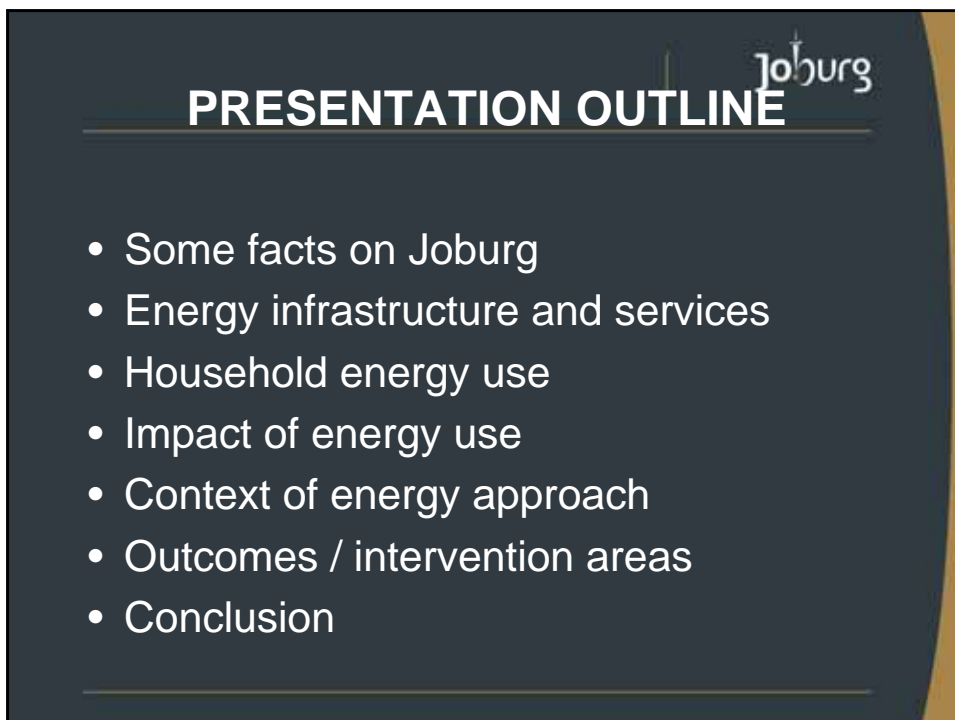


**SUSTAINABLE ENERGY  
CONCEPTS FOR CITIES**



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ENER-KEY JOBURG  
3 NOVEMBER 2005



**PRESENTATION OUTLINE**



- Some facts on Joburg
- Energy infrastructure and services
- Household energy use
- Impact of energy use
- Context of energy approach
- Outcomes / intervention areas
- Conclusion

## SOME FACTS ABOUT JOBURG

- Population = 3.2 million people
- 53% in previously disadvantaged areas
- 1 006 930 households
- 16% of South Africa's GDP
- Energy intensive economy
- Electricity from coal powered stations is still a major source
- Electricity purchased by the city 11 636.55 GW/ hr by the Electricity utility

## MAJOR ENERGY SUPPLIERS

- 1. Kelvin Power Station**
  - fully privatised
  - Power purchase agreement with City Power
- 2. ESKOM**
  - State electricity utility
  - Produces most electricity from coal
  - Also provides some parts of Joburg with electricity
- 3. iGoli Gas Works**
  - fully privatised
  - Service delivery agreement with SASOL
- 4. Diesel turbine**
  - owned by City Power
  - conversion programme to natural gas

# ENERGY SERVICE PROVIDERS AND SOURCES Joburg



1. **KELVIN POWER STATION**- 1,2 million tons of coal/ year  
- 1247 GW/hr per annum provided to Joburg
2. **ESKOM**- coal fired stations  
- 10209.4 GW/hr per annum

# Household Energy Use Joburg

Percentage of households within the City of Johannesburg using specific energy sources classified by end use (Census SA 96)

	% of Households using Specific Energy Sources by End Use		
	Heating	Cooking	Lighting
Electricity	83.2	83.9	87.0
Gas	1.2	2.7	0.2
Paraffin	7.1	11.7	2.0
Wood	1.2	0.3	
Coal	4.3	0.4	
Animal dung	0.0	0.0	
Other	0.0	0.0	0.0
Unspecified	3.0	1.0	1.1
Candles			9.8

# ENERGY PRACTICES

Joburg



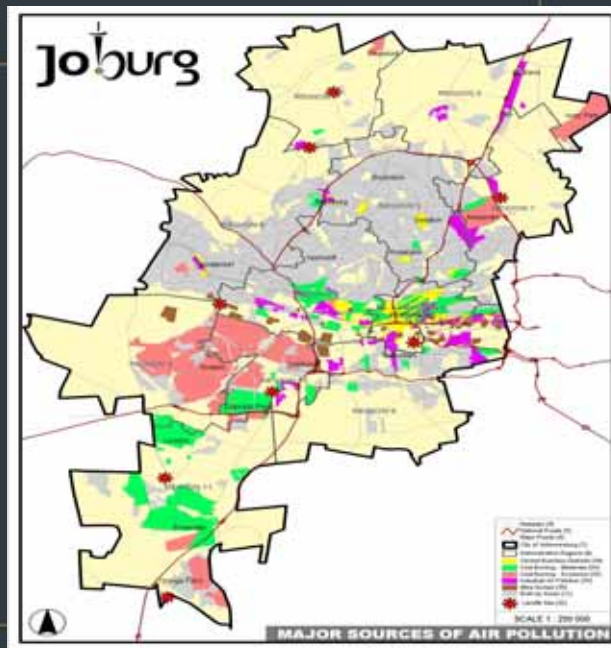
Open air coal burning

Impact



# Impact of energy use

Joburg



## ENERGY APPROACH

-Premised on city's environmental policy, NEPAD and JPOI

**Vision** - *Alternative sources, that are safe, affordable and accessible to all*

### **Broad objectives**

- Promote and lobby for renewables
- Develop instruments and incentives for energy efficiency
- Spatial structure/ urban form that supports energy efficiency
- Explore opportunities for methane harvesting
- energy as a driver for poverty alleviation

## AREAS OF INTERVENTION

Demand side intervention

Optimising gas works

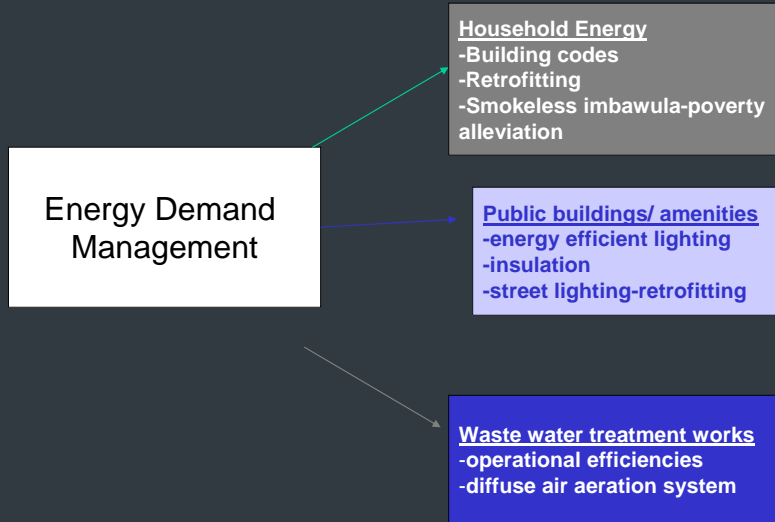
ENERGY

Renewables

Transportation

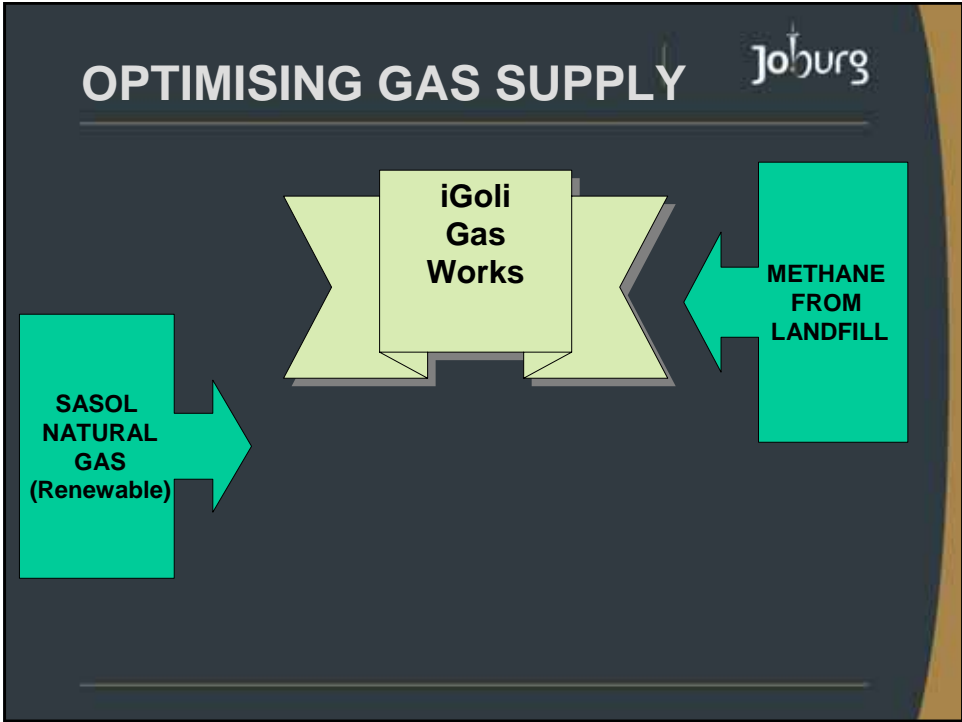
Urban efficiency/  
Spatial structure

# DEMAND SIDE INTERVENTIONS Joburg




# HOUSEHOLD INTERVENTIONS Joburg





# TRANSPORTATION AND URBAN FORM

Joburg




**URBAN FORM**

1. Inner city housing
2. Urban boundary
3. Infill developments
4. Nodal developments

**TRANSPORTATION**

1. Integrated Transport Plan
2. Metrobus fleet
3. Public transport initiatives eg GAUTRAIN
4. Non-motorised transport



## CONCLUSION

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Joburg

- High intensity economy which likely to follow national trends
  - Energy approach takes an integrated perspective
  - Supported by excellent energy infrastructure
  - Opportunity to explore high intensive and low intensive mix of energy options
  - Energy options are cost efficient (environmentally beneficial) and effective (economically viable)
  - Energy approach allows for internalization of costs in the long run
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