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TOWERWISE

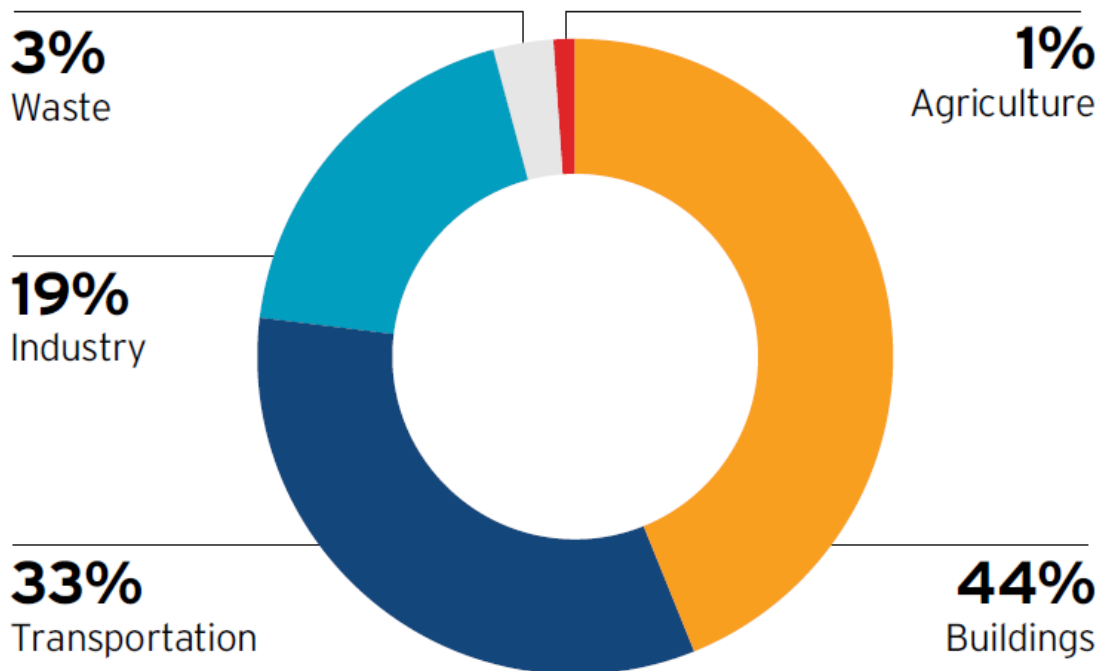
Accelerating Deep Energy Retrofits

BRYAN PURCELL

Director of Policy and Programs
February 2019



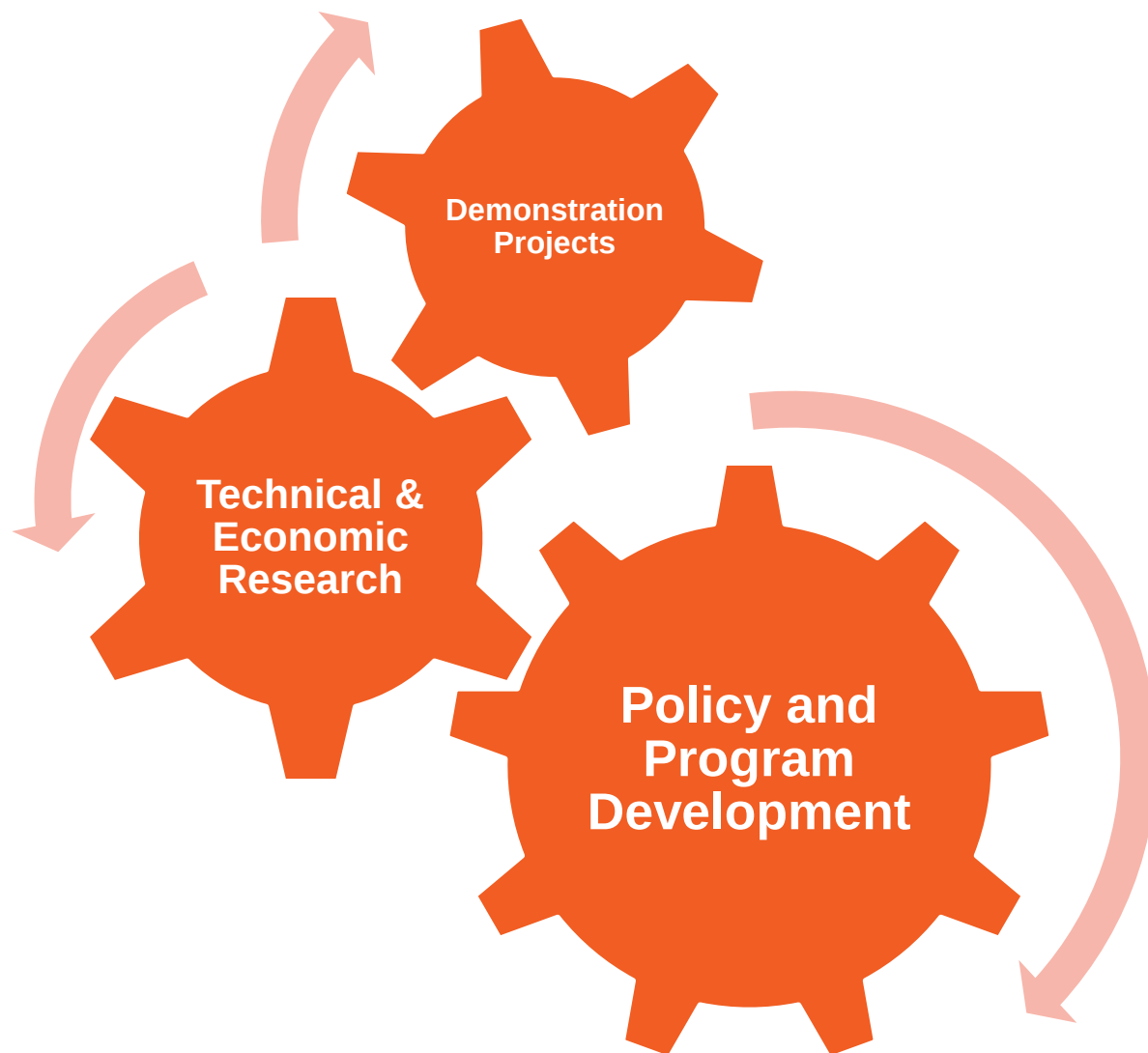
WHY TOWERWISE



Buildings:

- Significant emissions source
- Strong co-benefit potential
- Pervasive market barriers

CORE PROGRAM ELEMENTS



TowerWise Phase II (2013-18)

Overview and Key Accomplishments



KEY ACCOMPLISHMENTS

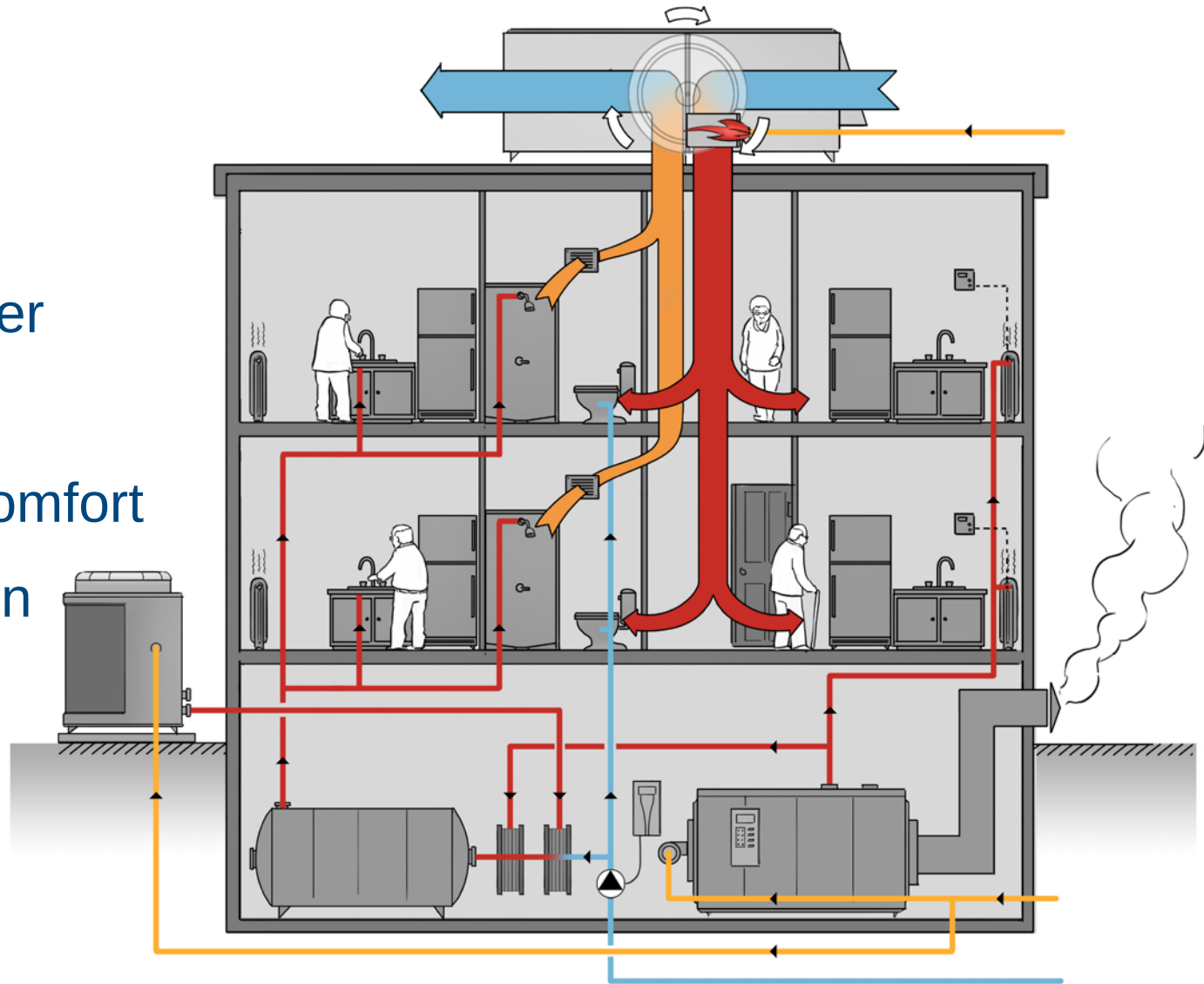
DEMONSTRATION PROJECTS



COMPREHENSIVE APPROACH TO ENERGY RETROFITS

Focus:

- Energy/water
- Carbon
- Health & Comfort
- Job Creation





COMPLETED DEMONSTRATION PROJECTS

10

SOCIAL HOUSING
BUILDINGS IN
TORONTO

1,622

LOW INCOME
HOUSEHOLDS

~2%

OF TORONTO'S
SOCIAL HOUSING
STOCK

DEMONSTRATION PROJECTS DIRECT IMPACTS

27.6

**KILOTONNES CARBON
REDUCTION**

\$721K

**ANNUAL UTILITY COST
SAVINGS**

83

**MILLION LITRES IN
ANNUAL WATER SAVINGS**

DEMONSTRATION PROJECT CO-BENEFITS

100% TYPICAL INCREASE IN FRESH AIR
SUPPLY

26-77% REDUCTION IN % OF TIME SUITE
TEMPERATURES >26C

12 COMMUNITY MEMBERS FACING
BARRIERS TRAINED & EMPLOYED
ON RETROFITS



KEY ACCOMPLISHMENTS

TECHNICAL AND ECONOMIC RESEARCH



Gas Absorption Heat Pumps



Smart Thermostat pilot



Condensing Boiler Research

KEY ACCOMPLISHMENTS

POLICY AND PROGRAM DEVELOPMENT



NATIONAL BOILER STANDARDS

“ The TowerWise project played an important role by providing performance and costing data that was helpful in validating assumptions in the development of these standards. These standards... support approximately 3 megatonnes of cumulative emissions reductions...”

DEBBIE SCHARF, DIRECTOR, EQUIPMENT DIVISION, OFFICE
OF ENERGY EFFICIENCY, NATURAL RESOURCES CANADA

OTHER POLICY AND PROGRAM IMPACTS

GAHP

ADOPTED AS KEY ELEMENT OF
NATIONAL ROADMAP FOR SPACE &
WATER HEATING

25%

CARBON REDUCTION INCORPORATED AS
CORE ELEMENT OF NATIONAL HOUSING
STRATEGY

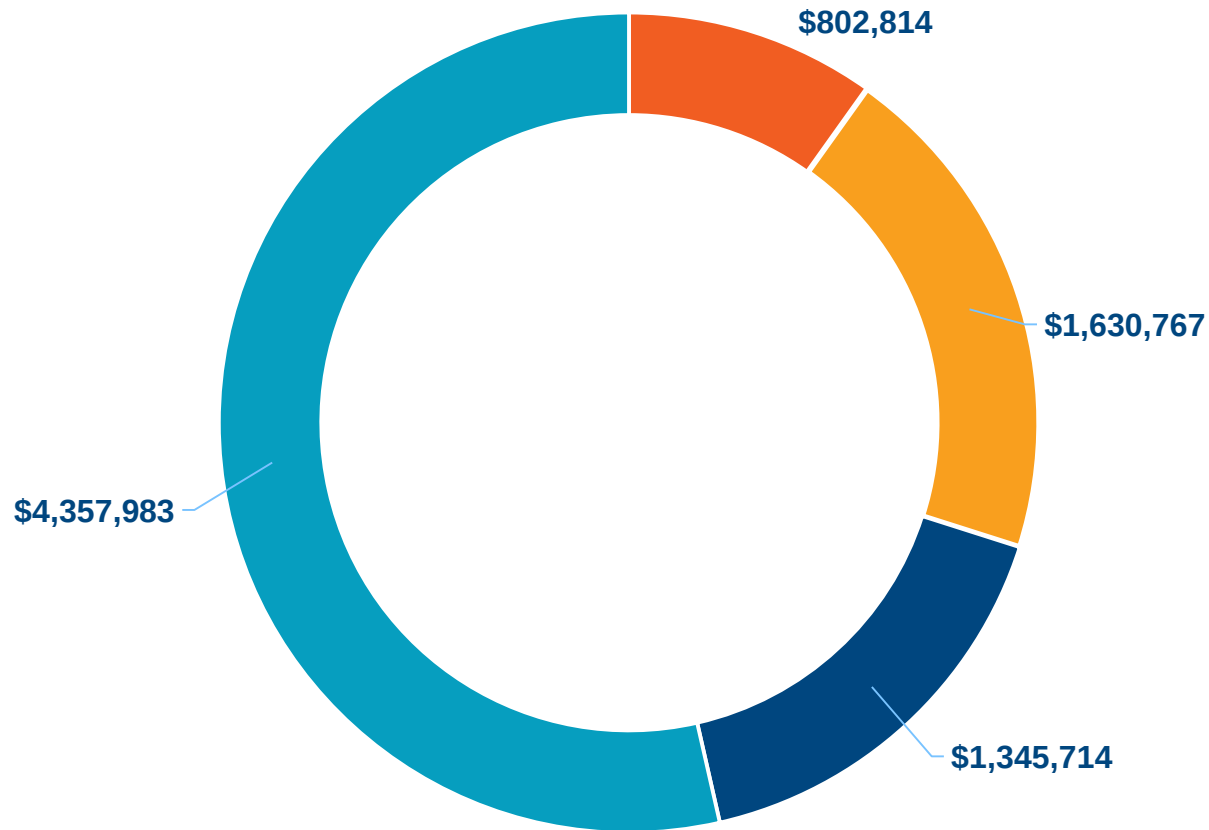
EWRB

PROVINCE-WIDE BENCHMARKING
REGULATION



TOWERWISE PHASE II FUNDING SOURCES

■ TAF Program Funding ■ TAF Investment Capital ■ External grant funding ■ External Investment Capital



TOWERWISE PHASE III

BRIEF OVERVIEW



PHASE III DEMONSTRATION PROJECTS

4+

**NEW DEMONSTRATION SITES ACROSS
THE GTHA**

40%

**CARBON REDUCTION TARGET, BASED
ON TRANSFORM TO MODELLING**

Mix

**OF SOCIAL HOUSING, PRIVATE RENTAL,
AND CONDOMINIUM SITES**

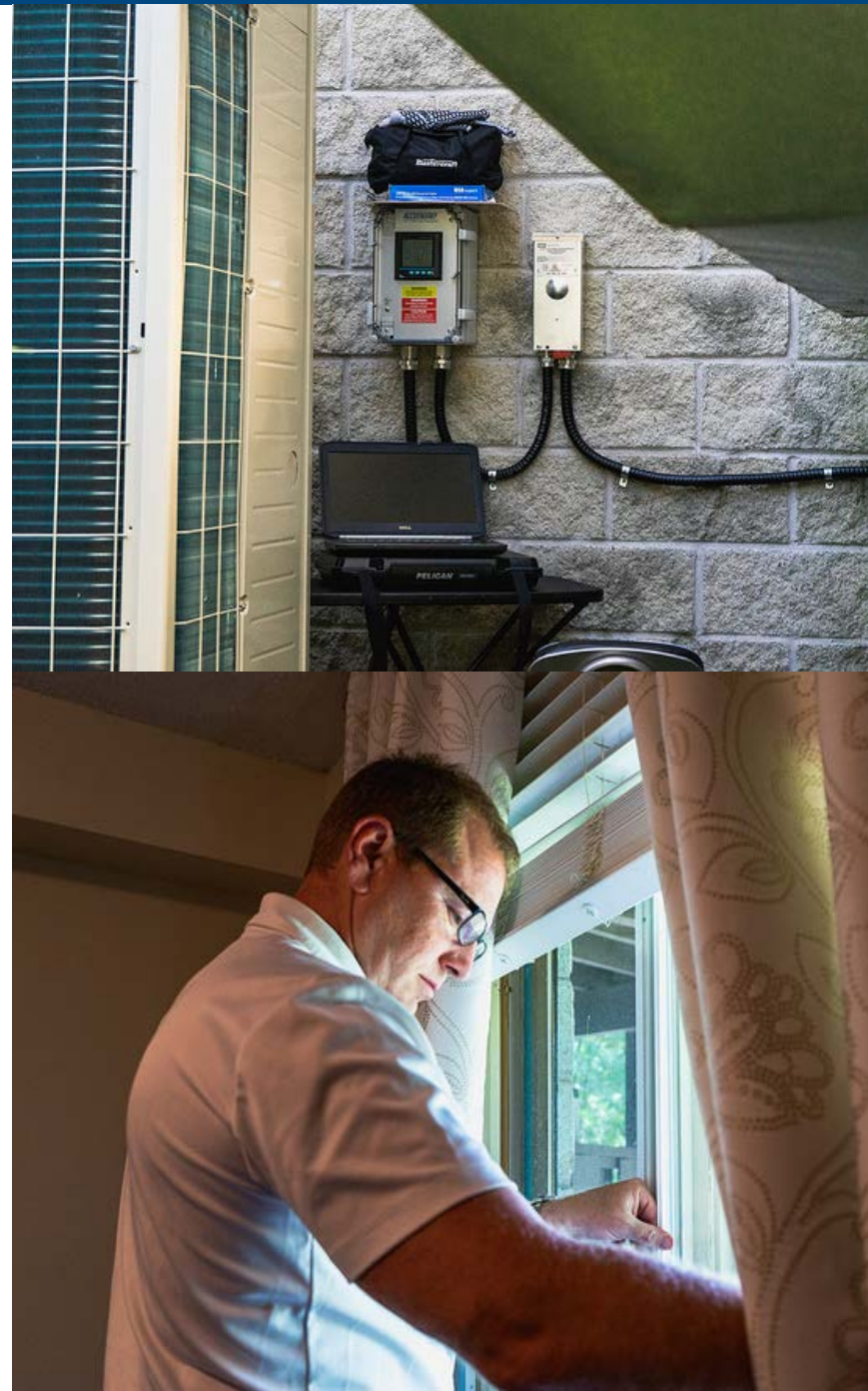


PHASE III – KEY TECHNOLOGIES

- **Gas and electric heat pumps**
- **Smart Thermostats**
- **New window technologies**

TECHNICAL AND ECONOMIC RESEARCH

- Continued research on the co-benefits of retrofits
- Continued use of demo sites as living labs for key technologies
- Development of best practices in financing and business case evaluation for deep retrofits.



POLICY AND PROGRAM DEVELOPMENT

- Research and demonstration findings to inform development of scale-up strategy
- Collaborating with Tower Renewal Office and Chief Resilience Officer on scale-up recommendations for private rental towers
- Working with stakeholders across Canada to identify the financing sources and policy levers needed to enable scale-up



KEY ACCOMPLISHMENTS TO DATE

- Design work underway at four demonstration sites
- Pilot measures installed at two demonstration sites
- \$2M in external grant funding secured
- \$5M low interest loan secured (FCM-GMF)

THANK YOU

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Photo credit: Places to Grow Gallery, Ontario Ministry of Municipal Affairs