

# Cogeneration in a Dairy Farm Application-Hess Microgen

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# Goals

- Resolve waste issues at dairy farms
- Provide Electricity for farm and export
- Reduce fuel requirement for hot water for cleaning
- Reduce need for electricity for chilling
- Provide renewable electricity to grid

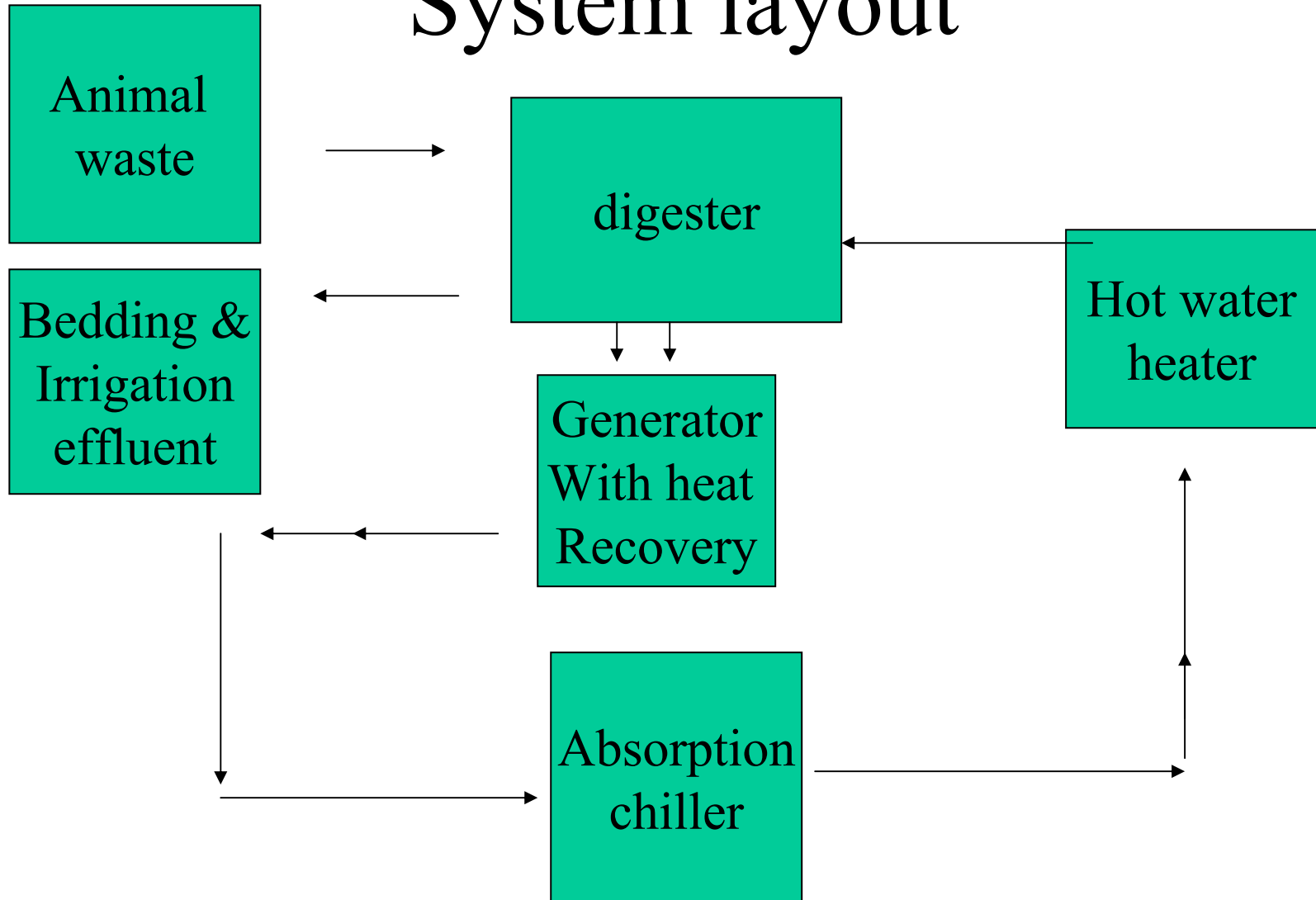
# Issues-waste

- Dairy farms are consolidating into large sites
- Methane is 20 times more harmful than CO<sub>2</sub> towards global warming
- Waste runoff is contaminating ground water
- Environmental organizations are starting to go after large farms

# Issues-Electric

- Estimates show ability to supply as much as 350 MW / state in dairy electric production
- Electric is produced in rural locations supporting these grids locally
- Save fuel required to produces this electric
- Requires green power mandates to guarantee market for power to maximize growth in production

# System layout



# Technologies

- Hess Microgen 140,200 and 300KW
- Single stage digesters
- Two stage digesters
- Lithium Bromide absorption chillers
- Ammonia absorption chillers

# Site issues

- Bedding- avoid sand
- Digester feed system
- Disinfections Processes-make sure it does not contaminate digester
- Integrated system design

# Service Issues

- Refine service schedule
- Refine design
- Fuel feed system