innovative solutions

Dev Energy

Challenges & Opportunities in Coal Gasification in India

: Our Experience

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Dev Energy

WHO WE ARE

- COAL GASIFICATION FOR FUEL / HEAT
- PARTNERS WITH YISHENG, CHINA
- > 2000 MODULES WORKING ACROSS THE WORLD
- 100% SUCCESS RECORD
- 15 YEARS EXPERIENCE ~ 180 SYSTEM IN INDIA
- EXPERIENCE IN > 40 INDUSTRIES
- COMPLETE SOLUTION

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Our Achievements

- World's 1st PELLET PLANT ON 100% COAL GAS
- India's 1st GLASS FURNCE ON COAL GAS
- India's 1st BONE CHINA TABLE WARE FACTORY
- India's 1st WALL TILES AND FLOOR TILES FACTORY
- India's 1st STRAIGHT GRATE PELLET PLANT
- India's 1st GRATE KILN COOLER PELLET PLANT
- India's 1st 100% AUTO BILLET REHEATING FURNACE

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Technology - TWO STAGE FIXED BED

UPSTAGE GAS OUTLET

Outlet Temp ~ 100 ^{0}C

Volatile Matter in un cracked form

with ~ 5 % C_nH_m

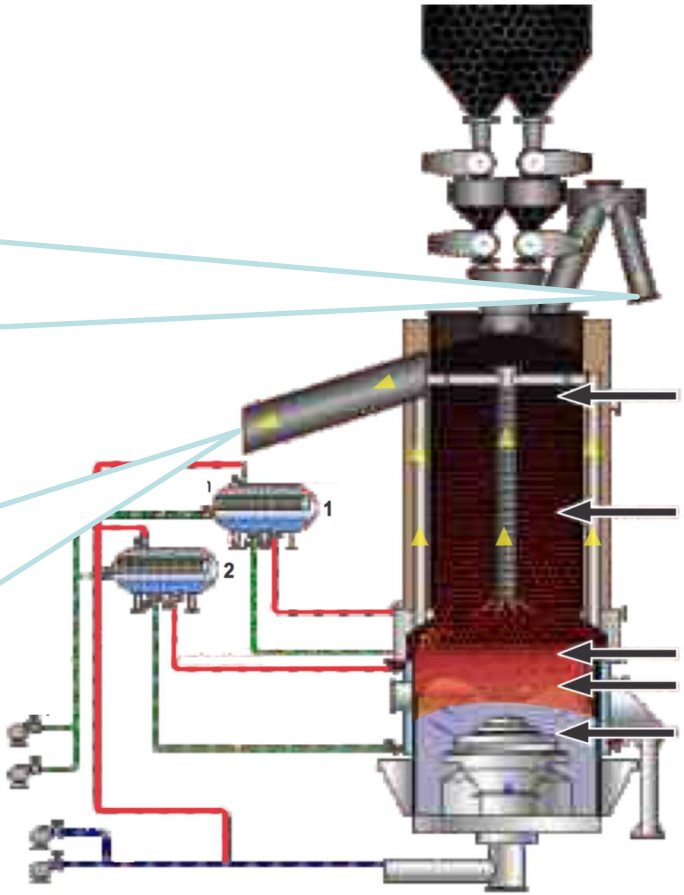
GCV > 1800 Kcal / Nm^3

DOWNSTAGE GAS OUTLET

Outlet Temp ~ 450 ^{0}C

Carbonized Gas (CO + CH_4 +H_2)

GCV > 1200 Kcal / Nm^3



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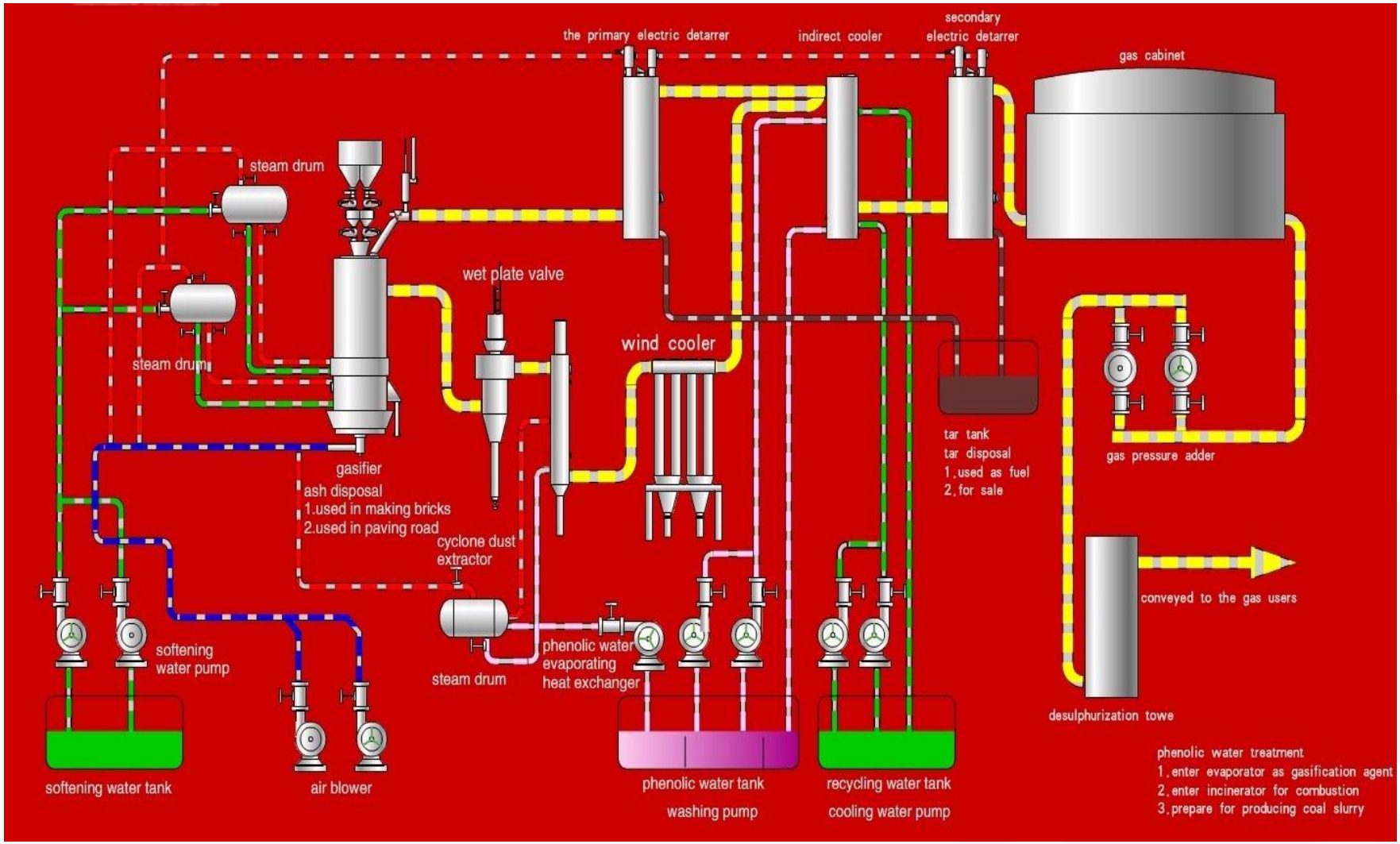
Complete Process Flow



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HSIL – AGI GLASPAC

FURNACE	**: 500 X TPD**	**INSTALLATION**	**: 1 X Φ4.0 DSC**
HEAT REQUIRED	**: 300,000 Kcal / t**	**COAL GAS**	**: 8000 Nm^3/h**

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MINERA STEEL AND POWER

GAS OUTPUT : ~ 15000 Nm^3/h
INSTALLATION : 2 X Φ4.0 DSC
RUNNING SINCE : AUG 2019

SHRI BAJRANG POWER ISPAT

GAS OUTPUT : ~ 18000 Nm^3/h
INSTALLATION : 3 X Φ3.6 DSC
RUNNING SINCE : APRIL 2015

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JINDAL STEEL AND POWER LIMITED

FURNACE	**: 260 TPH**	**INSTALLATION**	**: 10 X Φ3.6 DSC**
HEAT REQUIRED	**: 300,000 Kcal / t**	**COAL GAS**	**: 80000 Nm^3/h**

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Some of our Steel Projects

- JINDAL STEEL & POWER
- ADHUNIK GROUP
- VIZAG PROFILES
- SHIVAM GROUP
- SHARDA ENERGY
- MSP
- BARNALA TMT
- MADHAV GROUP
- MAGADH TMT
- VSP UDYOG
- BANSAL GROUP
- BMW INDUSTRIES
- RATHI GROUP
- FORTUNE TMT
- MAITHAN GROUP
- SRMB
- JAIDEEP STEEL
- RANA GROUP
- JAI BHARAT GROUP
- BHAWANI STEEL
- SUN STEEL
- SUPER SMELTER
- KAMDHENU TMT
- STEMCORE ALLOYS

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Kajaria Ceramics Limited

GAS OUTPUT : ~ 15000 Nm^3/h
INSTALLATION : 2 X Φ3.6 DSC
RUNNING SINCE : NOV 2015

Modulo Ceramics P Limited

GAS OUTPUT : ~ 9000 Nm^3/h
INSTALLATION : 3 X Φ3.4 DSC
RUNNING SINCE : APRIL 2019

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Some of our Ceramic Projects

- AJANTA CERAMICS
- H & R JHONSON
- DECO LIGHT
- BHARAT POTTERIES
- MALWA MIRAGE CERAMICS
- CLAY CRAFT
- VENNAR CERAMICS
- RAK CERAMICS
- SEGNO CERAMICS
- RHI CLASIL
- SIRAZEE TILES
- KAJARIA CERAMICS

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Ecosystem Challenges

- COAL – AVAILABILITY / LINKAGE / PRICE
- PROCESS – PRODUCT STANDARDIZATION
- NGT / PCB CLEARANCES
- TECHNOLOGY CERTIFICATION
- DERISK ABSORBTION WITH PILOT PLANT
- TRAINING OF MANPOWER
- TAXATION / FINANCING BENEFITS

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Convert to Opportunities

- CORELATE TO CHEAPER COAL VS OTHER FUEL
- FASTER PAYBACK
- OFFER STANDARD PROCESS – PRODUCT
- DERISK BY SHOWCASING RUNNING PLANT
- HELP NGT / PCB CLEARANCES
- PROVIDE O & M

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Technical Challenges

- TRUST IN TECHNOLOGY
  - SYSTEMS WITH / WITHOUT BACK UP FUEL
- SIZE
  - LARGEST ~ 100,000 Nm^3 / hr
  - SMALLEST ~ 2000 Nm^3 / hr
- TECHNOLOGY TO CONVERT FURNACES
- NGT & SAFETY COMPLIANCE

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Challenges now …

- CHANGE FROM USE SIZED COAL TO FINES
- CHANGE FROM HARD / HIGH ASH FUSION TEMP. COAL TO LIGHT YOUNG COALS
- INCREASE CARBON CONVERSION
- MAKE GAS WITHOUT NITROGEN CARRY OVER

> FLUIDISED BED GASIFICATION

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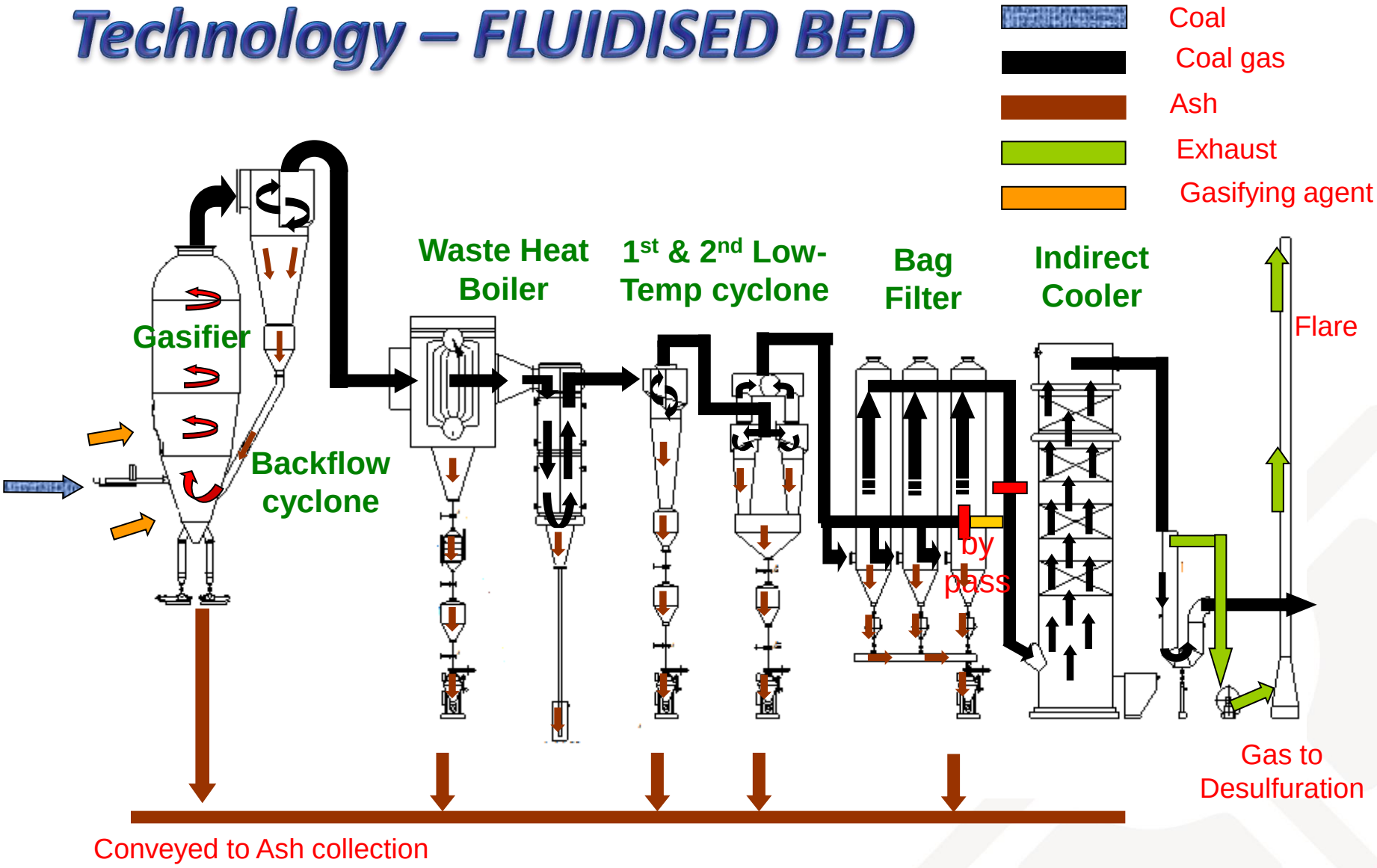
Technology – FLUIDISED BED



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What CFB GASIFICATION CAN DO …

- ✓ USE COAL FINES
- ✓ USE SOFT / LOW ASH FUSION TEMP. COAL
- ✓ USE OXYGEN
- ✓ GENERATE OUTPUT ~ 40000 Nm^3 / hr PER SYSTEM
- ✓ NO TAR GENERATION
- ✓ NO PHENOLIC WATER GENERATION
- ✓ HIGH CARBON CONVERSION 90 – 95 %
- ✓ EASY TO START / STOP

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40000 x 3 RANPING XINFAHUAYU ALUMINA

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If you have a need of gas for fuel / heat

We are ready to provide
an innovative solution
for you

Thank You !