



# Scaling Efficiently: How We Will Build a Thermal Grid Together

**Moderator:**

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**Panel:**

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Mark Metzner / *CDM Smith*

Jack DiEnna / *GEO-NII*

Ed Draves / *Shenker Russo & Clark*

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# The Birth of Thermal Utilities: Scaling Efficiently: How We Build a Thermal Grid Together **4PM**



**Will Lange**

WaterFurnace

*Manufacturer Input*



# Efficient Scaling of Every Phase

## Design:

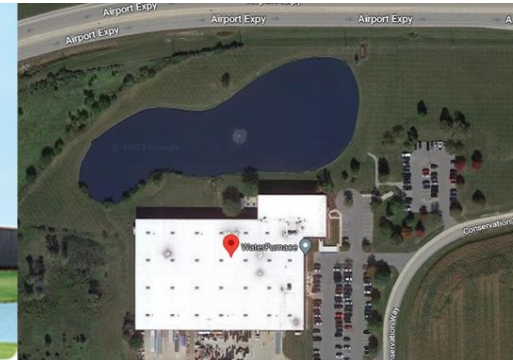
- Leverage past experiences
- Stick with standards

## GHX Construction:

- Employ standard work, but
- Leave room for low cost, creative solutions

## Heat Pump Installation:

- Invest early, save later
- Learn from broad stakeholder input early and plan an effective strategy



**Ductwork or Not?  
Forced Air or Hydronic?  
Back up heat?  
All of the above?**

# Scalability Presents New Challenges

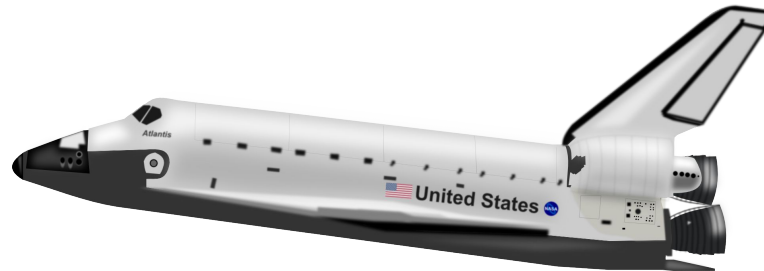
**1940**

US Army Needed a GP



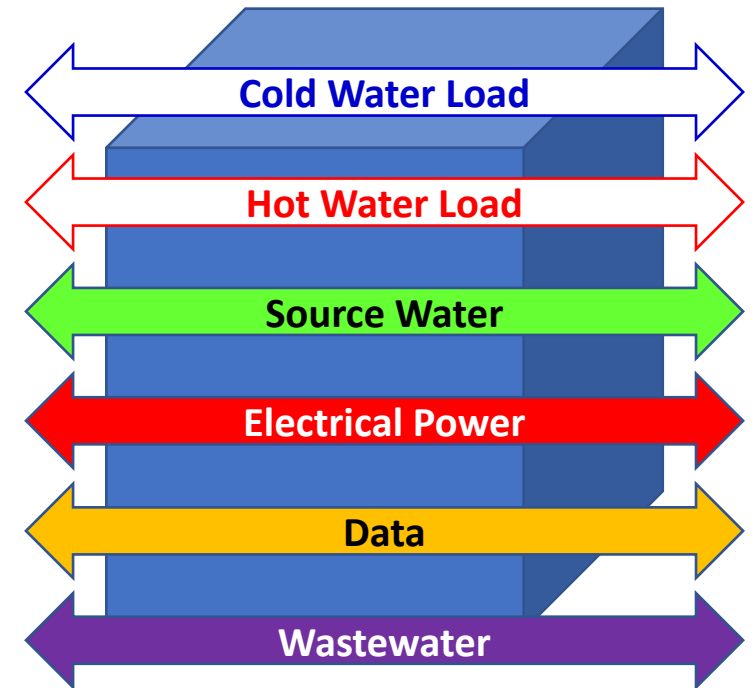
**1972**

NASA Needed a Shuttle



**2030**

TENs Need a GSHP



What are the gozintas & gozoutas?

# Current Product Solutions Work Well

## Ready Now:

- Hydronic
- Forced Air
- Combination
- Compact
- High Efficiency

But... *Applications* are All Over The Map:





# Heat Pump Fit Drives Cost

Easy Fit = Low Cost

Hard Fit = High Cost





# Use What Works

- World class installers are in this room and throughout the region
- World class manufacturers in the US have the products and services
- Everything we are doing has been done – except the scaling...

**Rapid scaling of any great enterprise requires communication & teamwork**



# Mark Metzner

CDM Smith

*Standardization for Interconnection*

# Jack Dienna

International Ground Source Heat  
Pump Association (IGSHPA)

*Training*



# Ed Draves

Shenker Russo & Clark

*Labor*

# Questions?

[info@heet.org](mailto:info@heet.org) | [gastogeo.wiki](http://gastogeo.wiki) | [heet.org](http://heet.org)

*Join us!* Champagne &  
signing of the **Declaration of  
Thermalification!**

5:00 PM, Empire Room