The map of (runaway) global warming prevention

Time

Low tech realization in the first half of 21 century

High tech realization in the second half of 21 century

No plan

Local adaptations to changing climate

- Air conditioning
- Cities replacement
- New crops
- Irrigation

- Could work in case small changes like 2-4 C
- Will not work in case of runaway warming

Wait until strong AI creation

Plan A
Greenhouse gases limitation

Cutting emissions of CO2

- Switching from coal to gas
- Switching to electric cars
- More fuel-efficient cars
- The transition to renewable and solar energy, which does not result in CO2 emissions
- Lower consumption

- Using nanotech and biotech to create new modes of transport and energy sources
- Using AI to create a comprehensive climate model and calculate impacts

Reduction of the emissions of other greenhouse gases
wiki

- Use of lasers to destroy CFC gases
- Methane in the atmosphere can be destroyed by releasing hydroxyl groups or methanophile organisms

Capturing CO2 from the atmosphere
wiki

- Reforestation
- Stimulation of plankton: seeding the ocean with iron
- Using common mineral olivine, which when spray enters into chemical reaction with CO2 and absorbs it, and

- GMO organisms capable of capturing CO2
- Nanorobots use carbon from the air for self replication
- Nanomachines in the upper layers of the atmosphere trap harmful gases

Plan B
Use of geo-engineering for reflection of sunlight

Risk: turning off could result in immediate bounce of global warming

Risk: Less incentives in cutting emissions

Reflection of sunlight radiation in stratosphere

1. Stratospheric aerosols based on sulfuric acid wiki
Risk: the destruction of the ozone layer.
Risk: acid rains
Expected price: may be zero, if cheap plane fuel used

Increase of albedo of the earth's surface

2. Change the albedo
https://en.wikipedia.org/wiki/Reflective_surfaces_(geoengineering)
- Using reflective construction technologies
- Crops with high albedo
- The foam in the ocean
- Covering deserts with reflective plastic
- Huge airships reflective thin film in the upper atmosphere

Increase of cloud albedo

3. Increasing of the albedo of clouds over the sea with the help of injecting sea-water-based condensation nuclei
https://en.wikipedia.org/wiki/Cloud_reflectivity_modification
1500 ships can do it. The spray itself will go to the upper atmosphere
Risk: The water turns to steam, which is itself a greenhouse gas.
Risk: Incorrect altitude clouds can lead to heating
https://en.wikipedia.org/wiki/Solar_radiation_management#Weaponization

Space solutions

- Mirrors in space
- Spraying moondust: explosions on the moon could create a cloud of dust
- Construction of factories for the production of the moon, satellites umbrellas
- Lenses or smart dust at L1 point
- Deviation of an asteroid to the Moon so that it would result into impact and a cloud of dust on the moon's orbit will be created, and will be screening solar radiation.

Robots replicators in space will building mirrors

Plan C
Urgent measures to stop global warming

- Artificial explosions of volcanoes to create artificial volcanic winter
- Artificial nuclear winter - explosions in taiga and in coalbeds

Plan C could be realized in half a year with help of already existing nuclear weapons

Plan D
Escape

- Escape into high mountains, like Himalaya or in Antarctic
- High-tech air condition escapes

- Space stations
- Other planet colonisation
- Uploading into AI

Types of warming and its consequences

Probability

Consequences

New Ice age → Large economic problems
Millions people will die

No warming → Useless waste of money, time and attention in fighting global warming

Warming according ICPP predictions: 2-4 C until the end of 21 century → Large economic problems
Hurricanes, famine, sea change levels
Millions people will die

Catastrophic warming
10-20 C → Big parts of land became inhabitable, human moves to poles and mountains

Civilizational collapse

Catastrophic warming
New equilibrium of the climate at 55 C (40 C warming) → Small groups of people could survive on very high mountains, like Himalaya

Venusian runaway warming (Mild)
The medium temperature reach more than 100 C → Some form of life survive on mountains tops

Venusian runaway warming (Strong, all water evaporation)
The medium temperature reach more than 1600 C → Life on Earth irreversibly ends