Dublin Incinerator

J McCarthy & V Jennings

April 2008

Submission to the
Environmental Protection Agency
Oral Hearing
Proposed Decision on Waste Licence
W0232-01

Applicant: Dublin City Council

Development: Waste to Energy Facility
Pigeon House Road
Poolbeg Peninsula
Dublin 4

Further Adjournment

- Insufficient time allowed
  - analyse
  - research
  - critique
- Additional information
  - PM10 readings
  - NOx readings
  - Calpuff
  - LAQM and Netcen

  - Covanta / Ownership – who is the licensee / operator
  - Ad-hoc design changes
  - Electricity generated
  - Flue gas calculation – unsupported claims
  - Mass balance

  - Changed EWC codes
  - Responsible person for operation / compliance
  - Licencee v PPP Co v Covanta Operations Ltd

  - Electricity credit
  - Waste mix
- Abuse of process by DCC
  - Tactical
  - Unequal
  - Unfair
  - Contrary to requirement to inform the public

Topics

- Air Quality
  - PM 10 exceedences
  - Irish standard breached
  - Collect all references
  - Calpuff model inputs and outputs
- Climate
  - Analyse Poolbeg 4
  - Sludge
  - Electricity
  - Produce our own model
- Reverse Engineering to suit site selected
  - Air quality ignored
  - Traffic avoided
  - Ash by ship
  - Sewage plant
- 1997 Business Case
  - Cost of incineration v cost of MBT
- Sludge
  - Lost energy – impact on climate change
- Errors
  - One might be misfortunate
  - Two might be careless
  - Six look interesting
  - All one sided
- Policy
  - ABP handed question to EPA
  - No QA or checking
  - Who acts as devils advocate?

Dr Porter – Air Quality

- Broderick paper
- Standards
  - Standard
    - Irish
    - EU
    - WHO
- Baseline & EIS
  - PM 10 exceedences
  - Air quality ignored
  - Traffic avoided – ash by ship
  - Site selection
- Models
  - Calpuff model inputs and outputs
  - NOx
  - Forecasts
  - LAQM / Netcen
- Conclusion

Air Quality

- Porter Baselines
  - Cycle Way
  - Baseline
  - EIS
  - ABP Oral Hearing
  - EPA Oral Hearing
- Standards
  - Irish Regulations SI 271 2002
    - PM10 - 35 exceedences now
    - 7 exceedences by 2010
  - WHO Air Quality Guidance
    - Published 2006
    - PM10 – 3 exceedences
    - PM2.5 – 3 exceedences
- Porter extrapolations
  - Statistical manipulation
  - Errors in NO2 averages
  - LAQM
  - Netcen
  - Calibrate previous years

- Calpuff
  - Input parameters
  - PM 10 outputs
  - NOx ?

- JPMcC & VJ Baseline projection

- Sludge
  - Lost energy
  - Impact on climate change

- Four Poolbeg Models
  - Our Analysis
  - Findings
  - Corrected Results
- Comparison of All Models
- Recent Climate Policy Changes
- Conclusion

- Poolbeg 1
  - Published in the EIS
- Poolbeg 2
  - Submitted to ABP Oral Hearing on 26th April 2007
- Poolbeg 3
  - Submitted to ABP Oral Hearing on 28th May 2007
- Poolbeg 4
  - Submitted to EPA Oral Hearing on xx April 2008

Conclusion

- The EPA should refuse permission

  - Air quality already compromised in Poolbeg
  - Take climate policy changes into account
  - Require DCC to produce a correct climate model
  - Require DCC to submit a fully revised EIS
  - Allow the public to submit objections

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Value from Waste

Amsterdam's Vision on the 4th-generation Waste-2-Energy

Ir. M.A.J. (Marcel) van Berlo

Waste & Energy Company
City of Amsterdam

IEA Bioenergy Task 40
EUBIONET2
Rotterdam, 19 february 2007

4th-generation Incineration = WFPP

- Cost must go down
- Reliable, proven technology

- Energy Optimisation — to the max !!
  Leap from 22% — to >30%

- Material reuse — to the max !!
  Fe, Al, Cu, Gypsum, CaCl2,
  Washed bottom ash = N1 quality building material
  Washed fly ash = inert

HR-AVI project = WFPP

- Systematic approach to optimise recovery
- Using proven technologies in new combination
- Electrical efficiency >30%
- New logistic concept

- Budget: 400 M€
- Construction start: Begin 2004
- Completion: End 2006

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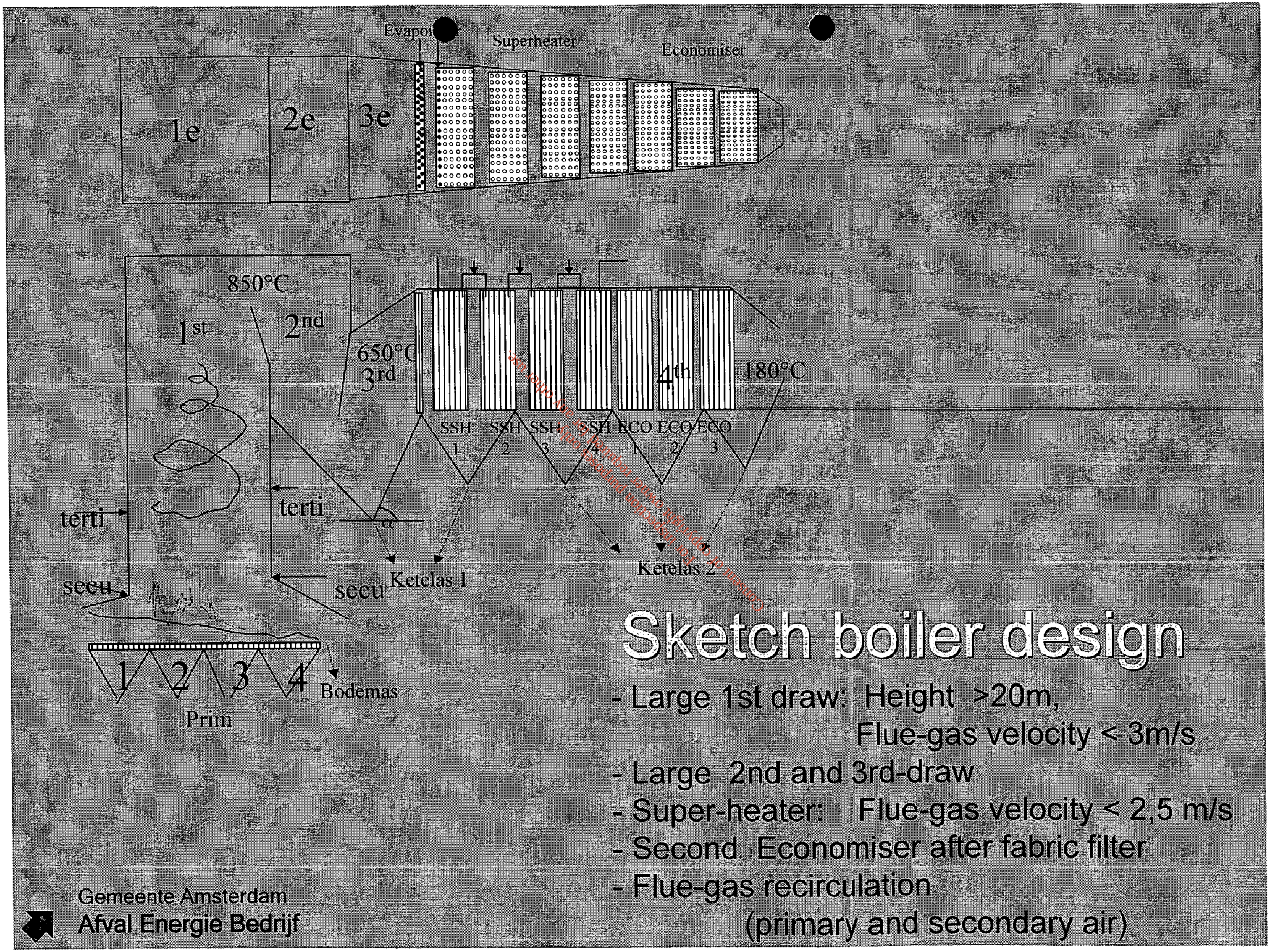
Bottomash treatmentplant



Sketch boiler design

- Large 1st draw: Height >20m,
  Flue-gas velocity < 3m/s
- Large 2nd and 3rd-draw
- Super-heater: Flue-gas velocity < 2,5 m/s
- Second Economiser after fabric filter
- Flue-gas recirculation
  (primary and secondary air)

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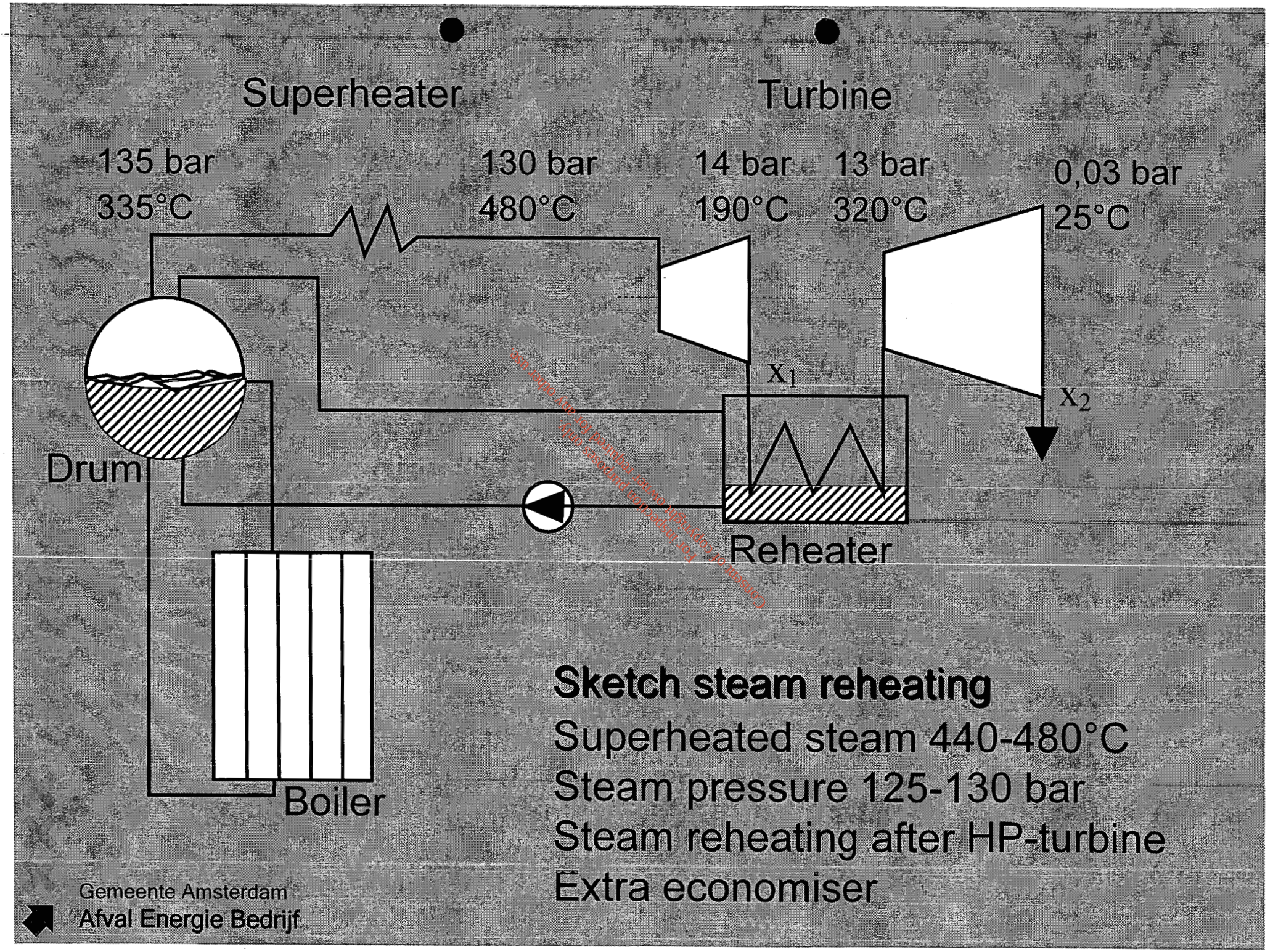

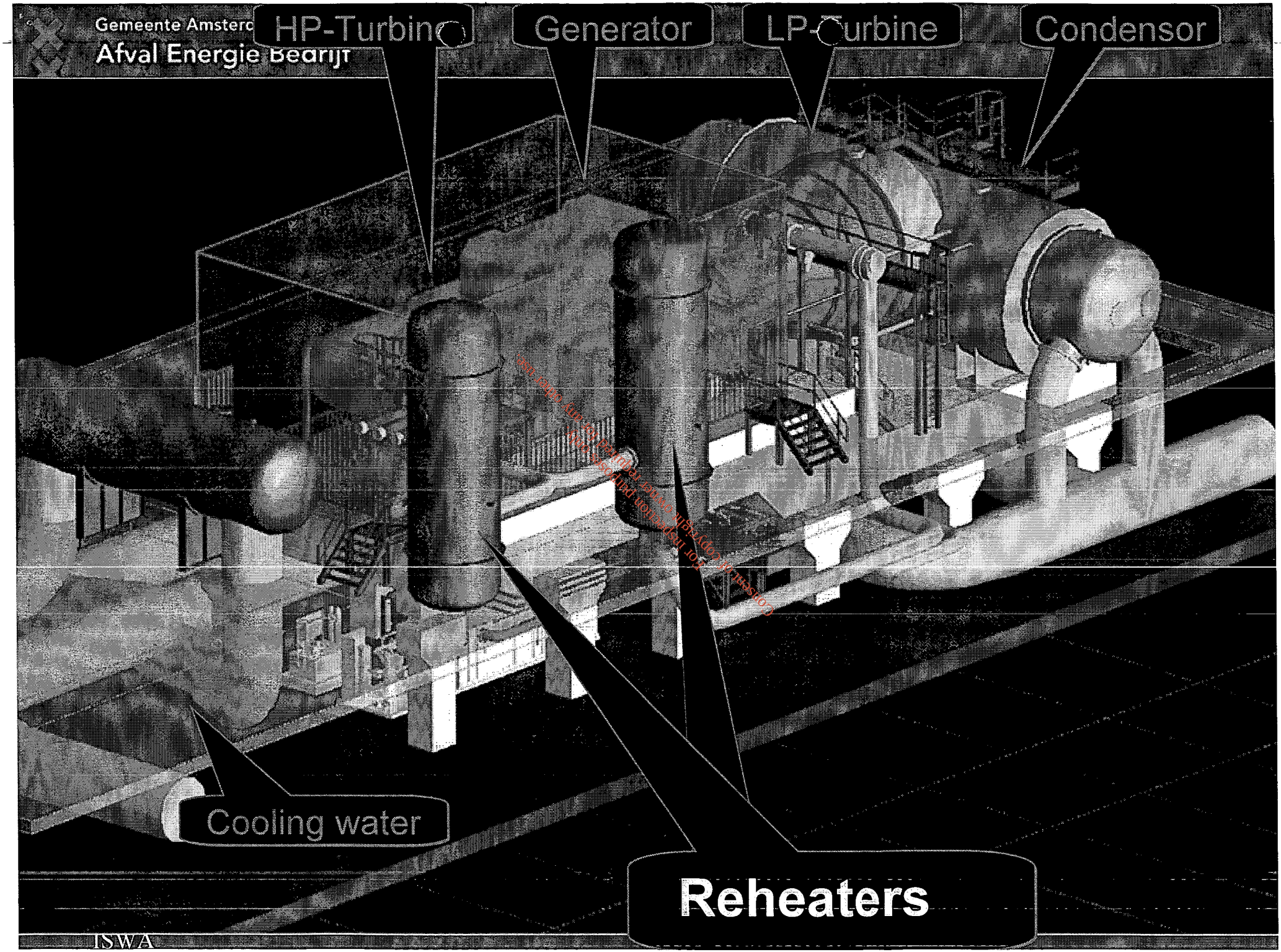

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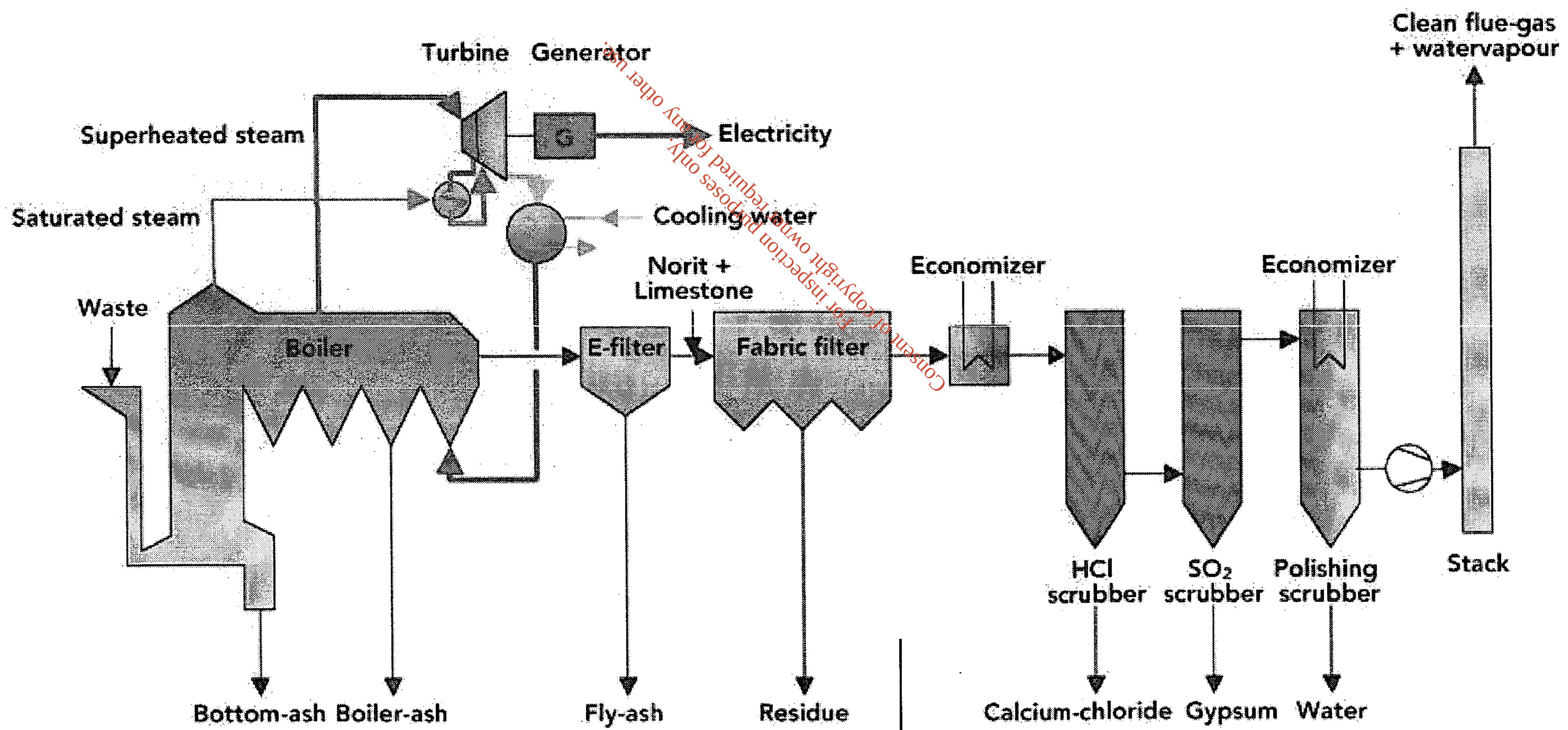
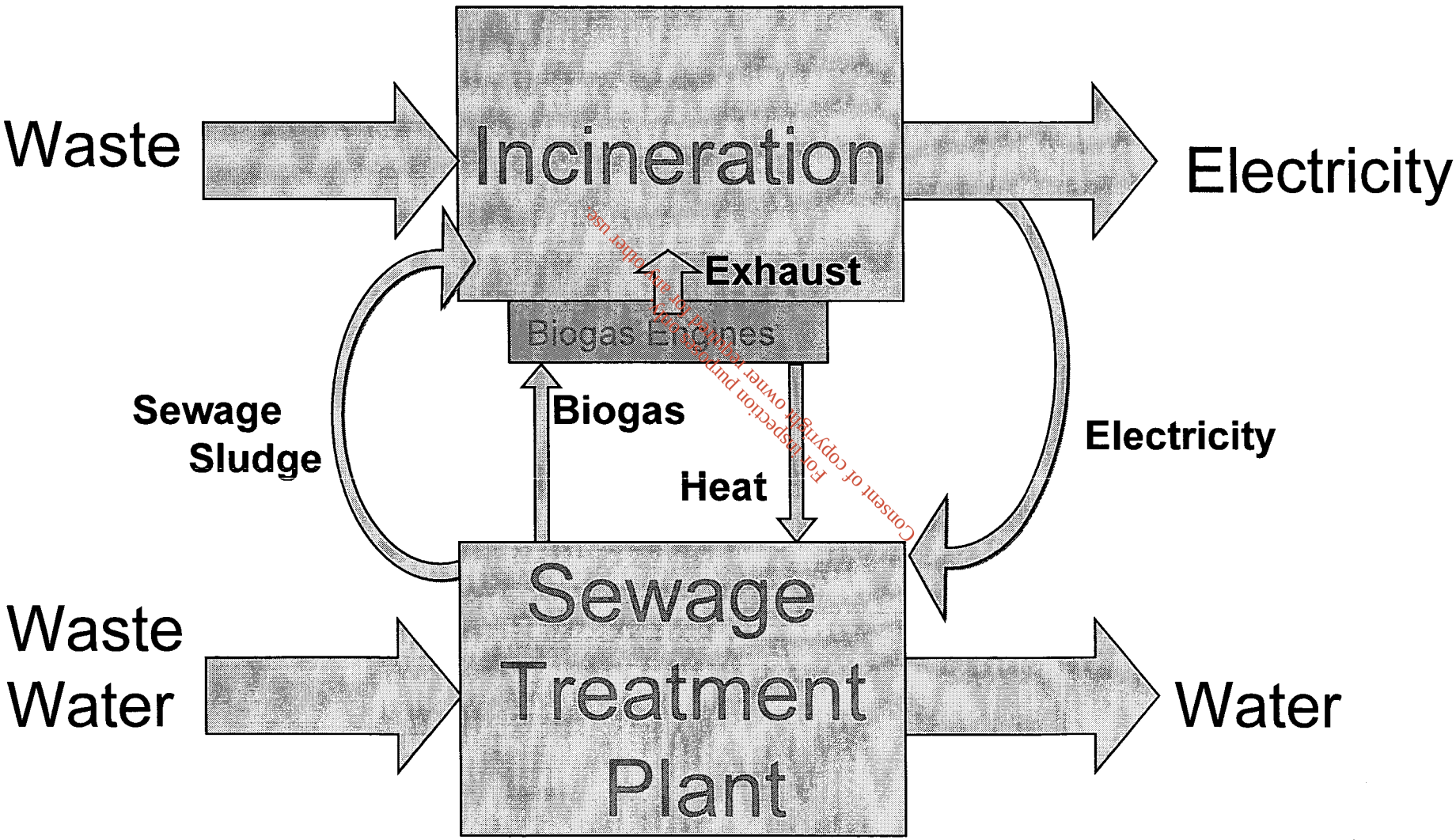
High Efficiency concept WFPP®



SYNERGY



Patents for licensing

with support for implementation

Flue gas Cleaning

1. Dioxin removal in wet flue gas cleaning with detergents
2. Mercury removal in wet flue gas cleaning
3. Combining waste incineration and sewage treatment plant

Energy Recovery

4. High Efficiency - Waste Fired Power Plant
5. Flue gas recirculation to primary air
6. Steam super heater construction with screen pipes
7. Steam super heater with unround pipes

Material recovery

8. Salt fabrication from flue gas cleaning residue
9. Recovery of fine Non-Ferrous metals from bottom ash
10. Gravity Separation of Non-Ferrous metals from bottom ash

National Development Plan 2007 - 2013

Nature and origin of PM10 / PM 2.5 and emerging issues

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Air Quality Guidelines

World Health Organisation (WHO) Air Quality Guidelines

- WHO Air Quality guidelines published in late 2006 are more demanding than those of the EU in December 2007
- WHO long-term guidelines for PM2.5 annual value: 10 µg m^{-3}
- WHO long-term guidelines for PM10 annual value: 20 µg m^{-3}
- WHO in recognising important short term effects of particulate air pollution has recommended that upper limits of:

  25 µg m^{-3} for PM2.5 and 50 µg m^{-3} for PM10 are not exceeded by more than 3 days per year