

# OGA Conference 2019

April 3-4 Hilton Mississauga/Meadowvale



**Tim Weber**

**Diverso Energy**

Geothermal for Multi-Residential & Office  
Buildings



# **Ontario Geothermal Association 2019**

# The Developer Challenge

## Developers are being forced to adopt sustainability

- Building code changes
- T.G.S. Version 3 Carbon and Energy Targets
- Shifting market expectations  
(sustainability is part of the decision criteria)



# The Developer Challenge

## Doing nothing is no longer an option

Developers are now faced with:

- Increased construction costs associated with meeting new energy and carbon intensity
- Increased complexity and risk associated to departure from “business as usual” design and construction
- Marketability concessions to achieve Carbon and Energy Targets ( smaller windows)



# The Developer Challenge

## Construction Delays Kill Projects

Profit @ Outset Q4, 2015



10%  
\$50/SF

Delays in Construction Start  
(Construction Costs)

Year 1 (\$7.50/sf) Profit now 8.5%

Year 2 (\$27.00/sf) Profit now 5.5%

Year 3 (\$54.00/sf) Profit now -1%





# The Developer Challenge

## Political impact on construction costs



Steel



25% Tariff

<1% Cost Increase



Aluminum

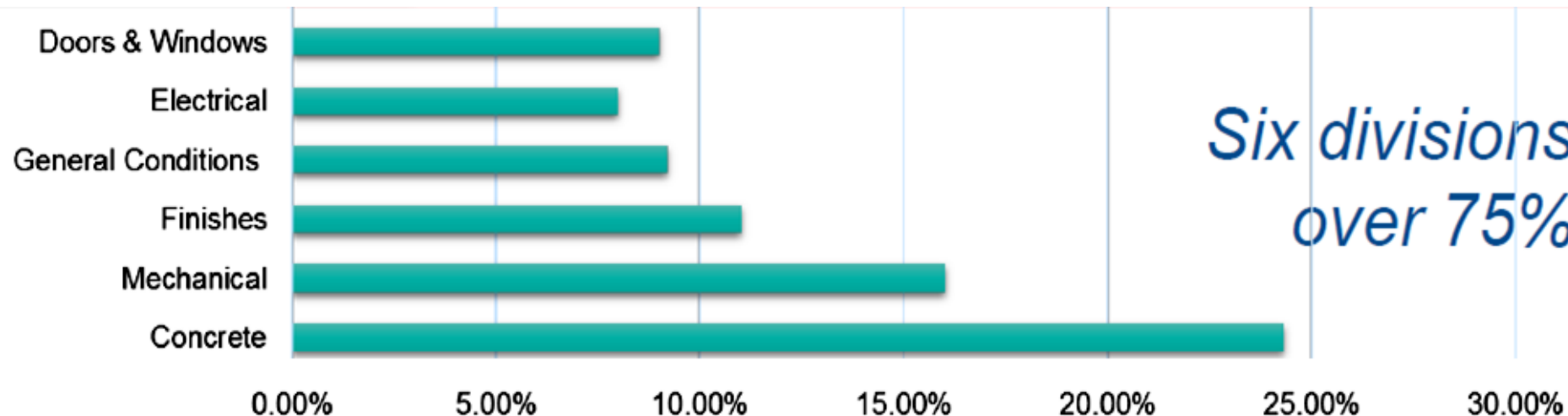


10% Tariff

<1% Cost Increase

# The Developer Challenge

**Material increase and skills shortages are having a major impact on cost increases**



*Six divisions account for over 75% of Costs*

# The Developer Challenge

**Material increase and skills shortages are having a material impact on cost increases**



Division 1  
General Requirements



Division 3  
Concrete



Division 8  
Doors & Windows



Division 9  
Finishes



Division 15  
Mechanical



Division 16  
Electrical

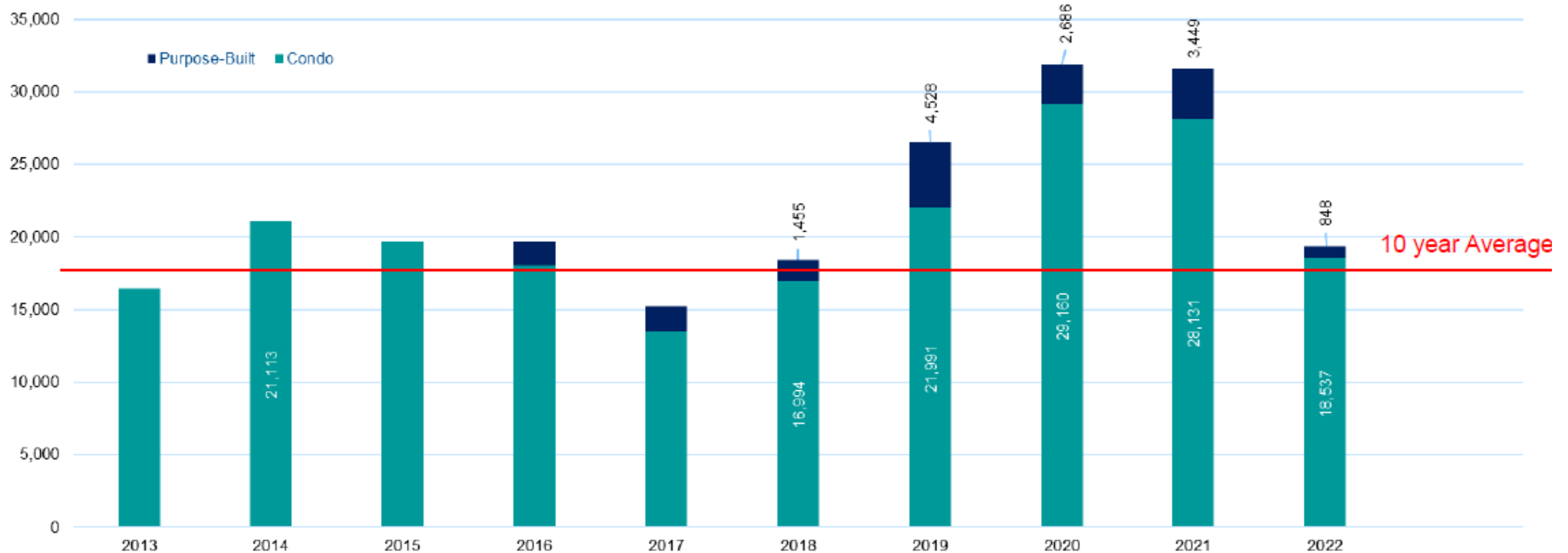


# Market Opportunities



Annual Scheduled and Actual Condo and Purpose-Built  
Greater Toronto Area: 2013 to 2022

Rental Apartment Completions



## The challenge for any new technology

Developers are very risk adverse

- Toronto condo pro formas are being squeezed (no extra capital is available)
- Buy in from ALL consultants is critical to reducing risk and headaches when looking at new technologies
- Construction delays are detrimental to projects

# Geothermal Challenges

**So why don't we see widespread adoption?**



**Capital Cost**



**Complexity & Risk**

# The Architectural Challenge

## Mechanical Requirements Limit Architectural Options

- Rooftops cluttered with mechanical equipment and parapet walls for sound
- Height Restrictions (building height or ceiling height)
- Smaller or punched windows (impact on exterior design as well)

**Geothermal is a great option to address all of these challenges**



## Who and What Drives Decisions During Construction?

- Lenders use traditional metrics to qualify loans (Targeting Loan to Value Ratios of 70 to 80%)
- Value is determined by the lender using conventional measures such as:
  - Sale/Rental price
  - Location
  - Features and amenities (granite countertops, hardwood flooring, etc.)
- Lenders are resistant to recognize the value of low carbon technologies

*In most cases, Lenders determine if Geothermal will be implemented*

**A different business model is required**



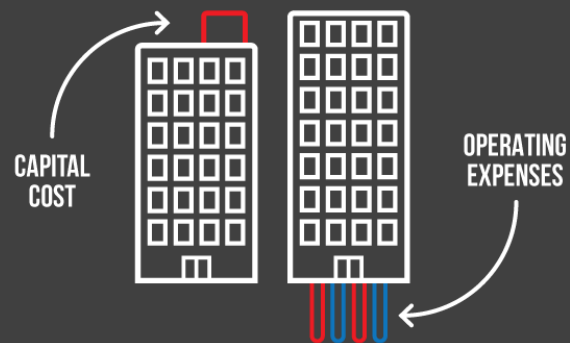
# The Third Party Ownership Solution



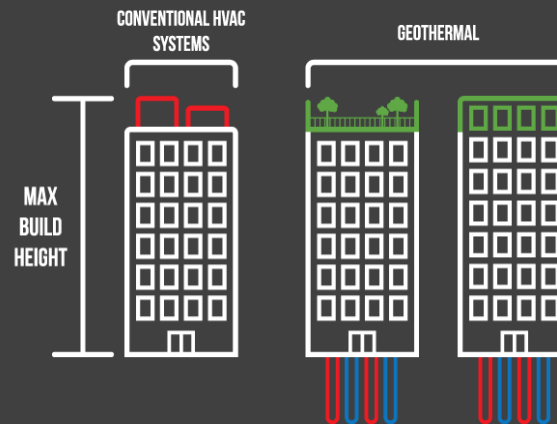
## All the Benefits. None of the Risk.

Following a utility-like model, a Third Party Owner will design, build, pay for, own and operate the Geothermal Borefield

### Reduce Construction Costs



### Improve Building Value



### Meet Carbon/Energy Targets



# Third Party Ownership Solution



## Benefits to the Developer

- **Achieve TGS V3 Carbon and Energy targets:** Tier 2 is achievable
- **Reduce Construction Risk & Complexity:** Diverso Energy absorbs the risk and simplifies the mechanical system (
- **Decrease Construction Budget:** Eliminate Heating Boilers and Cooling Towers
- **Increase Marketability & Project Revenue:** Increase GFA, increase ceiling height, etc.

A Simple Equation...

**A Better Product for Less Money**

# Third Party Ownership Solution



## Benefits to Condo Board

- **Simplified Budgeting:** Variable operating costs that would have been attached to the displaced conventional equipment are replaced with a single fixed fee.
- **Long Term Hedge:** The fixed-price 30 year TEPA provides a hedge for the against highly variable escalating energy and other operating costs.
- **Performance Guarantee:** The TEPA carries a 30 year performance guarantee removing any uncertainty.
- **Marketability:** Benchmarking programs will highlight buildings with geothermal increasing marketability or even potentially the value of the units.

# Third Party Ownership Solution



## Benefits to the Architect

- A Rooftop terrace or other rooftop amenity space at your discretion
- Depending on height restrictions, either adding an additional floor or increasing the ceiling height of each floor
- Window size options because Geothermal will exceed the Energy and Carbon requirements of the TGS V3



**Delivering these options will increase profits for your client and create a point of difference for your firm**

**25 years of combined geothermal experience with over 200 projects completed with a focus on:**

- Multi-Unit Residential
- Office
- Institutional

