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# STORMiCO<sup>™</sup> Waste-to-Energy Treatment – Waste Processing Plant

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#### **Engr. Ingo Storm, BSNPE, MSAE** Chief Science Officer at Storm Research Labs (France) Managing Director at Storm's Projects (Malaysia) Director at United Technology R&D Limited (Hong Kong)

Main executive and founder of Storm Projects (Malaysia), Storm Research Labs (France) and United Technology (Germany). Specializes in the research, such as development and production of highly valuable machines for hyper-ionisation of various matter, waste to energy treatments, optimisation products like transformers of various fuels to powerfuels, hi-tech automotive lubricants, vehicle care products, fuel savers and activators, biological fertilizer substitutes; strong, light but cost-effective concretes for vertical and horizontal structures and UV & thermal protected paints.

An experienced professional driving business growth through strategic marketing and business development initiatives including core competencies in brand management, product planning and directing product launches for diverse sectors, now as a senior executive position to leverage extensive managerial experience towards realizing corporate goals especially in the fields of aerospace technology and automotive industry.

The founder of United Technology Research and Engineering Company Ltd (CEO and Chief of R&D department), since its inception, developed new advanced materials and engine's concepts, especially for racing sport vehicles, a new energy & fuel efficiency technique. Invented new advanced engines materials and concepts, which were successfully tested and applied according to the specific customer requirements. Developed damage free materials for extreme motor-sport applications, especially for F1.

The United Technology (UT) was a unique materials developer and producer with their own research centres in Kaufbeuren (Munich area, Germany) and Sarasota, (Florida, USA). UT has successful developed a unique engine material for extreme high pressure and temperature application used in extreme light and powerful F1 engines. UT works for leading German motor-sport companies, such as Porsche, Mercedes and BMW etc.

**Professional Skills:** Perfect knowledge about competition development's status and existing competition' concepts especially in the area of engineering of new materials and concepts. High erudition about the new fuels developments and optimization strategies of the leading oil and energy concern, networking with leading stuff of the global players in these fields. Market Research & Competitor Analysis. Competitor Analysis, Networking, Technological Coordination, Contractual Negotiations, Product Positioning. Excellent Planning Skills especially in R&D and transfer the research results into a high-tech production.



## **STORMICO – VERSION II – WASTE TO ENERGY MOBILE TRANSFORMATION PLANT:**

Our unique mobile waste to energy transformation plant is intended for ecologically safe carbonaceous waste reprocessing and to get synthetic power fuel extraction with volume of 200 liters per hour





## FUNCTIONAL DIAGRAM OF SYNTHETIC GAS PRODUCTION UNIT:



Functional Diagram of Synthetic Gas Production Unit



## FUNCTIONAL 3D MODEL OF SYNTHETIC GAS PRODUCTION UNIT:



Functional diagram of compact waste processing plant



## **ENVIRONMENTAL DISASTER:**



30 m

THIS PROBLEM HAVE IMPACT ON ALL BIOLOGICAL ORGANISMS WORLDWIDE



/km

8

## **ENVIRONMENTAL DISASTER**:





## TYPES OF WASTE WE CAN PROCESS THROUGH OUR PLANT:



# Household rubbish

# Rubber and plastic waste





## TYPES OF WASTE WE CAN PROCESS THROUGH OUR PLANT:



# Oil-slimes

## Timber industry waste





## TYPES OF WASTE WE CAN PROCESS THROUGH OUR PLANT:



# Agricultural and cattle waste products

## Waste-water deposition





# 1<sup>st</sup> Option:

The waste will be transformed to the energy with release of power between 355 and 700 HP(S) / hour

# 2<sup>nd</sup> Option:

The waste will be transformed to the electric power: 3488 kw / hour

# 3<sup>rd</sup> Option:

The waste will be transformed to the end-product in the form of liquid fuel and electric power: 200 liters/hour of synthetic motor fuel (kerosene or jet fuel, gasoline «petrol 98», superdiesel) + 300 kW/hour



- ANY ORGANIC AND INDUSTRIAL WASTE CAN BE USED AS INPUT STUFF
- WIDE APPLICATION SPECTRUM
- ECOLOGICAL SAFETY
- POSSIBILITY TO CREATE MOBILE WASTE-TO-ENERGY SYSTEMS NOT ATTACHED TO PERMANENT AREAS
- SHORT PERIOD OF DEVELOPMENT, ASSEMBLING AND IMPLEMENTATION
- POSSIBILITY TO MODULARY INCREASE PRODUCTION VOLUME OF THE PLANT AT ANY TIME
- SAFE AND EASY OPERATION MANAGEMENT



## WASTE TO ENERGY PLANT MARKET IMPACT FORECAST:



- The world waste recycling market is constantly growing
- With out waste-to-energy technology we expect to get share in this market up to 58%.
- Expected demand per year 1500 plants.
- Total world demand as of today 15000-18000 plants.
- Project Payback period 3.0 years



**Objectives:** Innovative and competitive product development and its introduction into the market; gaining profit through the sales.

**Strategy:** We aim to install our waste-to-energy treatment plants in big cities with advanced infrastructure with gradual expansion to the small towns and villages.



## **COMPANY MARKETING STRATEGY:**

- · Identification of existing waste-to-energy technique insufficiency in ecological and energy-saving fields and provision of alternative solution based on out technology.
- · Identification of market segments for new waste-to-energy developments.
- · Identification of potential waste-to-energy customers.

## **PROPOSED PROJECT DEVELOPMENT PHASES:**

- Industrial model fabrication, process chart development (9-12 months) **3 980 000 US Dollars**.
- Small-scale/commercial plant production cycle starts from 2-3 units per month with gradual increase to the required 35-40 units per month
- In 4-5 months, we aim to target the estimated number of plants production of 35 units/month
- Monthly amount of investment required per 35 plants: 139,3 million US Dollars.
- Our estimated funding requirements to install plants in 10 majors Malaysian cities are 400 plants: 1,592,000,000 US Dollars.
- Plant assembly and checkout, depending on capacity, on customer's territory or allocated production areas of industrial park of the region Ain, Rhone-Alpes. (Order placements and assembly site arrangement in other regions of the country are possible).
- Training centre organisation for training professional operating and repairing staff for such type of plants, (at STORM Research Labs.).
- Expansion of **«STORMiCO»** plant production:
  - stationary plants
  - mobile (motor or boat plants)
  - mini-plants



Provided project profitability is calculated for input staff carbon content of 70%; additional income from heat and electricity utilization is not taken into account.

#### SPENDING PLAN:

Plant start-up cost: (12 hours – 15 kW, 1kW cost 0,10 US\$: total makes 18 dollars per year) – 1,5 US\$ per month.

#### Personnel Labor Remuneration Fund:

- Workers salary: 9 people with average monthly salary of 500 US\$, total: 4500 US\$.
- Section Foremaster's monthly salary: 833,33 US\$.
- Engineer's monthly salary: 800 US\$.

Taxes: 797,33 US\$ per month.

Routine maintenance cost: (once a year - 445,53 US\$) - 37,13 US\$ per month. Incidental expenses connected with the plant operation 15% - 920 US\$ per month.

## Total: 7889,3 US\$ per month.

## PROFIT PLAN:

Taking garbage – 12 US\$ for a ton – 1 tons per hour; monthly amount makes 12960 dollars. Fuels and lubricants production: 200 liters per hour x 24 hours x 30 days = 144 000 liters, 1 liter price being 0,67 dollars, return makes 96 480 dollars per month. Fuels and lubricants manufacture cost: (profit from garbage, heat and electricity utilization is not taken into account) 7889,3 dollars : 144 000 liters = 0,05 dollars a liter.

## NET Profit:

96 480 + 12 960 - 7 889,3 US\$ = 101 550,7 US\$ per month.

## Individual plant payback period, its price being 3 980 000 US\$ for a unit:

1) 3 980 000 : 101 550,7 = 39 months (additional income from heat and electricity utilization is not taken into account)

2) 3 980 000 : (101 550,7 + 14 400) (the latter is the cost of the produced energy - 0,1 US\$ per kW/hour) = 35 months. (Additional income from heat utilization is not taken into account).

400 required waste-to-energy plants will generate Net profit according to the calculations above.



City	State	Population
Kuala Lumpur	Federal Territories	1'588'750
George Town	Penang	708'127
Ipoh	Perak	657'892
Petaling Jaya	Selangor	613'977
Shah Alam	Selangor	541'306
Johor Bahru	Johor	497'067
Melaka	Melaka	484'885
Kota Kinabalu	Sebah	452'058
Alor Setar	Kedah	405′523



## WASTE TO ENERGY PLANT – 3D RENDER OF COMPACT VERSION:





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