



Memorial City



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Challenge: Design a carbon-neutral coastal city powered by offshore resources.

Solution: Memorial City

District Cooling and Heating:

- Replaces typical cooling and heating systems.
- District cooling pumps cool water through underground passages using turbines.
- District Heating:
 - Underground tunnels with hot water loops running continuously
 - 40% more efficient than individual heating systems in homes
 - Store heat better than steam, so carbon intensity is decreased.
 - 95% distribution efficiency
- Save 70% of CO2 emissions from being produced

Waste:

- Uses Waste-To-Energy Plants to convert municipal and industrial solid waste into electricity and/or heat
- Used to power pumps for district cooling and heating systems
- Heat generated used to heat up water for district heating

Commercial Benefits and Drawbacks:

- Drawbacks:
 - Increased prices on goods
 - Higher production costs
- Benefits:
 - Increasing markets for clean energy and carbon neutral products

Safety Concerns: Disaster Relief Plan

- Preparation: Contracts with civilian organizations for housing, medical, food, transportation, debris removal, repairs, et cetera.
- Initial Relief: Teams for transportation (boat, helicopter, etc), mobilize as rescue services; all of necessities stated above would be addressed through the teams in place
- Long Term Relief: contractors who all of the necessities including rebuilding of homes and public systems and food and water necessities

Power Sources:

- Offshore wind power
- Offshore solar power
- Hydroelectricity
- Waste-To-Energy Plants

Professional Skills Needed:

- Engineers (Environmental, Civil, Mechanical, etc)
- People trained to bring and maintain environmental solutions
- Wind turbine experts
- District cooling and heating experts
- City planners

Policies and regulations:

- Ban on single use plastic
- Private facilities and companies required to be carbon neutral or must pay carbon offsets
- City promoted farmers markets and tax on meat minimize carbon emissions from corporate food suppliers
- Minimum of one park every 10 city blocks
- Ban on gas powered vehicles
- Community recycling facilities