

## LOS ANGELES COUNTY ATAS PRESENTATION

### AUGUST 20, 2020

#### SAMAHA GROUP, LLC SPEAKERS

SAM SAMAHA, CEO

KENN PHILLIPS, COO

RAFAEL GARCIA, HEAD OF CORPORATE DEVELOPMENT

CAROLE ANN WENTWORTH, ADVISORY BOARD MEMBER

#### INTEC GROUP SPEAKER

HANS DETAMPEL, FOUNDER AND MANAGING DIRECTOR



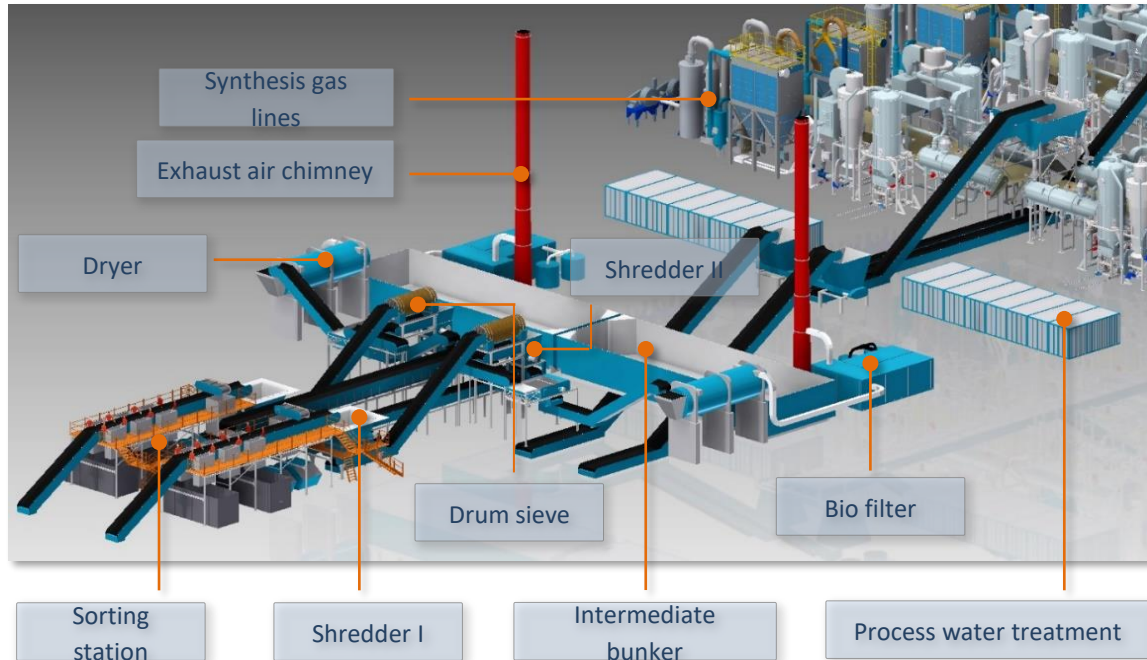
# SAMAHA GROUP INTEC GROUP PARTNERSHIP



- ▶ Samaha Group LLC is an exclusive USA partner for Intec Group.
- ▶ Germany, 3<sup>rd</sup> party evaluation and approval of German Ministry of Energy & Environment, and other German government authorities.
- ▶ Our renewable energy technology is environmentally friendly, scalable, and can produce 24/7/365 energy, 240 MW or more per hour.

# SYNGAS & COKE PRODUCTION PROCESS

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► The Samaha Group/INTEC Waste to Energy (WTE) technology captures all municipal solid waste, including organic waste, in a covered recessed compartment to reduce the smell.

► The waste is processed through a fully automated system of shredders, rotary boxes and bio-filters.

► Our non-combustion industrial gasification process can extend the life of a landfill by eliminating up to 4,400 tons or more of MSW from the landfill daily.



# WASTE IS ACCEPTED

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► Waste is deposited into a closed bunker.

# WASTE IS PRE-SORTED

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- Waste is pre-sorted, removing inorganic material.

# WASTE IS PROCESSED

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- ▶ Waste moves into the Mechanical-Biological Waste Treatment Plant for decomposition and fermentation to increase the caloric value of the waste by up to 50%.



# SPECIAL WASTE IS PROCESSED

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- Special waste, such as industrial, medical and hospital, waste oil, and scrap tires, is accepted and processed in separate areas.

# Tires for Energy Production



- ▶ The Samaha Group/INTEC WTE solution recycles the metal from up to 1,760 US tons per day or more of waste tires, the remaining rubber and fabric is feedstock for energy production.



# SYNGAS PRODUCTION

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► All waste is then automatically transported to the synthesis gas plant which is “world-wide unique” and patented, consisting of 4 completely closed reactors with indirect heating.

► There is no contact with fire or flame, and no contact with oxygen, therefore no emission.

# SYNGAS AND PETCOKE

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- ▶ Gasification of waste produces syngas and high caloric value coke, 28-32MJ per 2.2lbs., with no other residues.
- ▶ Our plant is self sufficient and energy efficient. 8% of the electricity we produce runs the facility, 92% goes towards profit.

# WASTE-WATER TREATMENT

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- ▶ The waste-water treatment plant cleans all water extracted from the waste, utilizing a physical-biological system with activated sludge reactors and, if necessary, additional disinfection.
- ▶ Water treatment occurs at three locations. The bunker, the mechanical-biological waste treatment plant, and the gas cleaning system.



# SYNGAS STORAGE

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► Syngas is stored in tanks, and an automated process ensures each engine is provided the required amount of gas evenly and constantly.



- ▶ The power generation plant consists of main and secondary power generation.
- ▶ Generation of electricity is produced with modified turbocharged gas engines which each produce 10MW per hour.

# ELECTRICITY GENERATION

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► The gas engine waste heat is fed into a steam turbine system producing up to 35% additional electricity.



# OUR SYSTEM EFFICIENCY

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<b>Power plant type</b>	<b>Efficiency degree</b>	<b>Input-Material</b>
Coal fired power plant	31 – 38 %	Application (purchase) of fossil fuels
Waste incineration plants	32 – 36 %	Municipal and commercial waste
Waste pyrolysis plants	25 – 30 %	Limited use of municipal and industrial wastes
<b>INTEC SG Series</b>	<b>&gt; 57 %</b>	<b>Application of waste and residuals of any kind</b>

Our projects are scalable with no change in efficiency

# SAMAHA GROUP/INTEC GROUP MAINTENANCE

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- ▶ The synthesis gas generation and utilization is a multi-staged process. The application of the INTEC Thermolytic Cracking Process (INTEC-TCP®) technology allows a highly efficient utilization of organic wastes for the generation of clean energy.
- ▶ The whole system is several times redundant.
- ▶ This ensures the operational ability of 24 hours, 7 days a week and 365 days a year.
- ▶ No stopping during maintenance work.

# Environmental Benefits to LA County

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- ▶ Extend landfill lifespan by reducing waste
- ▶ Daily landfill loose waste clean up reduced
- ▶ Produce millions of gallons annually of biofiltered clean irrigation water
- ▶ Divert medical waste from a landfill to our sustainable conversion technology
- ▶ 100% emission free during gas production, no residues, no ash



# Economic Benefits to LA County

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- ▶ Generate revenue from existing and new tipping fees
- ▶ Daily Cover expense drastically reduced, and landfill closure costs avoided
- ▶ Less costly method of medical waste disposal
- ▶ New revenue from the sale of high value petcoke, and new alternative fuels
- ▶ New revenue from sale of electricity (grid, and microgrid) 120,000 homes annually, or more



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*Transforming today's communities for a sustainable future*