WEACAU-III:
Workshop on Environmental Aspects of Coal Ash Uses
Complementary Session
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Opening Remarks

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Coal ash is an unavoidable byproduct of the combustion of coal, which in turn is a strategically essential energy source for electricity production and hence a product vital to the Israeli economy. As long as coal combustion for electricity production remains part of the critical energy portfolio for Israel, and coal should, recognizing that growing new energy sources such as natural gas also have significant vulnerabilities for the foreseeable future, safe and efficient coal ash management is an essential need. As such, the ash requires specific regulatory attention, the aim of which is to ensure smooth electricity production at the highest possible economic efficiency coupled with the avoidance of adverse environmental effects.

Economic efficiency requires maximizing the benefits while avoiding negative environmental impacts and minimizing the cost of handling the coal ash. Environmental and health considerations entail the assessment of risks and benefits of the various avenues for utilizing or disposing of the ash, using tools for assessment and monitoring which are scientifically valid and appropriate for the economic reality of any given time.

The economic efficiency and the environmental impact of any mode of treatment of coal ash are dictated by regulatory decisions that are reached on the basis of a wide spectrum of considerations –technological, environmental and social. The regulatory decisions are expressed by constraining applicable ash properties and engineering or use conditions for a given mode of disposal or use of the ash, by monitoring and assessment protocols, and by relevant criteria (e.g., maximum allowed concentrations) that relate back to human health and environmental risks. The formulated regulations determine the range of entrepreneurial options available for the beneficial use of the ash.

Coal ash is exceptional among substances produced in industrial processes in that it has to be removed from the power plants in which it is formed at the rate in which it is produced, given the existing infrastructure and operational conditions. There currently is no significant interim storage capability for coal ash in Israel. This attribute of the ash gives its proper and timely handling a dominant weight from both the economic and environmental points of view in the reliable operation of the power plant. A robust answer to the need to maintain a reliable supply of electricity is to develop a wide range of uses and disposal procedures for the ash that provides flexibility as ash production rates, markets for ash use and ash characteristics change over time. As the range of available ash management options broadens, the dependence of the uninterrupted removal of the ash from the plants on one management option (currently use in cement and concrete) declines and the probability of a mishap in ash management declines as well. This consideration gives an extra weight to the development of beneficial uses of coal ash outside the area of construction (and

especially in the production of concrete), on which today the removal of ash from power plants in Israel is almost solely dependent. Of course, future success in ash management is also dependent on a diligent implementation, monitoring and quality control system for ash use and/or disposal.

The present session of the workshop, the main part of which took place on 11-12 of December 2012, focuses on the environmental aspects of the use of coal ash in land applications – massive filling operations such as in road construction or other infrastructures and in the controlled addition to soils for the purpose of land reclamation and conservation or for agricultural benefits.

The proposed environmental requirement for the use of coal ash for road and infrastructure construction and agricultural benefit as presented in this session of the workshop, was formulated by the scientific-professional team (pollutants) of the National Coal Ash Board (NCAB) and was presented to the Ministry for Environmental Protection. It is based on many years of research which is taking place in Israeli research institutes with the aid of experts from centers of knowledge the world over and employs methodologies and criteria which are universally accepted. The development of advanced measurement and evaluation procedures that takes place currently under the auspices of the USEPA and in cooperation with researchers in the U.S. and Europe, who have followed directly and indirectly the work of the NCAB for a long time, makes it possible to put the environmental assumptions behind the proposed requirements to a meticulous scientific scrutiny and to improve the proposal's quality. The suggested regulatory approach may serve as a pilot for the regulatory treatment of a host of other solid by products.