CONTRIBUTION TO JOBS AND GROWTH FROM ROCKWOOL'S GLOBAL ACTIVITIES – METHODOLOGY

BACKGROUND NOTE BY COPENHAGEN ECONOMICS

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In this note, we cover the methodology we apply to estimate ROCKWOOL's contribution to job and energy savings. The note is structured in two parts:

1) Quantifying job and GDP contribution
2) Quantifying productivity improvements from energy savings.

1 QUANTIFYING JOB AND GDP CONTRIBUTION

To quantify the employment and GDP contribution of ROCKWOOL's global activities, we use an input-output (IO) model. An IO-model is a quantitative economic technique that accounts for the interdependencies between different industries of a national economy or different regional economies. The IO-model depicts how output from one industry may become an input to another industry. It is a standard tool that shows economic contributions of e.g. an industry or a company.

The IO-model is based on an input-output table, which is a snapshot of transactions in an economy within a given time period. Column entries in the table typically represent inputs to an industry (the industry's purchases of goods and services), while row entries represent outputs from a given industry. This format shows interdependencies between industries, both as a consumer of outputs from other industries and as a supplier of inputs to other industries.

We use input-output tables from the World Input-Output Database (WIOD).[1] This database is the best available in terms of detail and quality with coverage of EU and beyond. The database contains data from 2014, split on 43 countries and a 'Rest of the World'. The advantage of using WIOD is that the database is standardised for each country and internally consistent in relation to import and export flows.

The input-output database shows how each industry in each country is interconnected through import and export. From this table, we can see purchases between 56 industries for each country (a

[1] WIOD tables: www.wiod.org/database/wiots16

[44 x 56] X [44 x 56] matrix), and by combining them with the social economic accounts, we have information on the GDP contribution and employment for each industry and country.

In the IO-model, we calculate three different impacts: Direct, indirect, and induced.

Direct impacts arise from ROCKWOOL's direct activities. This means the number of employees directly employed at ROCKWOOL, and the employee remuneration and profit in ROCKWOOL.

Indirect impacts arise through ROCKWOOL's purchases of goods and services from suppliers. Through these purchases, ROCKWOOL generates economic activity that supports jobs and contributes to GDP. The indirect impacts are therefore a measure of how much economic activity in other firms is supported by ROCKWOOL.

Induced impacts arise when wages, paid out to the directly and indirectly employed workers, are spent within the economy. The demand generated via this channel supports jobs in most industries and reflects the general consumption pattern in the economy.

We have calculated multipliers for each industry in each country, and we estimate the impacts on a global scale for each industry. This means if we e.g. spend 100 EUR in the German agriculture industry, then 75 EUR goes to German products and 25 EUR foreign products – of these 25 EUR abroad we then calculate how much of this is again spent on German goods. This allows us to split the value of each EUR spent to a specific country.

WIOD covers 43 countries and 'rest of the world' including majority of the major economies. For countries where ROCKWOOL has activities outside the 43 countries, we have used the multipliers for the Rest of the World.

From ROCKWOOL, we have received country level data on employment, revenue, purchases, employee remuneration, profits etc. In addition, we have received a detailed split on main cost categories for ROCKWOOL's global operations, which has been assumed to be similar across countries. The cost category split has been mapped to the 56 industries of WIOD.[2]

In the 2026-update, using 2025-numbers, we show job and GDP contributions both with and without Russia. In future updates, the results will be shown without Russia.

2 QUANTIFYING PRODUCTIVITY IMPROVEMENTS FROM ENERGY SAVINGS

ROCKWOOL's products help deliver energy savings to the end-users. Energy savings are an improvement of productivity since you can produce the same product using fewer resources. We estimate both socioeconomic savings and consumer savings. The socioeconomic savings are calculated using energy prices excluding taxes as well as consumer savings including taxes.[3]

[2] For each industry in each country, the import share by country in the WIOD is used.

[3] Data on country-specific energy taxes is from OECD, see https://stats.oecd.org/Index.aspx?DataSetCode=TEUSDENR. We calculate regional averages and add these to the regional energy prices.

We have calculated the net present value from energy savings which come from using ROCKWOOL's *insulation* products. This means that not all products in ROCKWOOL's product portfolio is included. For example, we have not estimated the value from the *acoustic ceilings* solutions and the *precision growing substrates* sold under the Rockfon and Grodan brands, respectively.

The data covers the annual energy savings delivered by installing ROCKWOOL's insulation products each year.[4] This data is provided by ROCKWOOL and Guidehouse originally based on a methodology developed by Navigant, see Navigant (2018): "Climate and energy benefits of ROCKWOOL building insulation" and Navigant (2018), "Climate and energy benefits of ROCKWOOL technical insulation products".

During 2025, this methodology has been revised by Guidehouse to follow the WBCSD Guidance on Avoided Emissions,[5] where the reference scenario has been changed for *building insulation*.[6] Similarly, the methodology for estimating lifetime energy savings for *technical insulation* has been revised.[7]

We calculate the net benefits based on the monetary energy savings subtracted costs for the ROCKWOOL products and installation costs as described under step 1 below. We quantify energy savings in three steps:

Step 1: Gross energy savings by year
Based on the energy savings data from ROCKWOOL, we have split our estimation into five distinct categories each with a different lifetime: Building insulation, HVAC, low temperature, medium temperature, and high temperature. The categories are based on the Guidehouse methodologies.

From 2025, a more conservative reference scenario for building insulation has been applied, which resulted in a large decline in expected energy savings from building insulation when comparing 2024 to 2025 numbers.

For each category, the energy savings are split between the input fuel type used (oil, gas, coal, biomass, electricity, ambient heat, and district heating).[8] This is furthermore split by region/country.

Based on the detailed energy savings by category, fuel type, and region/country, we calculate the reduction in energy costs using existing and future energy prices. Current and future energy prices are primarily based on IEA (2025), World Energy Outlook.[9] These should be updated annually if available.

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4 Available at www.rockwoolgroup.com/carbon-impact

5 See https://www.wbcsd.org/resources/guidance-on-avoided-emissions-helping-business-drive-innovations-and-scale-solutions-toward-net-zero/

6 For building insulation in new buildings, the reference scenario is aligned with the energy regulations, and for refurbishments, the is based on average U-values of buildings constructed between 1980 and 1990.

7 For technical insulation, a more conservative lifespan is used.

8 District heating prices at an aggregate level are not available, so we assume that district heating is priced at 180% of biomass. This assumption stems from CE analysis of the historical relationship between the prices of biomass and district heating. For Russia, we index district heating to natural gas instead of biomass since 66% of district heating in Russia is fuelled by natural gas, see Salonen (2020), Modernization of Russian district heating systems with the help of biomass energy – A Gordian knot?

9 The regional split available in the IEA data does not include Russia. To avoid overestimating the savings in Russia, we adjust the gas and power prices to be 25% of the prices in Europe, see International Gas Union (2019): Wholesale Gas Price Survey 2019 edition.

We use energy prices from IEA's Stated Policies Scenario (STEPS), which reflects the prevailing direction of the energy system based on current policy settings and announced measures. This implies relatively stable energy prices, with a slight decline over the forecast horizon.[10]

Electricity prices are based on the UK Department for Energy Security and Net Zero's data, using the 2025 release of *Domestic electricity prices in the IEA*. Biomass prices are based on wood pellet import prices in Denmark from Energinet's *Analyseforudsætninger*.[11] For regions where specific energy prices are not available, we apply the world average prices. Based on the current and forecasted prices, we estimate the gross energy savings by year for each category by country/region.

Step 2: Installation costs

The costs associated with installing ROCKWOOL is firstly the cost for the ROCKWOOL products and secondly the installation costs. We have received country level sales data split on the distinct categories to estimate the costs for the ROCKWOOL product split on the five categories. To our knowledge there are no studies that have highlighted the average costs of installation insulation material such as ROCKWOOL. Therefore, we have estimated the implied installation costs from a previous study for the European Commission, see Copenhagen Economics (2018): "Macro-economic impacts of energy efficiency". We assume that ROCKWOOL is installed together with other renovations. The implicit installation cost is 110% of the product costs on average when installation with other renovations in Europe. This means if you use 100 euro on ROCKWOOL, you spend 110 euro installing it.

To calculate the installation cost in other countries and regions, we use national average annual labour earnings in different countries from International Labour Organisation.[12] If a country has half of the average labour earnings relative to the European average, the installation cost will then be 55% of the product cost (= 110% x 50%). For countries where data is not available, we use the average in the region.

Step 3: Net present value

The last step is to find the net present value and subtract the costs. The values each year are discounted using a discount rate of 5% based on European Commission (2014), Guide to Cost-Benefit Analysis of Investment Projects.

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[10] We previously relied on the Announced Pledges Scenario (APS), but this scenario is no longer included in the IEA's latest World Energy Outlook. We have therefore transitioned to STEPS as the most relevant and consistently updated benchmark for our analysis. In the original methodology, we used IEA's Sustainable Development Scenario. IEA no longer updates this scenario.

[11] Available at https://energinet.dk/analyse-og-forskning/analyseforudsaetninger

[12] Available at https://ilostat.ilo.org/