director R&D-Commercialization**
 - BS Univ. of Northern Colorado, PhD University of Wyoming
 - CWFS, UNDEERC, US DOE GFETC, Occidental Research, DuPont, NRRI (Univ. WY)
- **William Hauserman, Principal Consultant, LWF Engineering systems**
 - BS, MS Univ. of California Berkeley
 - EERC, US Dept of Energy, UNIDO, CECOM Consulting, process equipment manufacturers.
- **Don Mathsen, Principal Counsellor**
 - BS, MS Univ of North Dakota
 - Ex-Director, UND School of Engineering and Mines Foundation

AED Task Force Team Members attached seperately

Under Updating Process

Biomass
All types of Agro Waste & Agro-byproducts
 (High moisture carbonaceous materials)
 ~2500 Kcal/kg



BWF® (Biomass Water Fuel)



A Renewable Biosequestered Superior Fuel

~5000-7000 Kcal/kg **BioCoal™ / NanoFuel™**

Substitute for Fossil Fuel (Fuel Oil)

****Biomass conversion to liquid format**
 (Pumpable - CO₂ Neutral)

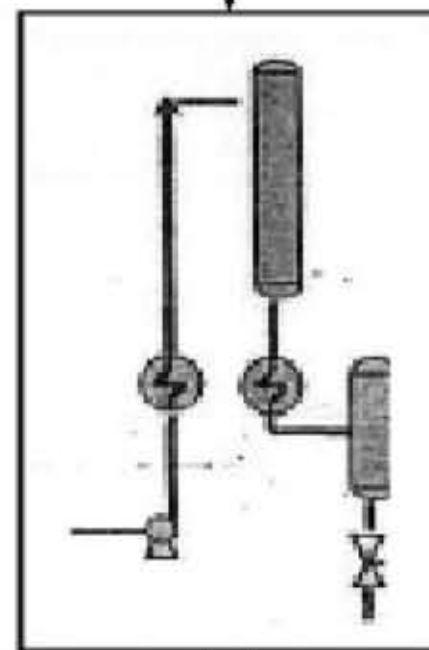
Bio-Refinery
 (**proprietary Process)



Raw Biomass Agro Waste



Volumetric



Biomass Water Fuels (BWF)

Biomass Water Fuel Formulation



Volumetric

Oil Fired Boilers

Coal Fired Boilers

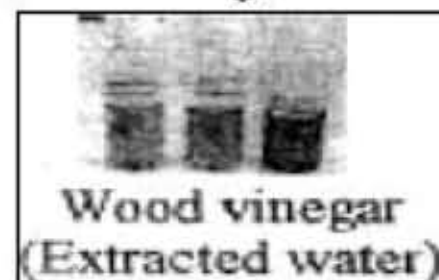
Slurry Fired Gasifiers

Diesel Electric Generators

Electricity Heat

Renewable Organic Petrochemicals UltraCleanDiesel

Rural(PURA) Electrification (Renewable Dieselization)



Wood vinegar (Extracted water)

Organic Fertilizers
 Organic Vermin Exterminators
 Soil Augmentation Products

Sustainable Indigenous Organic Farming and Enhancing Forest Management

****Patented /proprietary Process**

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Net-Zero Kohinoor[®]

Net-Zero Miracle[®] Fuel Harvest Indigenous Biomass Product Biomass Water Fuel[®] (BWF)

- 1) Economical Biomass Feedstock (Agro-waste/Forest-waste)
(One Billion tons/sub-continent- USDOE)
- 2) Economical Biomass Transportation (Across land, Sea)
- 3) CO₂ Neutral, ~ Zero Carbon Footprint (cradle to grave) ~Net Zero
- 4) Pumpable , non-hazardous, non-toxic Compliant Fuel
- 5) Renewable Dieselization for Rural Electrification
- 6) Feedstock for Renewable Petrochemicals
- 7) Renewable Organic Soil Augmentation[®] Co-Products with
(a) organic fertilizers and (b) pesticides properties
(c) Substituting Synthetic Fertilizers, Pesticides, Vermin exterminators
- 8) Reverse Forests Destruction (G-77 Nations)
- 9) Forests Fires & Soil Toxicity/Forest Wealth Management
- 10) Life-line support/Free insurance for crop-failures/calamities
- 11) Reduced GHG Emissions/ Climate Change Compliance[^]
- 12) Biting the Pollution Bullet, Perpetual Poverty Mitigation
- 13) Premium Clean Biosequestered[®] Bio-Coal/BioFuel
- 14) Platform for Rehabilitation of Major Oil Cos & e-Commerce
- 15) **Renewable *Low Cost Petroleum Fuel Oil Substitute at
\$25 per BOE or \$1 per Gallon or \$0.22 per LDE (Litre Diesel Equivalent)**

(*Order of Magnitude)

(Draft- May'21)

BioSequestration Miracle - Worldwide

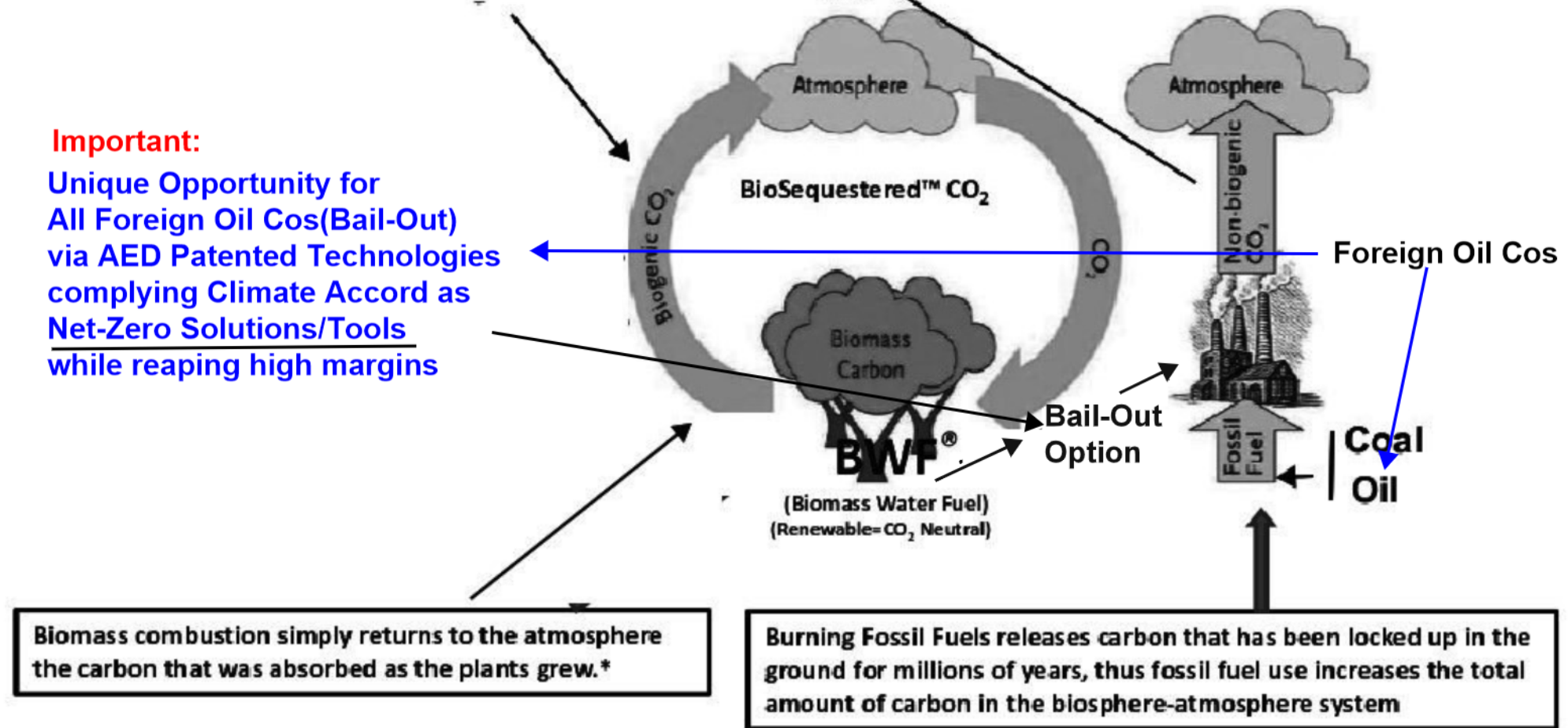
Proposed to be Renewable Petrochemicals Capital

AED *Technologies/System Integration
to Convert Non-biogenic CO₂ to
Bio-Genic CO₂

Coal/Oil CC Stranded Assets
Coal or Oil Consuming
Anywhere in World

Important:

Unique Opportunity for
All Foreign Oil Cos(Bail-Out)
via AED Patented Technologies
complying Climate Accord as
Net-Zero Solutions/Tools
while reaping high margins



The net greenhouse gas (GHG) outcome of using biomass for energy cannot be determined by comparing emissions at the point of combustion. Instead, the biogenic carbon flows and any fossil GHG emissions associated with the bioenergy system need to be compared with the GHG emissions associated with the energy system displaced, considering also biogenic carbon flows in the absence of the bioenergy system.

* Patented



Origins & Formation

Story of Coal

Ref: India

One Billion Tons/Sub-Continent

Renewable

^^ **Biomass**

HEAT
PRESSURE

RANK
TIME

Peat

Lignite

Subbituminous

Bituminous

Anthracite

100 Million Years

PREVIOUS
CHAPTER

Origins
& Formations

NEXT
CHAPTER

- *APP(AED Patented Process) Technologies can convert these types of coals into LRCWF (Low Rank Coal Water Fuel) which are Compliant Fuels (UN-Paris Climate Accord) and
- 1) Substitute Indian Bituminous Coals with gross fuel utilization costs savings between 15% to 40%, Site specific (cradle to grave)
 - 2) LRCWF can be shipped across land,oceans with significant savings in shipping and handling costs upto 40% compared to bulk coal,being site specific.
 - 3) Theses are order of magnitude.

Bail-Out Option

^^ *APP(*AED Patented Process) Technologies can convert biomass into BWF(Biomass Water Fuel) as renewable energy that is pumpable,CO₂ neutral ,can be shipped across land,oceans with significant savings (~40%), being site specific.(Order of magnitude)

Under UN Paris Climate Accord(Excerpts):

- (1) Indian Indegenous Bitu bulk Coals (high Ash-550 mm tpy) utilization on dimimishing cancerous growth, being Non-compliant coals as currently used
- (2) India imports clean (Bit & Sub-bitu) bulk coals- 100 mm tpy (most from Indonesia) on dimimishing cancerous growth , being Non-compliant coals as currently used

Bail-Out Option
Renewable/Compliant