

1. Intro

We are solving environmental problems using only partial solutions. For example, we’re separating waste into different groups. A worthy effort, but in comparison to the scale of the problem, it’s not really an achievement that will make a big difference.

Proposals solving more than one problem at the same time are rare. Here is one of them. It will help to decrease pollution caused by traffic, energy production, and construction, using [Deep underground concept](#).

2. Traffic

Most traffic pollution is caused by cars, and it doesn’t really matter whether they’re electric or fuel-driven. It is well known that the manufacture of electric cars, and especially batteries, has a high carbon imprint, as well as necessary electricity produced with coal. The Swedish Environment Institute estimates up to 17.5 tons of carbon dioxide is emitted in the making of the average electric car battery, and the number rises with larger batteries. Some sources claim an electric car only becomes green after approximately 700,000 km of driving.



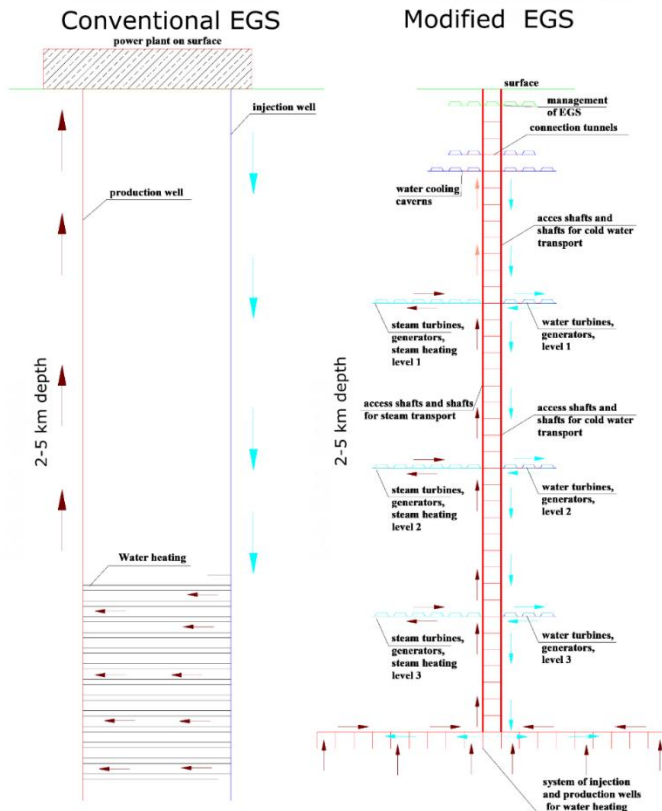
Decreasing the number of cars would therefore help to reduce pollution, but the transport system to replace them should offer the same or a better level of service. One of the solutions is a good public transport system, as well as encouraging cycling and walking, but those don’t replace the advantages of car transport, except perhaps in the most developed cities.

So, we propose another public transport system: an upgrade of the existing ones, which consists of a large system of vertical shafts and a dense network of horizontal tunnels, constructed in solid rock deep below, using the [Deep underground concept](#). For local transport, a system of directional elevators (<https://deepunderground.com/elevators-topic.html>) able to move vertically and horizontally can be used, providing direct access from point A to point B. Other combinations are also possible, integrating ordinary elevators deep underground with the metro system or trail-based transporters, cycling, electric vehicles, or walking—any type of movement allowed by a separate tunnel—providing horizontal movement.

The same concept would allow transport over larger distances, with trains or large transporters running in tunnels deep underground.

3. Energy

The production of energy can also generate a lot of pollution. The biggest culprits are power plants based on coal, oil, and natural gas. According to the European Environment Agency, energy production accounts for around 78 percent of total greenhouse gas emissions. Renewable energy sources—such as solar, wind, and hydroelectric—are on the rise, but this rise is too slow. One source of energy that is often overlooked is geothermal energy. There is abundant geothermal energy around the world. The first power plants based on exploitation of geothermal energy were constructed back in 1900. The biggest one today, the Gheysys in the USA, is currently producing 250 MWh of electrical energy. Two problems exist with geothermal energy reaching large depths and low capacity of the power plants, but these can be solved with construction according to the [Deep underground concept](#).



Geothermal energy is an ideal source of clean and renewable energy with the potential to replace fossil fuel and nuclear power plants. It is worth noting that these power plants are able to produce constant amounts of energy, which is an issue plaguing solar and wind, and to some extent even hydroelectric sources.

The picture on the left shows a model of a geothermal power plant, constructed according to the deep underground concept.

4. Construction

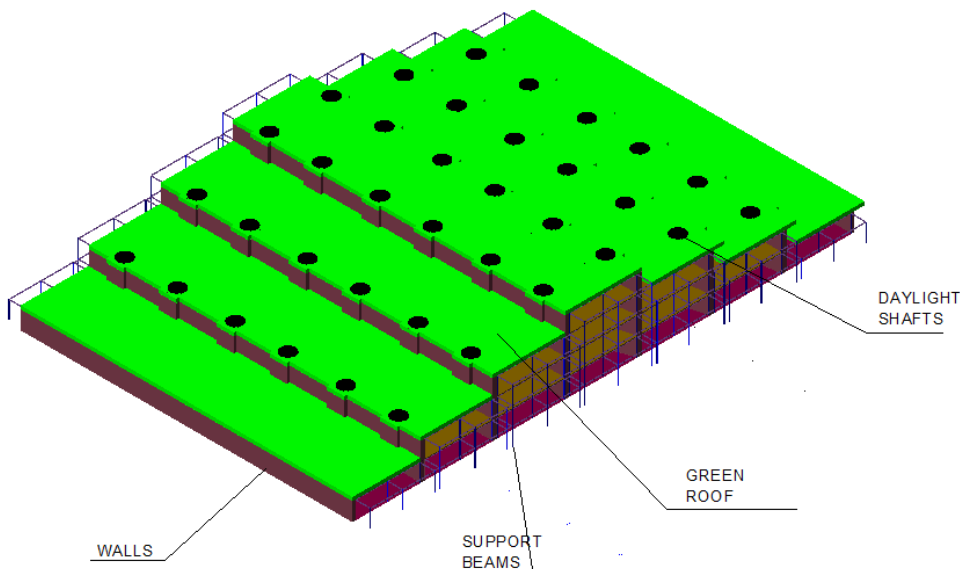
Any house, factory, or other building needs walls and a roof, and their production generates a lot of pollution, so a construction without them would have some advantages over surface constructions from an environmental point of view.



According to research by Bimhow, the construction sector contributes to 23% of air pollution, 50% of climatic change, 40% of drinking water pollution, and 50% of landfill wastes. In separate research by the U.S. Green Building Council (USGBC), the construction industry accounts for 40% of worldwide energy usage. We also have to take into account changes to the surface, clearing of vegetation, and polluting water sources.

Underground construction doesn't need any support to be stable in good conditions. If you are able to carry out excavations in a non-destructive way and find an underground area of solid rock, you don't need concrete and reinforcement.

Underground constructions are not ideal for living, but they can be well-suited for structures that are unseemly and require a lot of surface, such as factories, transport, and even offices. With the help of modern technology, underground structures can become workplaces that don't feel any different from offices on the surface. The only issue is daylight, but there are solutions for that, like lamps emitting light with characteristics of daylight.



For living, one of the possibilities are living quarters in molehills (picture on the left), This kind of construction is a combination of industrial object construction (which ensures the stability of the object) and construction using natural

materials such as straw, wood, and natural plasters. This combination allows for the construction of

relatively big structures that provide a high quality of living, where the surface places are used as living spaces and green roofs, and inner rooms as utilities and garages.

Conclusions

The deep underground concept utilizes features that the underground offers, without causing pollution. It is much more sustainable than our current lifestyle and maintains the existing quality of life. It is one of the rare proposals that solves more than one pollution problem at a time.

*Deep underground project
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