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## Impact assessment for REM - intermediate product

**Evaluation of the contribution of REM activities to waste treatment and savings of landfills and lands in the Israeli south** 

November 2021

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#### To: Rotem Energy Mineral (REM) - Limited Partnership

We are honored to present you with an <u>intermediate deliverable</u> as part of the report on the <u>future</u> potential social and environmental impact assessment of the partnership. This product refers to the results of the impact assessment concerning a single impact index out of those selected for the project - the effect of the partnership on savings in land use for landfill purposes.

It is clarified that the analysis is based on information collected from public sources as well as information reported to us by the partnership. We have not audited or assured the information and data and we do not express an opinion or any other recommendation regarding the correctness or adequacy of the above information. It should be emphasized that this information is inherently limited.

It should be emphasized that the results of the work should be viewed as an assessment only. The realization of this assessment depends on many factors, including the partnership's activities, the extent of plastic use in Israel, and the manner of waste management in the country. Furthermore, although the partnership's activity may heave effects in additional and broader circles based on the indices examined in this work, these effects have not been examined by us. This work should not be construed as an estimation regarding the effects of the partnership's activities, beyond what is explicitly written in this document.

It is clarified that any decision arising from this document, including the information contained therein, is the sole responsibility of the customer and/or any other party authorized to review it. This document does not constitute an opinion.

Sincerely,

**Deloitte Israel & Co.** 

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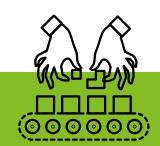
### Introduction

#### Purpose of the work:

The purpose of this work is to assess the **future potential** impact of the business activity of the REM Partnership in the field of reducing landfilling in Israel, and the potential impact on land use.

The assessment is forward-looking and relates to the expected impact until 2050, and after the start of the partnership's activities.

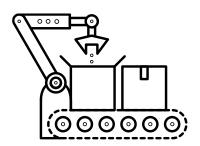
The assessment is based on **various assumptions** (data and forecasts), which originate from disclosed information sources and from the partnership itself. This assessment does not address additional potential (social or environmental) impacts that may be involved in reducing land use for waste disposal.

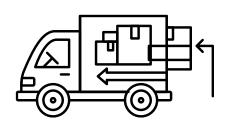




### The process of examining this index includes four steps:

- 1. Conducting research on topics relevant to the index, such as the volume of waste generated, the treatment of waste in general and plastics waste in particular, and the waste landfill system in Israel
- 2. Building a model that describes the relationships between the various factors in the process
- Collection and analysis of relevant data from authorized sources and optimization of the model according to the findings
- 4. Analysis of the impact of REM activities on the volume of waste transferred to landfills, as well as the opening of new landfills in the southern region.





### Our basic assumptions

During the preparation of the impact assessment model and data analysis, a number of basic assumptions were taken into account that formed a computational basis for the final results. The correctness of the assessment depends on the validity of these assumptions.

- The percentage of waste transferred to landfills will remain above 28% until 2050 when if the percentage falls from its current state (78%), it will fall gradually and uniformly.
- The composition of the waste produced will remain constant, with plastic waste constituting 18% of the weight of the waste and 39% of the volume of the waste.
- The growth rate of waste produced will remain constant, with an annual increase of 2.36%.
- The maximum capacity of the REM site is 300,000 tons per year and so it will remain until 2050.
- REM will continue to treat the same types of plastic waste, without expanding or reducing the types of plastic that can treat.
- The volume (scope and depth) of the landfills that will be opened in the coming years will be similar to the size of the currently active landfills, and its scope will be approximately round.
- The percentage of waste landfilled in the south of the country as part of the total landfill waste will remain constant, standing at 66%.



















### Assessment of the impact on waste treatment

Given the basic assumptions and data found, we estimate the potential impact of REM on the extent of landfilling in general, and the extent of plastic landfilling in particular, as follows:

With a cumulative treatment of 6.8 to 7.3 million tons of plastic waste by 2050, REM may reduce the weight of landfilled waste in the <u>southern region</u> by 6-9%, the volume of landfilled waste in the <u>southern region</u> by 13-22% and the amount of plastic waste landfilled at 35-58%, depending on the extent of future landfilling and the rate of expansion of REM's activity.



6.8-7.3 million tons

By 2050, the REM is expected to handle **6.8 to 7.3 million tons** of plastic waste.



6-9%

By 2050, REM is expected to treat 6-9% of the weight of waste that was destined for landfill in the southern region, depending on the reduction of waste landfills.



13-22%

By 2050, the REM is expected to handle 13-22% of the volume of waste that was intended for landfilling in the southern region, depending on the reduction in the volume of landfilling.



35-58%

By 2050, REM is expected to **treat 35-58% of the plastic waste** that was destined for landfill in the southern region, depending on the reduction of waste landfills.

### Assessing the impact on land and opening landfills

The impact assessment was performed according to two possible scenarios: high and low. The variable factors selected for these two scenarios are:

- 1. Size of the landfill to be opened The capacity of the landfill site depends, among other things, on the scope and depth of the landfill. Also, the extent of the impact of a landfill (in terms of area) is affected by the site surface. There is a big range of the different landfill sites and both scenarios refer to both ends of this range.
- **2. The expansion rate of the scope of activity** As the REM increases the volume of its activity from the starting points of 200,000 tons of waste per year at a faster rate, the amount of waste it will handle by 2025 will increase

Given the underlying assumptions and data found, we assess the potential impact of REM on the prevention of the opening of landfill sites and land savings by 2050 as follows:



**High Scenario** 

2.7 landfills and 7561 acres

Will be saved in the southern region by 2050



**Low Scenario** 

1.7 landfills and 4720 acres

Will be saved in the southern region by 2050

1 This area includes the areas of the landfill sites themselves plus a radius of 1.5 km from each landfill site where the area is limited to activity

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