

# Waste to Energy The Construction of a Project

*Moscow, April 3<sup>rd</sup> 2009*

*AEB Presentation*

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## **The Need For a Solution: The Waste to Energy Industry.**

- As economies grow and urban populations expand and consume more they generate increasing volumes of waste.
- The OECD average waste generated per person is 550 kg per year. In Moscow the figure is 370 kg.
- The City of Moscow currently produces 5.5 million tonnes of waste per year, including 3.9 million tonnes of domestic waste and 1.6 million tonnes of commercial and medical waste.
- There are three main ways of treating waste: landfill, incineration and recycling, each with advantages and disadvantages. Landfill and recycling produce methane which is a greenhouse gas 21 times more potent than carbon dioxide.

## **The Need For a Solution: The Waste to Energy Industry.**

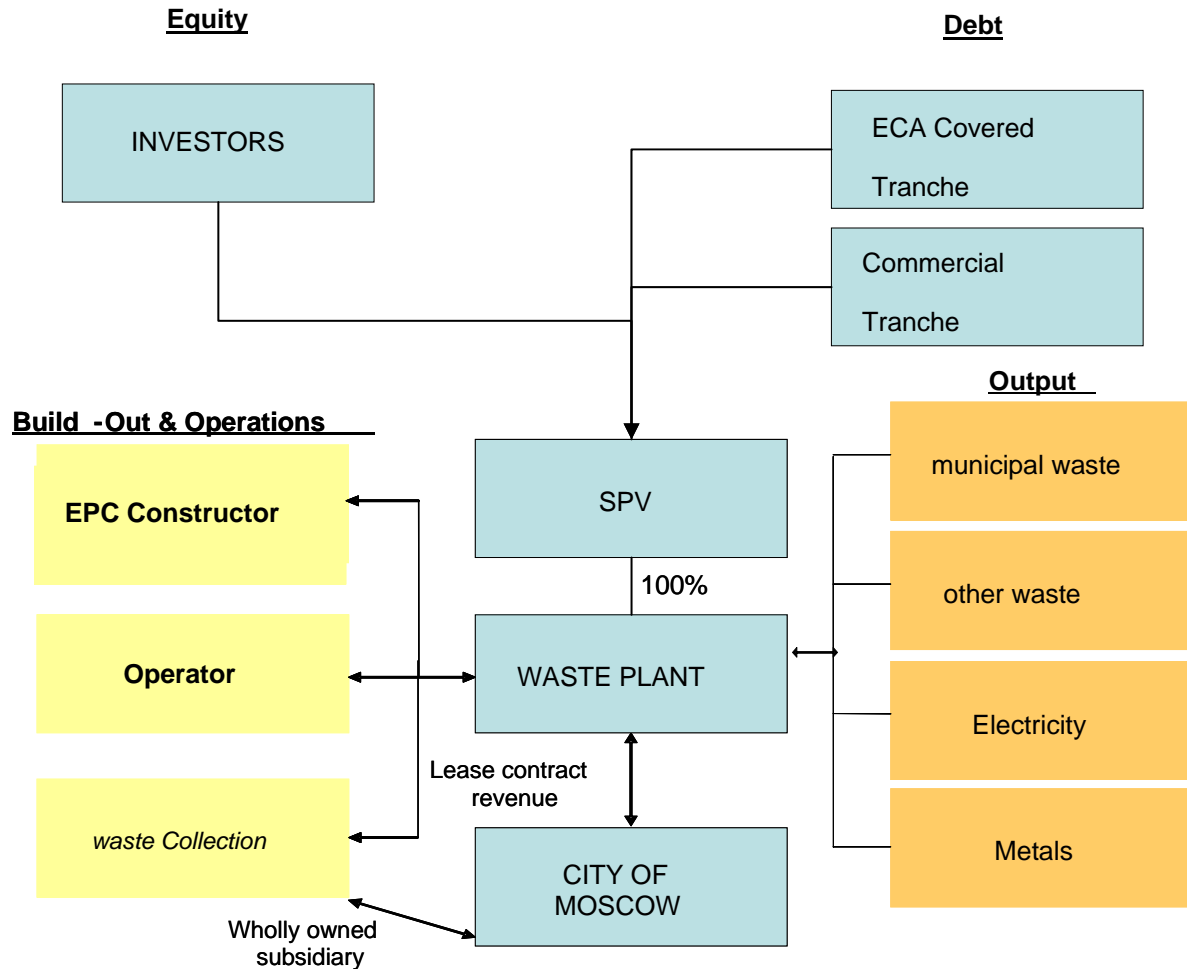
- Recycling also depends upon strong markets to take and reuse the materials ,which is not the case now with falling global prices for paper, plastics and fuels.
- Of the 5.5 million tonnes, approximately 300,000 tonnes is recycled, 700,000 tonnes is incinerated in three incinerators, and 4.5 million tonnes goes to 25 landfill sites around Moscow.

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## The Solution and Risk Allocation

- The development of modern waste to energy plants is a very considerable investment for each party involved, and is based on a clear technical plan and analysis of risk. The goal is to have an efficient construction and operation.
- The risks can be divided into four main categories:
- The construction risk is taken by a competent and experienced Engineering Procurement Contract (EPC) contractor guaranteeing the delivery and performance of the plant.
- The operating risk is taken by a competent and experienced operator with a comprehensive operating and maintenance (O&M) contract.
- The counterparty risk is based on the leasing contract; and
- The political risk is insured by using Export Credit Agency (ECA) Financing.

# The Solution and Risk Allocation





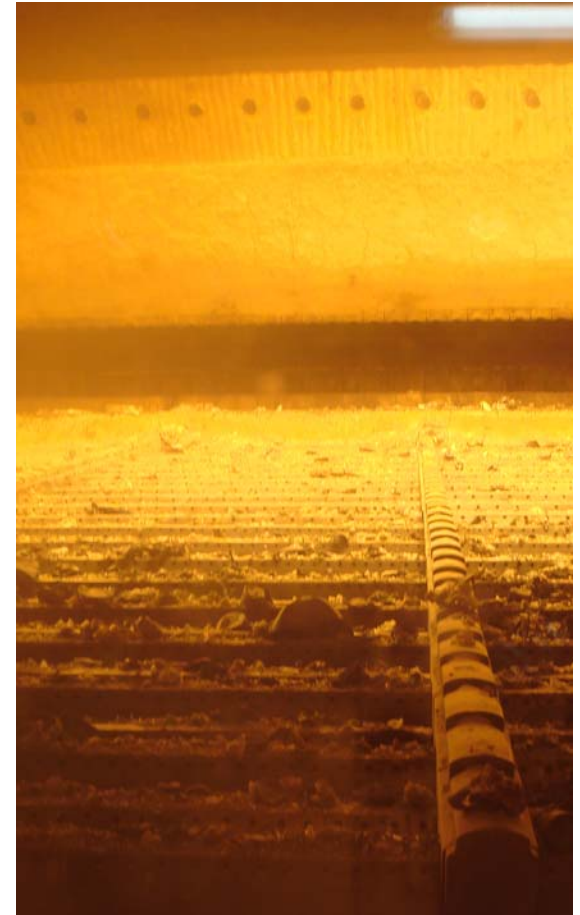
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## Environmental Operation and Traceability

- “Germany’s environment ministry reckons that incinerators have actually helped to improve air quality by reducing the need for dirtier coal-fired power plants” (*Source: The Economist 28 February 2009*).
- Environmental concerns are transforming the waste industry. Technologies have become more efficient and the pollution that waste treatment causes is being controlled more tightly. Incineration has historically had a negative image of emitting toxins into the air, and of careless disposal of the residual ashes.
- Today, dioxins are eliminated by burning the waste at above 1,000 °C, and remaining traces absorbed by active carbon. Different filters remove sulphur, chlorine and nitrogen dioxide, acidic gases, heavy metals and soot.
- The three main ways of treating waste are now efficient if managed and monitored effectively, but the advantage of incineration is generating electricity.

## Environmental Operation and Traceability

- Waste represents an opportunity as a potential resource in generating electricity.
- The approximately 700 waste to energy plants around the world produce more power than the total wind turbine and solar production combined.
- Japan and Singapore currently burn more than 50% of their municipal waste, and China has a target of 30% by 2030.
- Plant No 1 will be built to European environmental standards.



# Environmental Operation and Traceability



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## The Alternative: Naples

- There is no alternative to treating waste.



## The Alternative: Naples

- The normal start of the day?

