

# **Põlevkivi tegeliku hinna arvutamine**

**põlevkivielektri olelusringi hindamise andmete  
põhjal**

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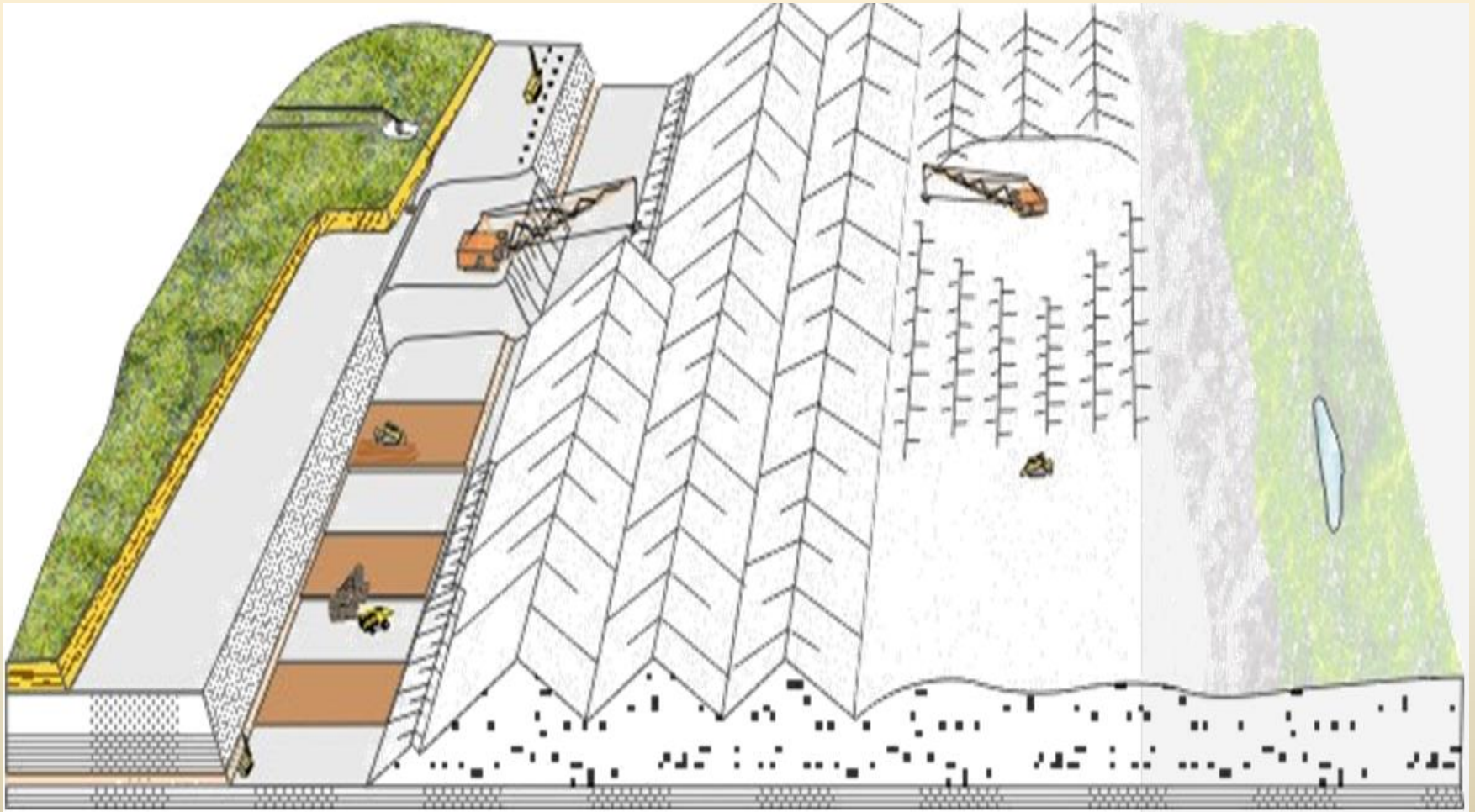
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19/05/2015

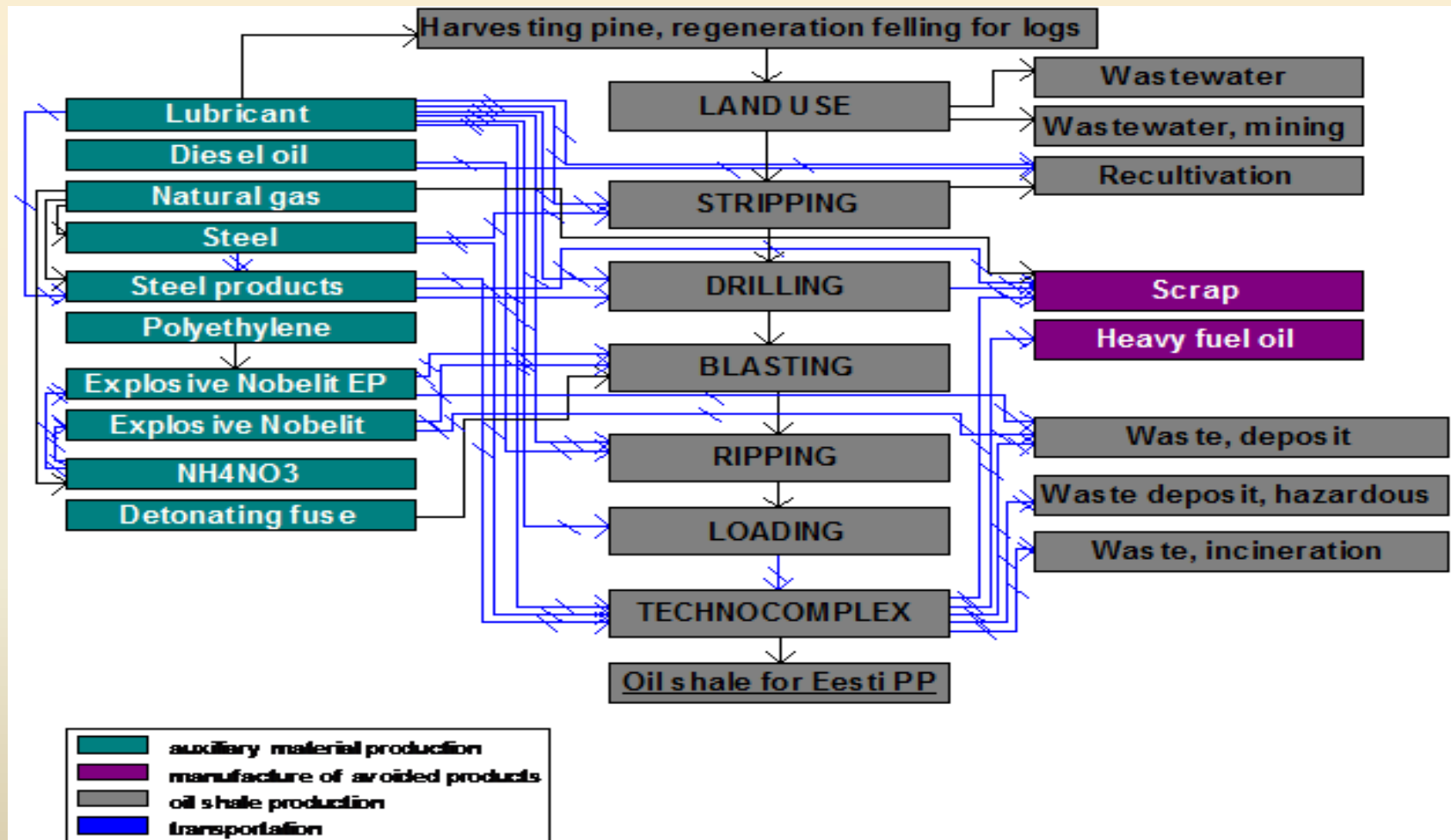
# Background

- Inclusion of external costs into production costs;
- Based on data from Life Cycle Assessment of oil shale electricity;
- Comparison of oil shale cost from an open pit and a mine;
- Identification of all inputs and outputs (materials, energy, emissions) into product system;
- Determination of cost for each flow.

# Oil shale open pit



# Processes in product system



# Data and calculation

| Sisendi/väljundi nimetus                                       | sisend    | väljund   | ühik | ühiku hind (kr/kg, kr/kWh) | 1 t põlevkivi tootmise hind, kr |           |
|--|-----------|-----------|------|----------------------------|---------------------------------|-----------|
|  |           |           |      |                            | sisend                          | väljund   |
| <b>Katendi (nii kvaternaar kui ka lubjakivi kihi) eemaldus</b> |           |           |      |                            |                                 |           |
| Elektri kasutus  | 6,89791   |           | kWh  | 0,71                       | 4,8975161                       |           |
| Määrdeained  | 0,018579  |           | kg   | 38,5                       | 0,7152915                       |           |
| Terase kasutus   | 0,0854772 |           | kg   | 31,6845                    | 2,7082981                       |           |
| <b>Katendi puurimine</b>                                       |           |           |      |                            |                                 |           |
| Elektri kasutus  | 0,225365  |           | kWh  | 0,71                       | 0,1600092                       |           |
| Määrdeained  | 0,0044346 |           | kg   | 39,2                       | 0,1738371                       |           |
| Terastooted  | 0,0083849 |           | kg   | 71,061                     | 0,5958376                       |           |
| Metallijäätmed taaskasutusse                                   |           | 0,0037999 | kg   | 3,168                      |                                 | -0,012038 |
| <b>Katendi lõhkamine</b>                                       |           |           |      |                            |                                 |           |

# Additional costs included into calculation of real cost

- Labour cost;
- Amortisation;
- Resource mining tax.

# Results

| Price type                                | Value |
|---|-------|
| Sale price                                | 100%  |
| Net cost by enterprise – open cast        | 54%   |
| Net cost by enterprise – underground mine | 79%   |
| Real cost calculated – open pit           | 55%   |
| Real cost calculated – underground mine   | 119%  |

# Conclusions

- Cost is different for each open pit and mine
- It depends on technology, transport distance, age of vehicles etc
- Net price calculated by enterprise is lower than real price
- Confidential data
- Labour-intensive study
- Multidisciplinary skills and knowledge are needed