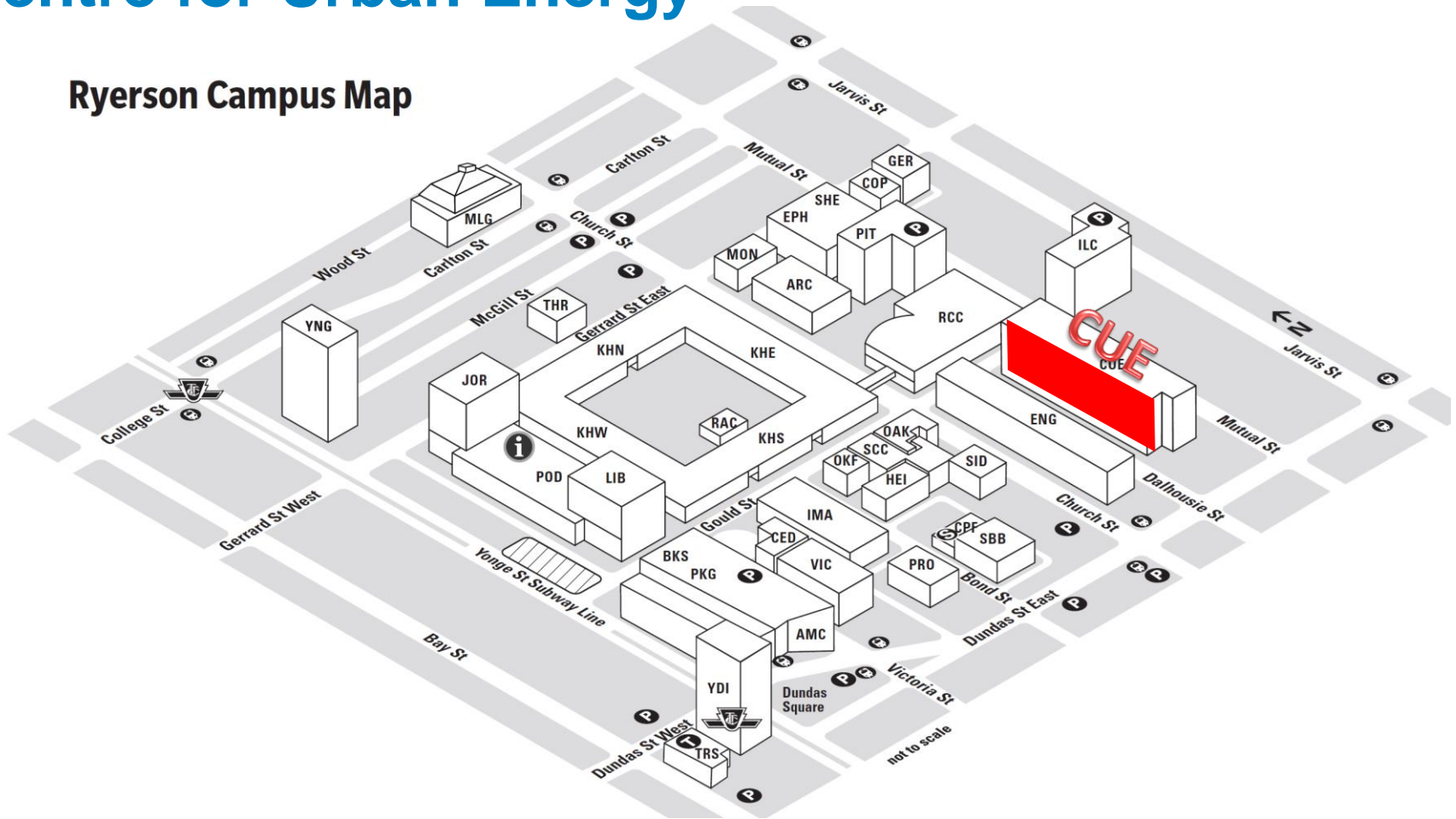


RYERSON UNIVERSITY Centre for Urban Energy

Bala Venkatesh, PhD, PEng
Professor and Academic Director

Ryerson Campus Map



Centre for Urban Energy
Energizing the Future

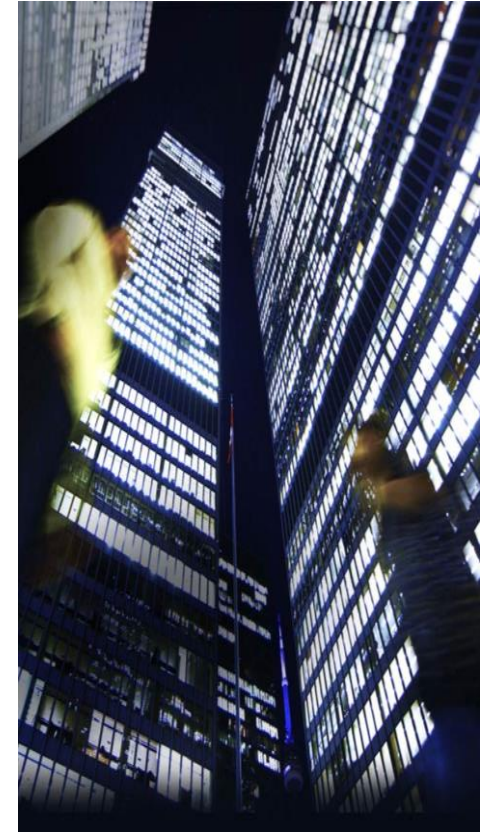
RYERSON
UNIVERSITY

INTRODUCTION TO RYERSON UNIVERSITY

Ryerson advantages

- 3,000 faculty and staff
- 38,950 undergrad and grad students
- 105 grad and undergrad programs
- \$38 million in external research funding
- 18 Canada Research Chairs

In addition, CUE Partners with several institutions & Universities in Canada and abroad to deliver its mandate



Founding Sponsors (\$7 Million)

Hydro One

Ontario Power Authority

Toronto Hydro

INTRODUCTION TO CUE



Funding	\$22 M
Projects — Faculty	35+
Projects — Student	80+
Students (PDF/PhD/MASc/BASc)	200+
Faculty	20+
Research Fellows	6
Administrative Staff	5
Partners	40+

Partners



Research

Education

iCUE

Demo

Energy Storage

Smart Grid

Transmission and Distribution

Cons. and Demand Management

Renewables

Smart Grids

Energy Policy



Recent Success

Flywheel Commercialized on Hydro One Network



Centre for Urban Energy
Energizing the Future

RYERSON
UNIVERSITY

Energy Storage Batteries

To be located in Ryerson Campus:

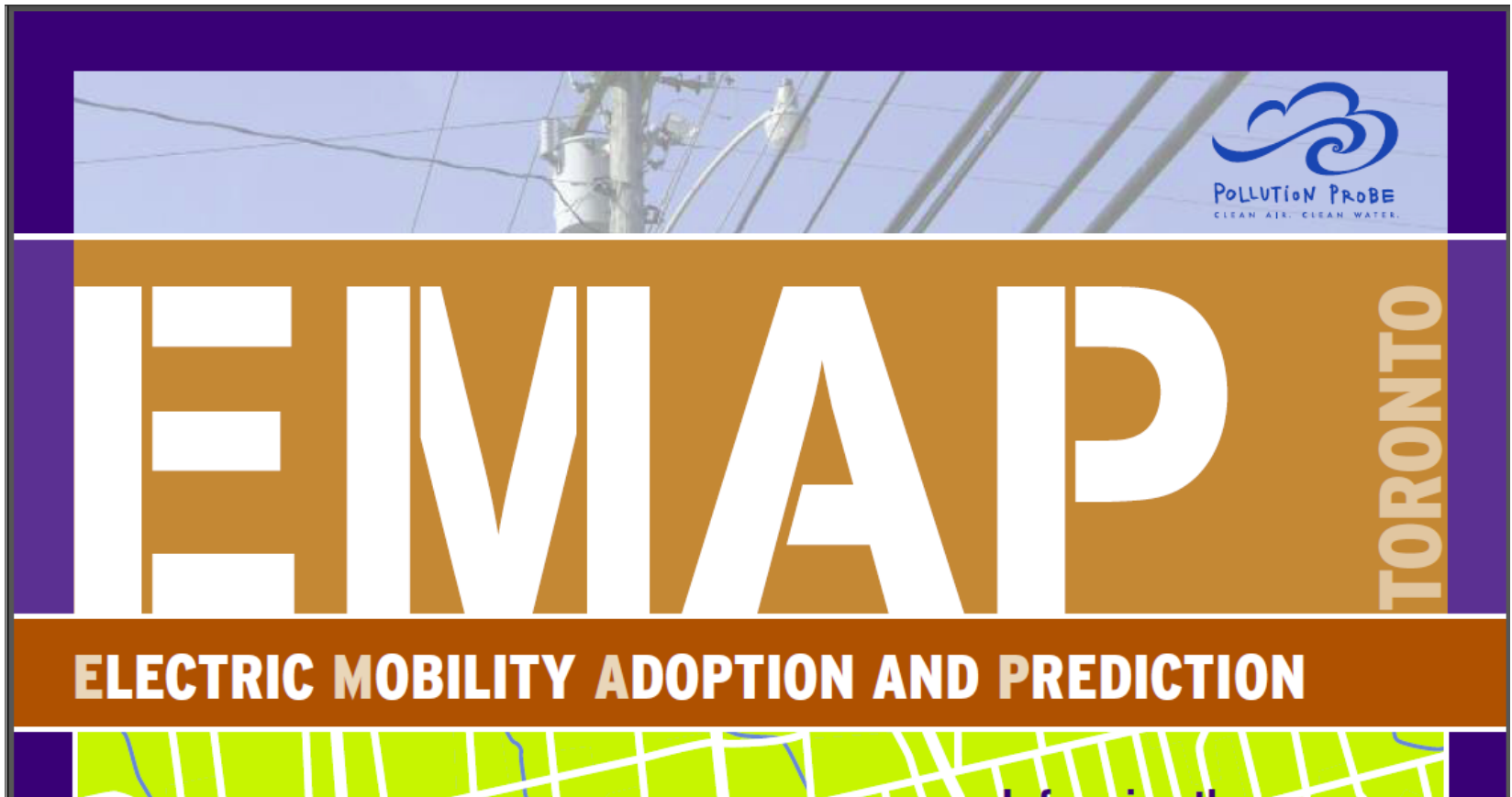
- 136 Dundas Street E
- Monitored from CUE

40 foot Trailer



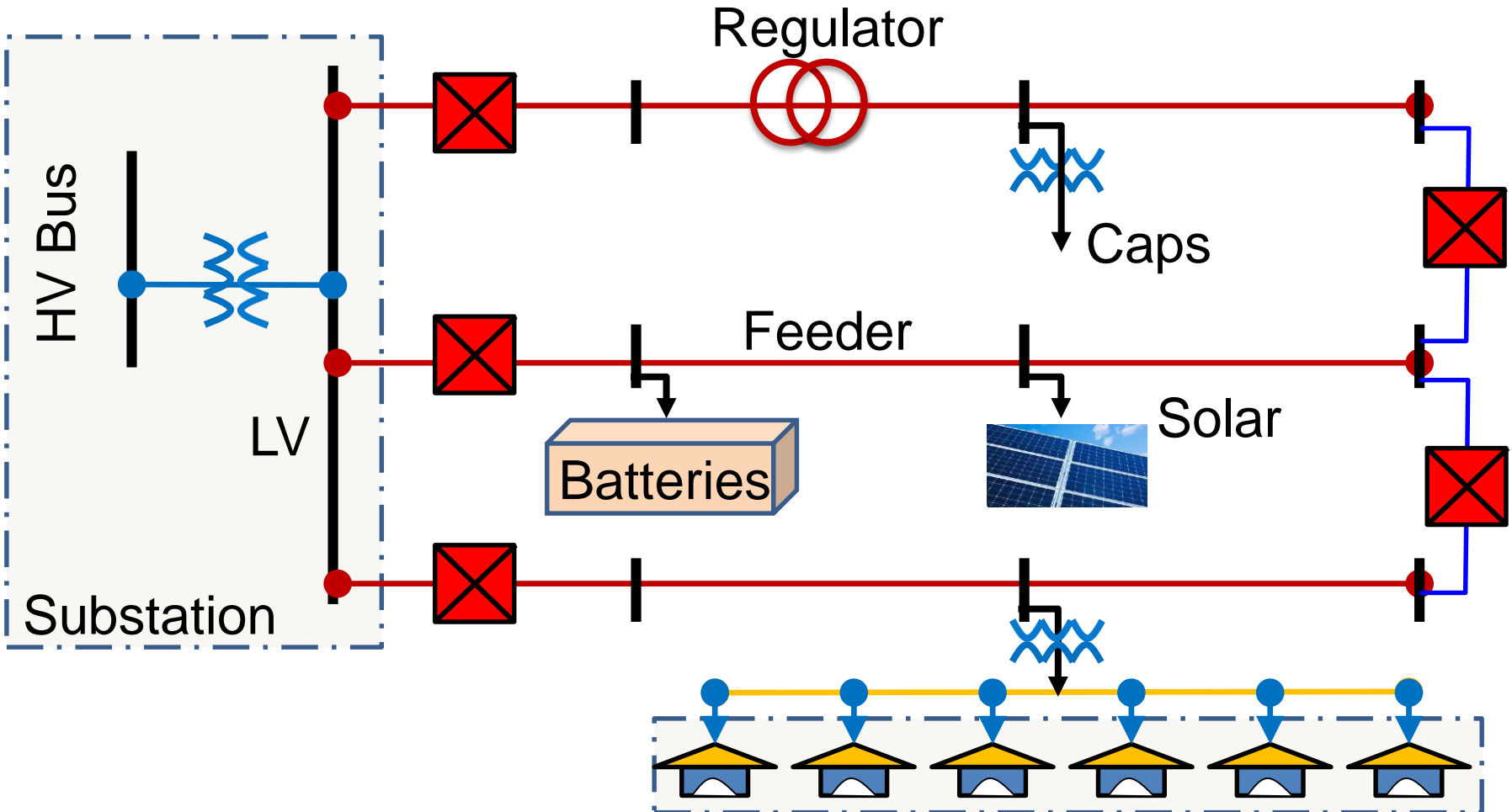


Electric Vehicles EMAP Report - Analysis



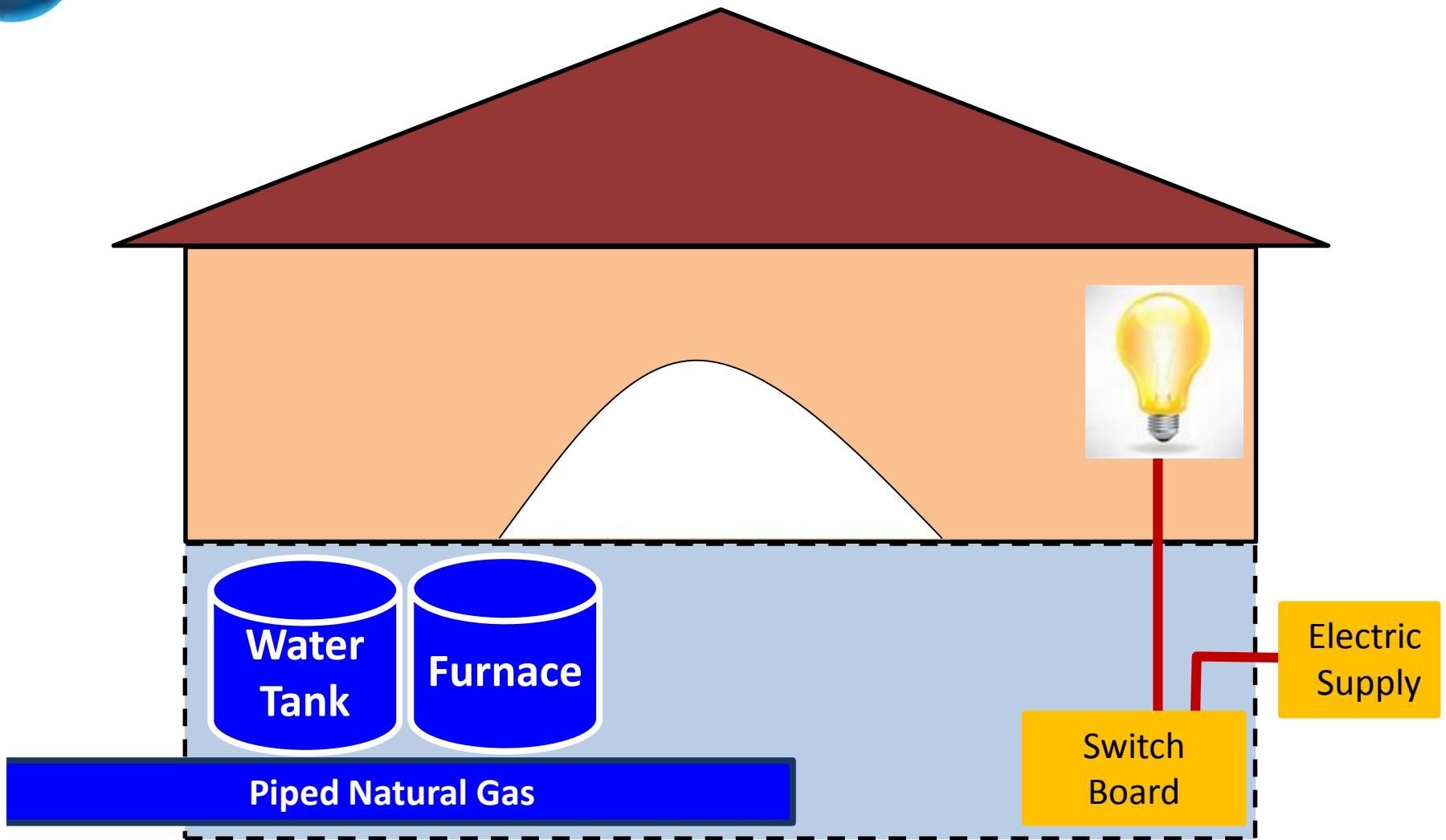


SE Smart Grid Laboratory



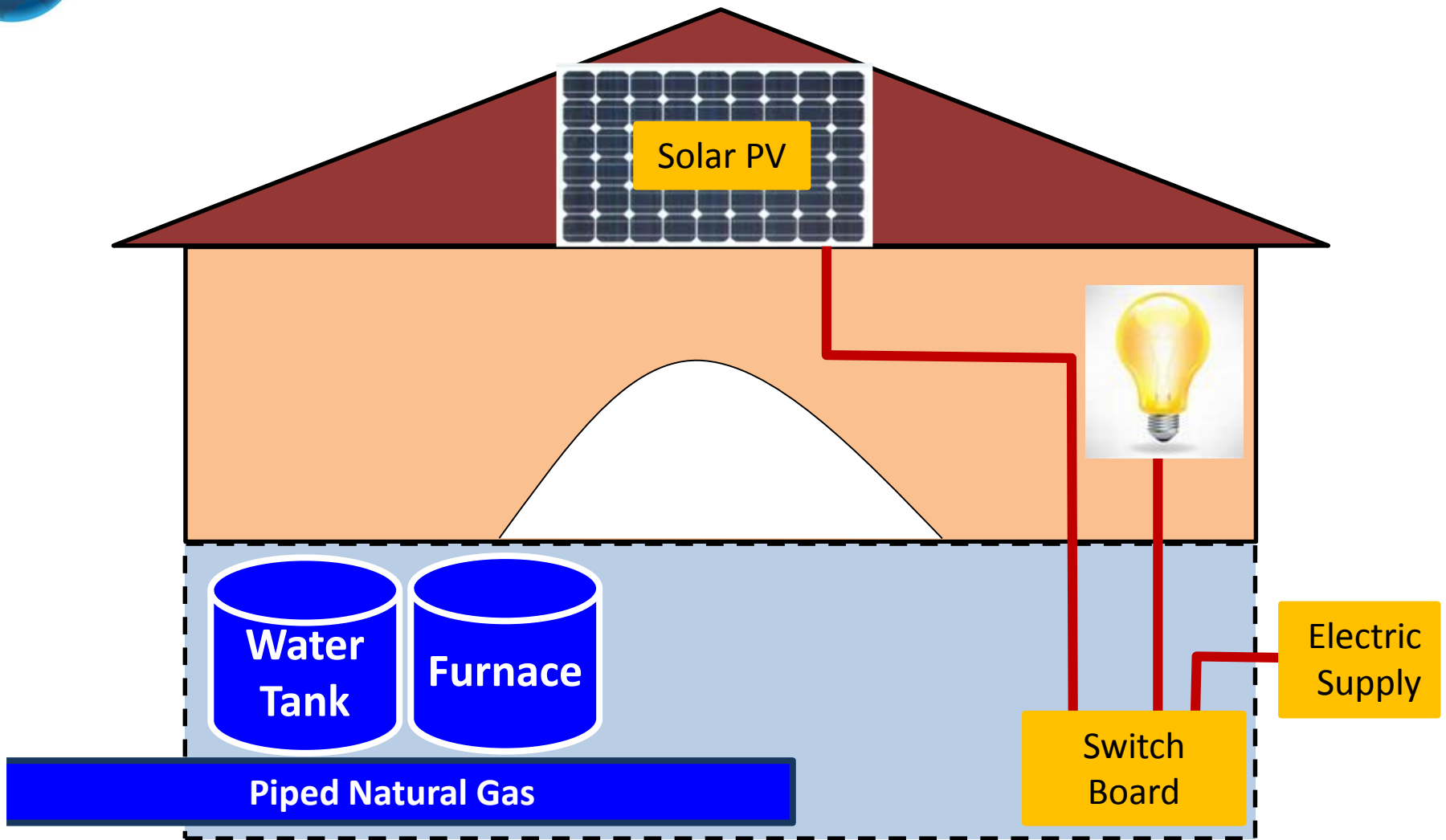


Today: House, Gas and Electric



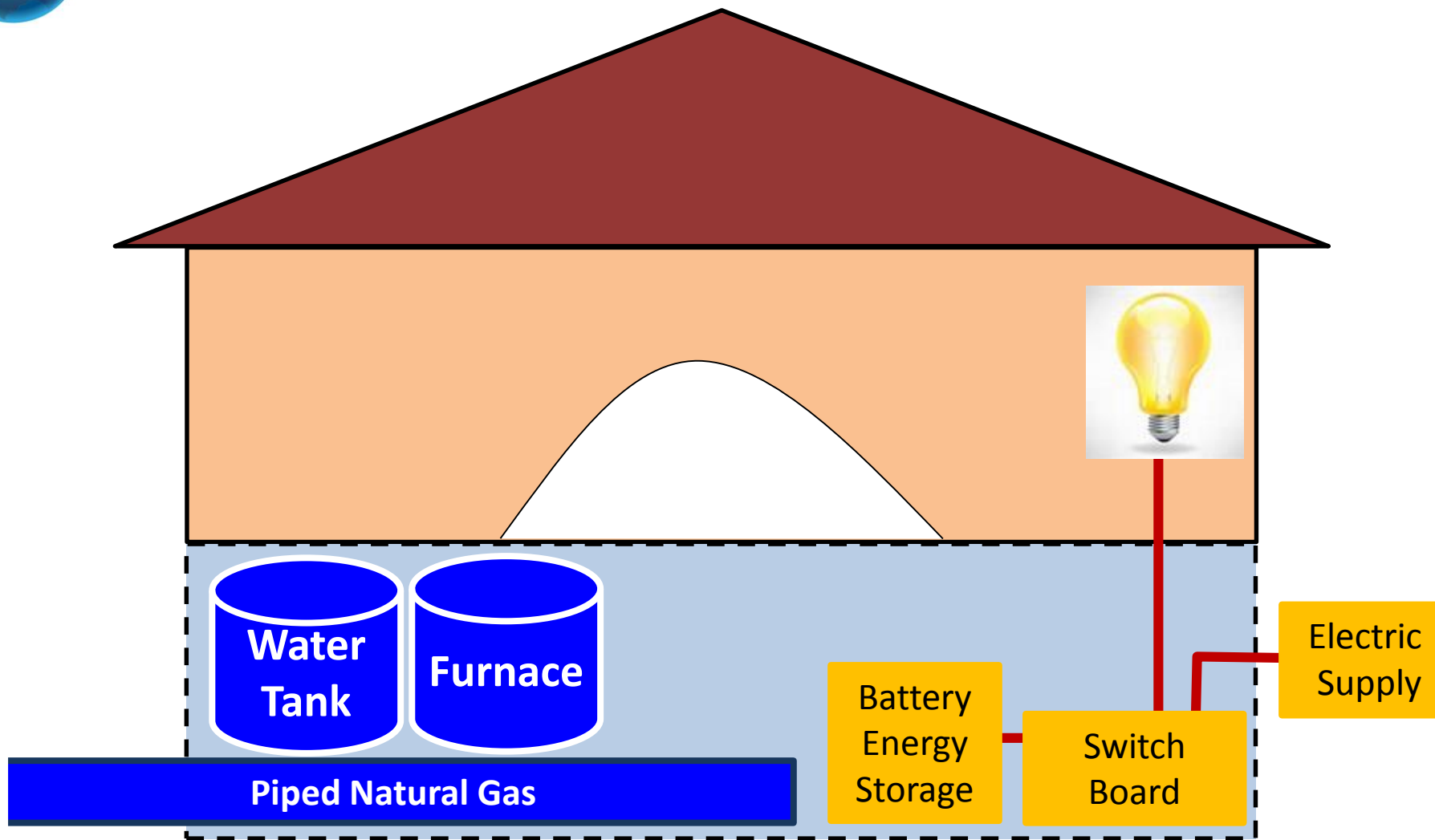


Solar PV: Old Technology, New Price



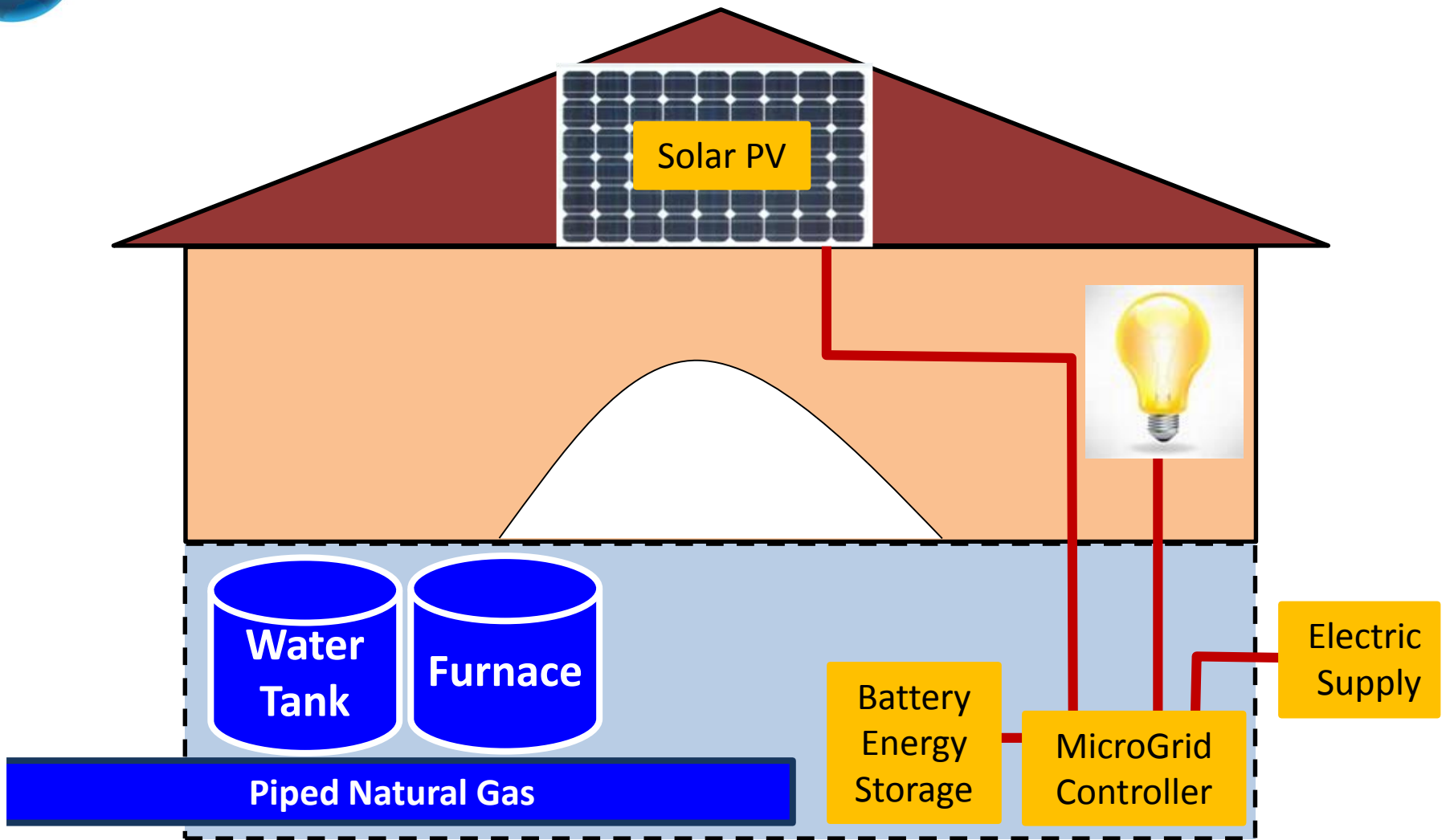


Battery Storage: New Tech, New Price



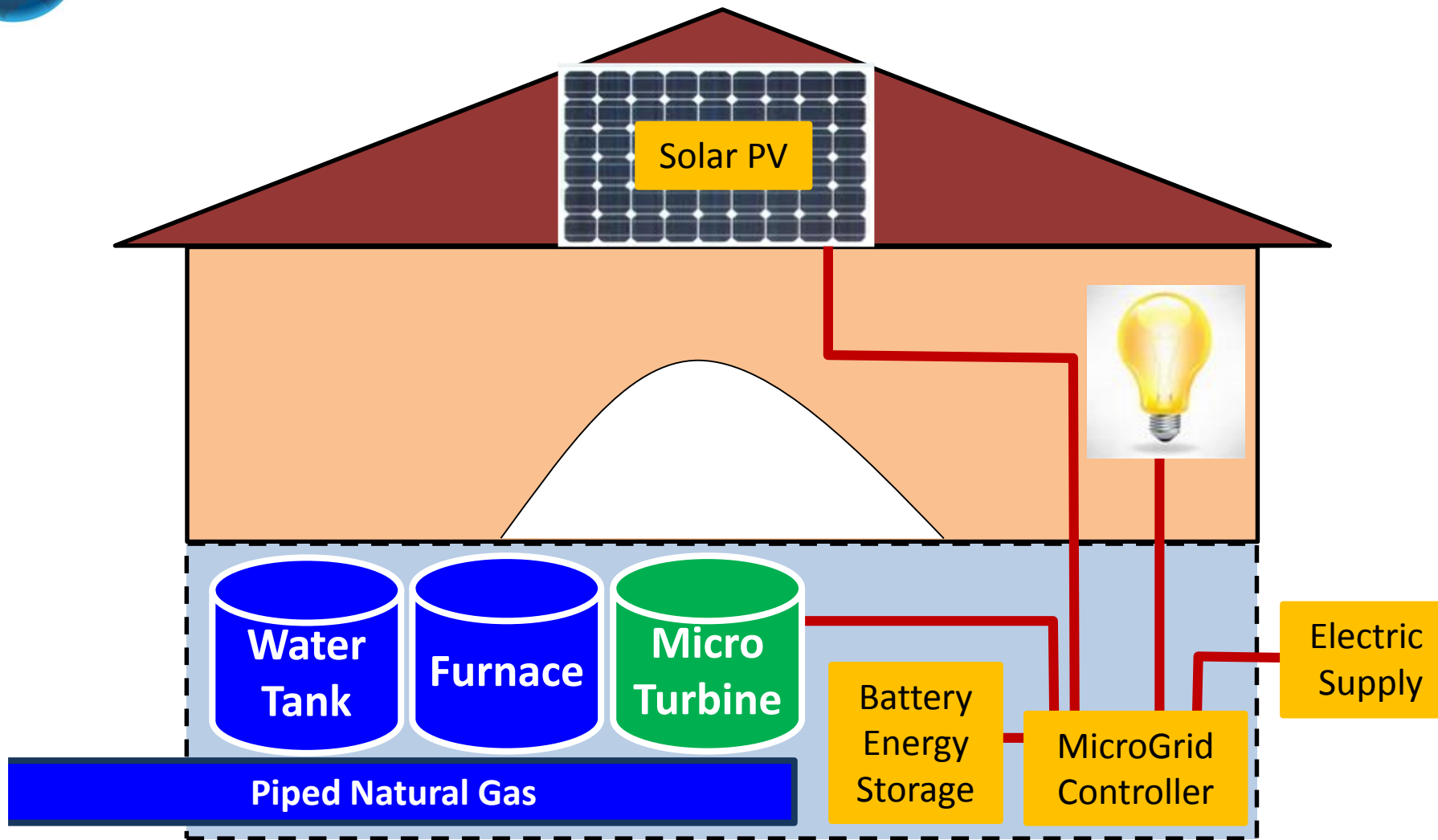


Micro Grid: New Technology



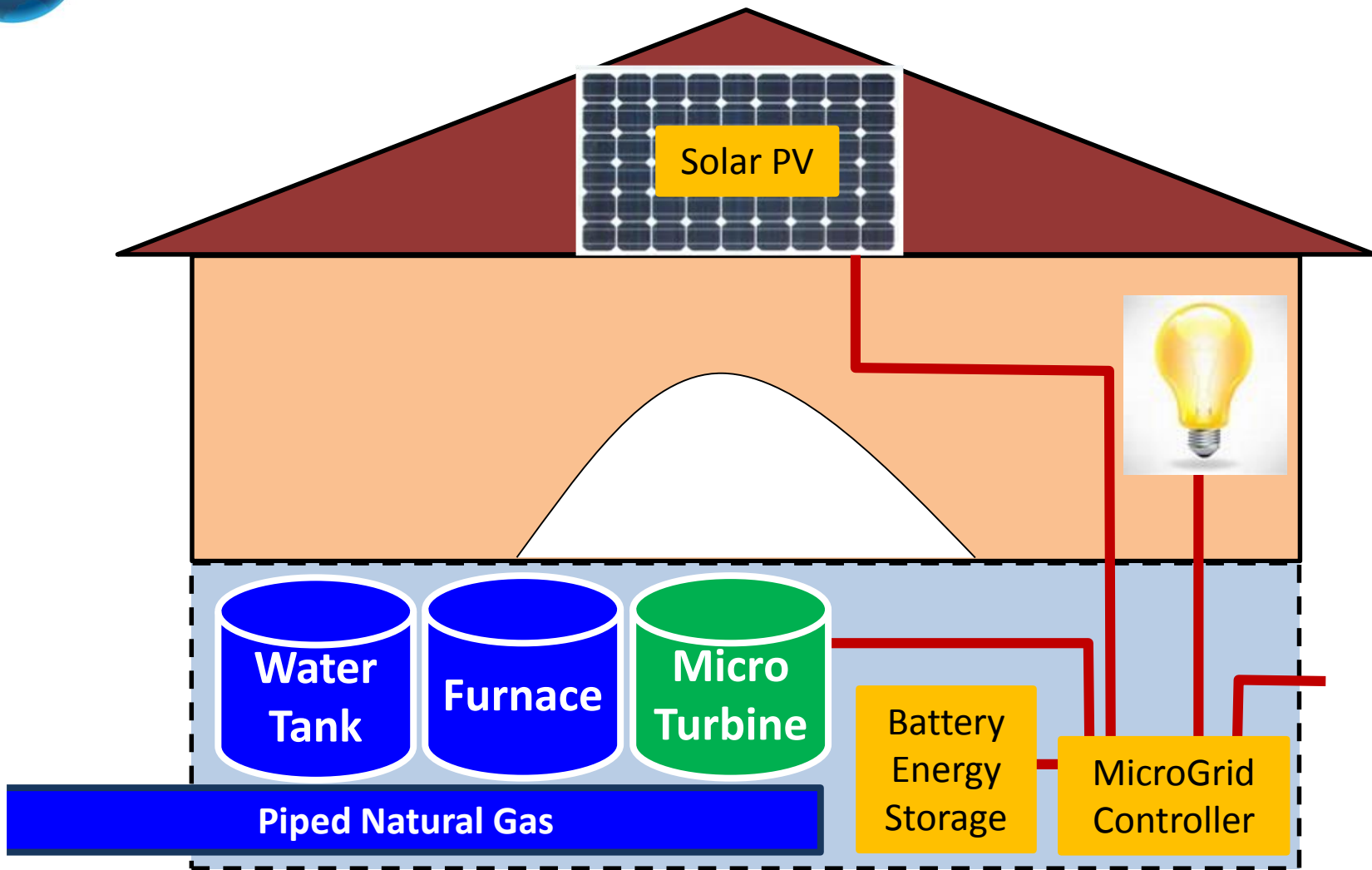


Gas to Electricity at Home: Microturbines



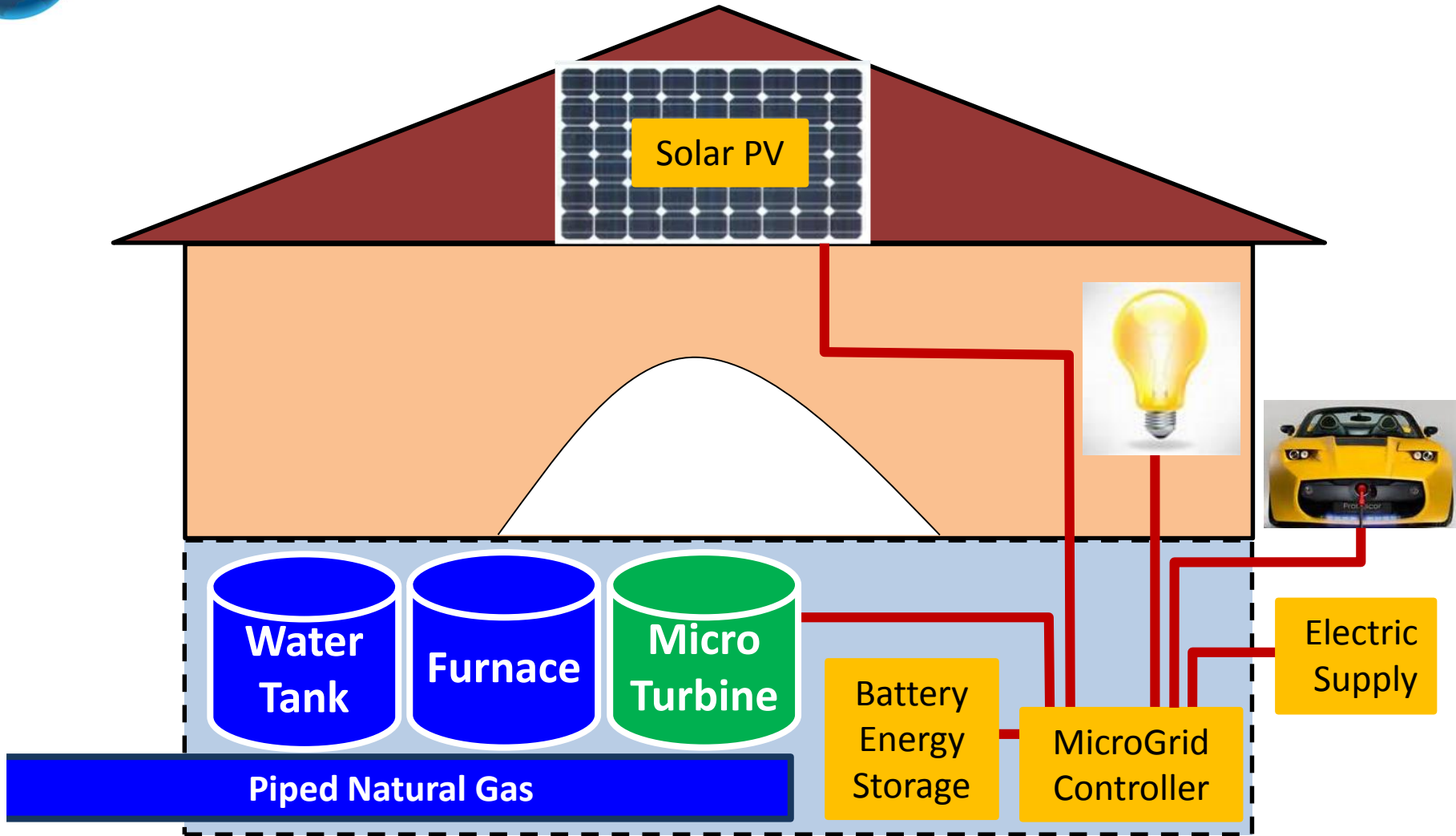


Reliability: with No Electricity?



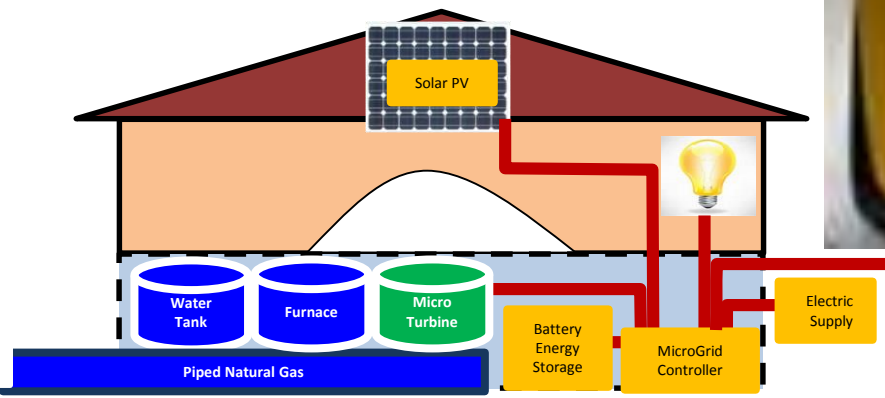


The New Home Load: Electric Cars





Charge EVs Faster: Think Again (EMAP)





Centre for Urban Energy
Energizing the Future

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