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Microgrid Technology and the Arctic: Green Renewable Technology Does Relate to the Land

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MICROGRID TECHNOLOGY AND THE ARCTIC

Green, Renewable Technology Does Relate to the Land

Gerry Dell

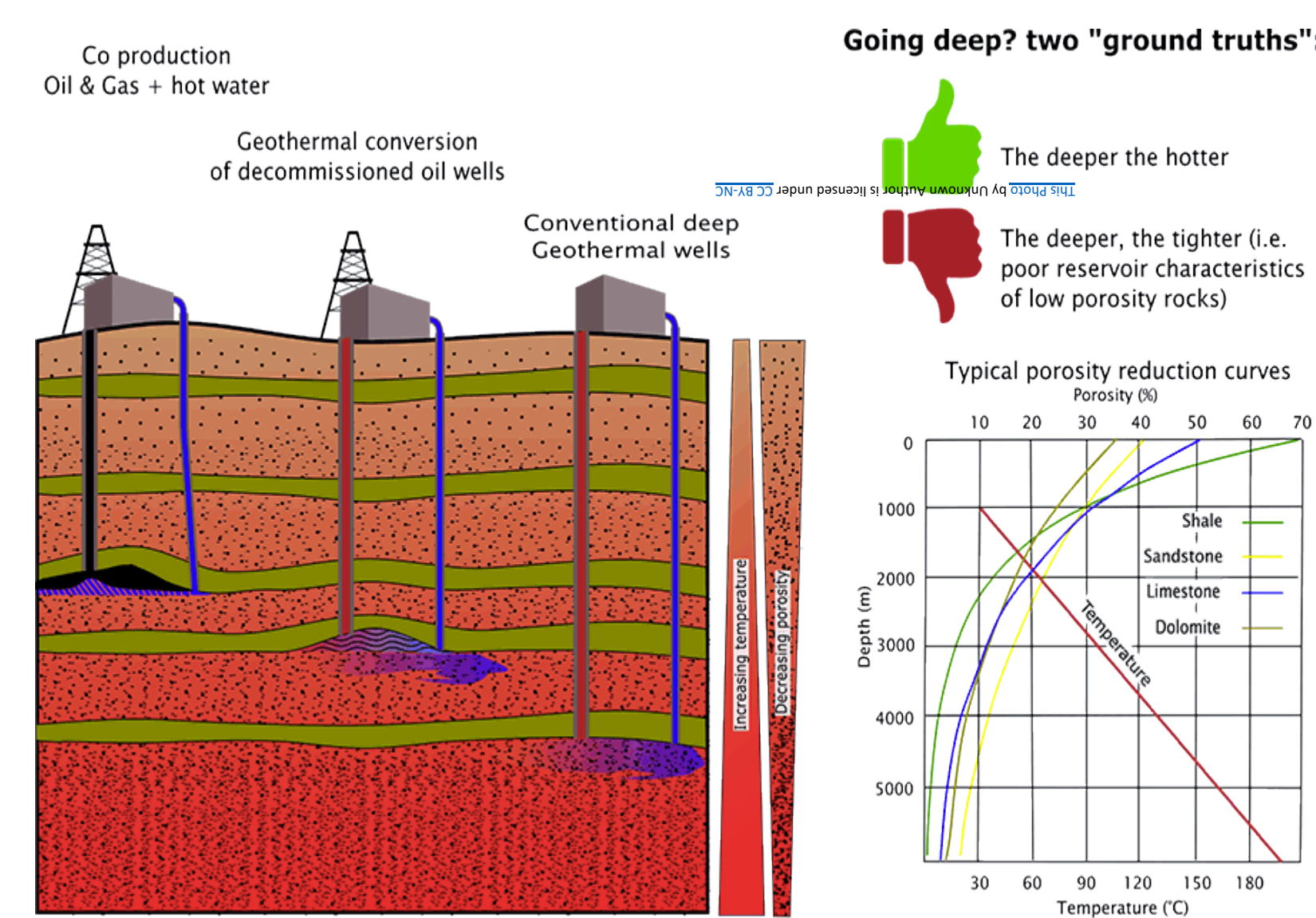
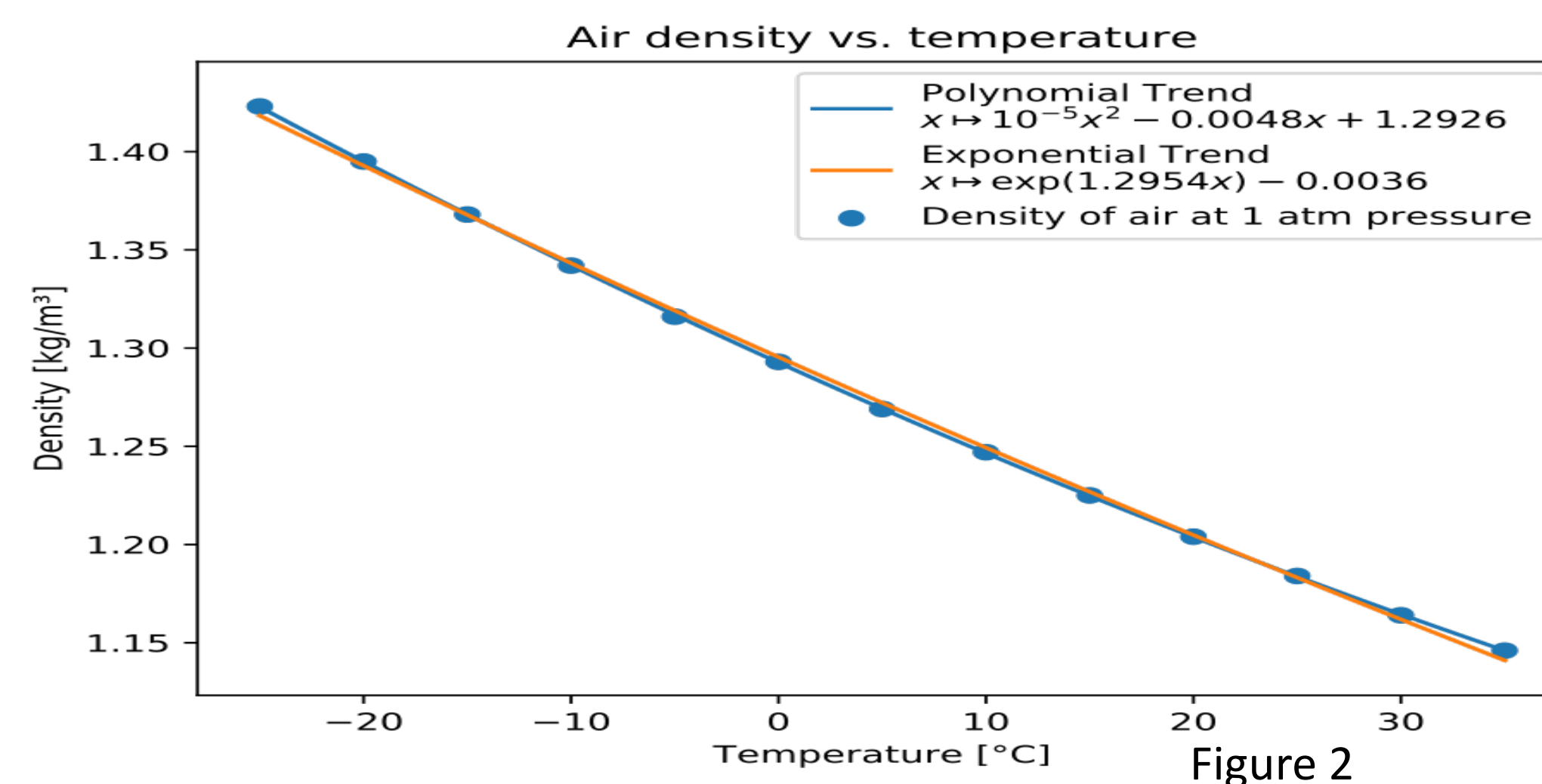
Introduction

Microgrids can take power from other energy sources and share their loads meaning there is a less reliance on diesel power generation. Wind mill power generators, solar power (for the summer) and battery storage are fantastic elements for providing consistent power in the Arctic. These power systems have been tried and proven, in all conditions, over many years. Geothermal is another green efficient way to heat homes and businesses in the Arctic. When I worked for Dome Petroleum in McKinley Bay NWT, I was fortunate to work in the most extreme winter weather the Arctic can produce. With global warming influencing the Arctic now is in a time of change. Having a stable, comprehensive power supply is important to move into the future with. Solar photo voltaic cells, wind mills (both large and small), battery storage (See figure 1). The Arctic could favour small, mini or micro wind-turbines because of the viscosity (thickness) increase of ground air in colder temperatures. (See figure 2). Geothermal energy is fantastic for supplying constant, steady heat in Arctic conditions. (See figure 3). Other components of the microgrid compensate automatically if one part is down. For instance if the geothermal unit was off-line the electrical heating systems would start. (See figure 4).

A battery farm



Figure 1



Contributor's of energy sharing in a power distributed Microgrid

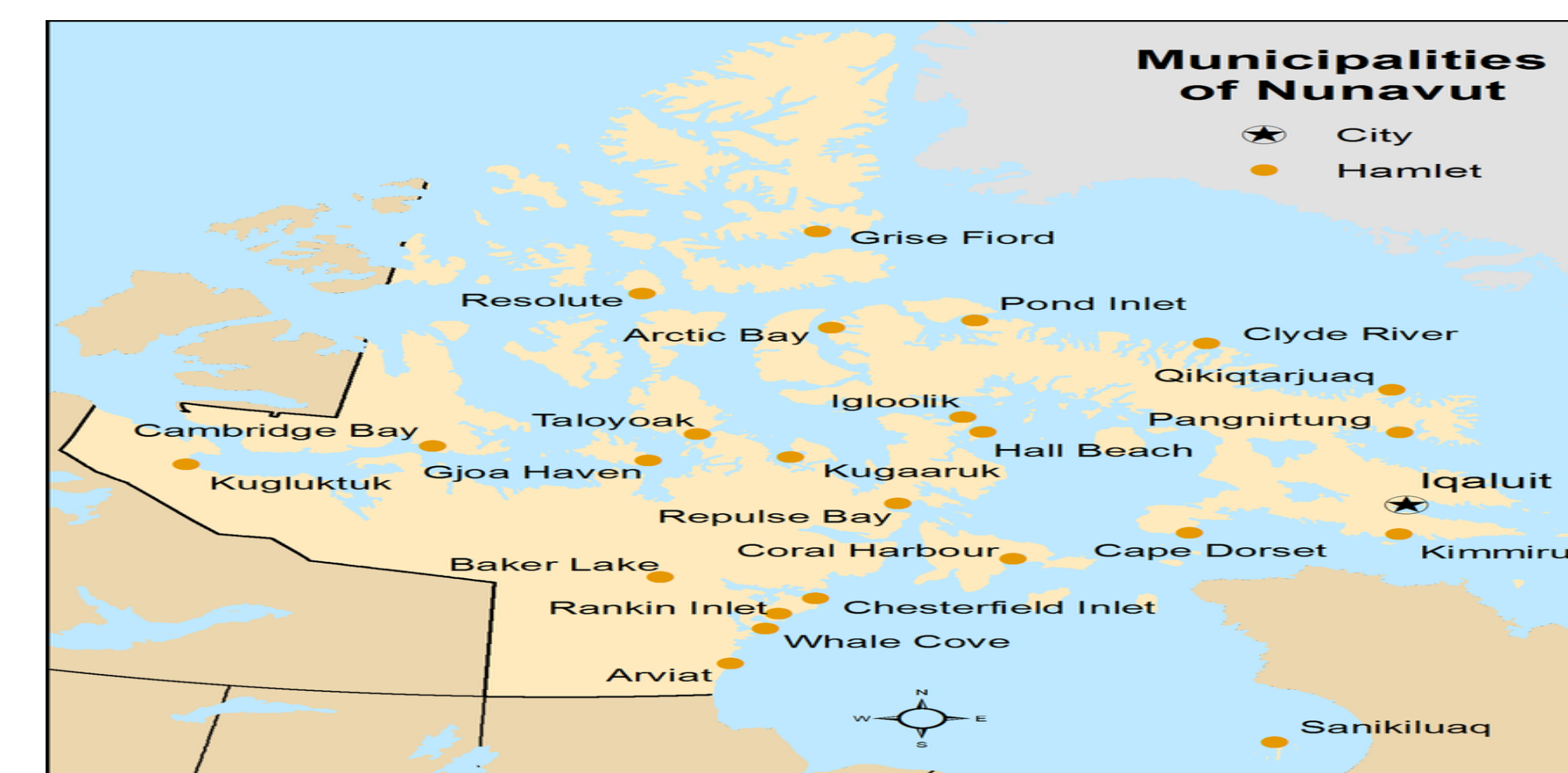


Figure 4.



Photo voltaic or solar cells would only contribute during the summer season because the Arctic is dark half the year. However, great savings in diesel should be realized because of the 24 hours of sunlight. With the blight of global warming bringing change in the Arctic it would be a tremendous strength to have dependable power.

Increasing the power generation to green distributed energy resources would greatly decrease the carbon footprint in the Arctic. Once the microgrid is installed it is automated. Yes, there is maintenance and ongoing work to keep up efficiency. The microgrid can supply one town or several that are in a close cluster. Having the advantage of consistent, stable power will increase the benefits water security, food security and uniform building heating. The microgrid enables us to use energy produced from the air and the land. We should use this technology like a drink of fresh water.



Gerry Dell (Ret). Now a second year student at Western University. Sailed in the Arctic during the 70's and 80's.

