Energy Management at a University Campus

Benoît Barbalat

PLUG Conference - Toronto

October 22nd, 2010

Schneider Electric

Agenda

- Goals
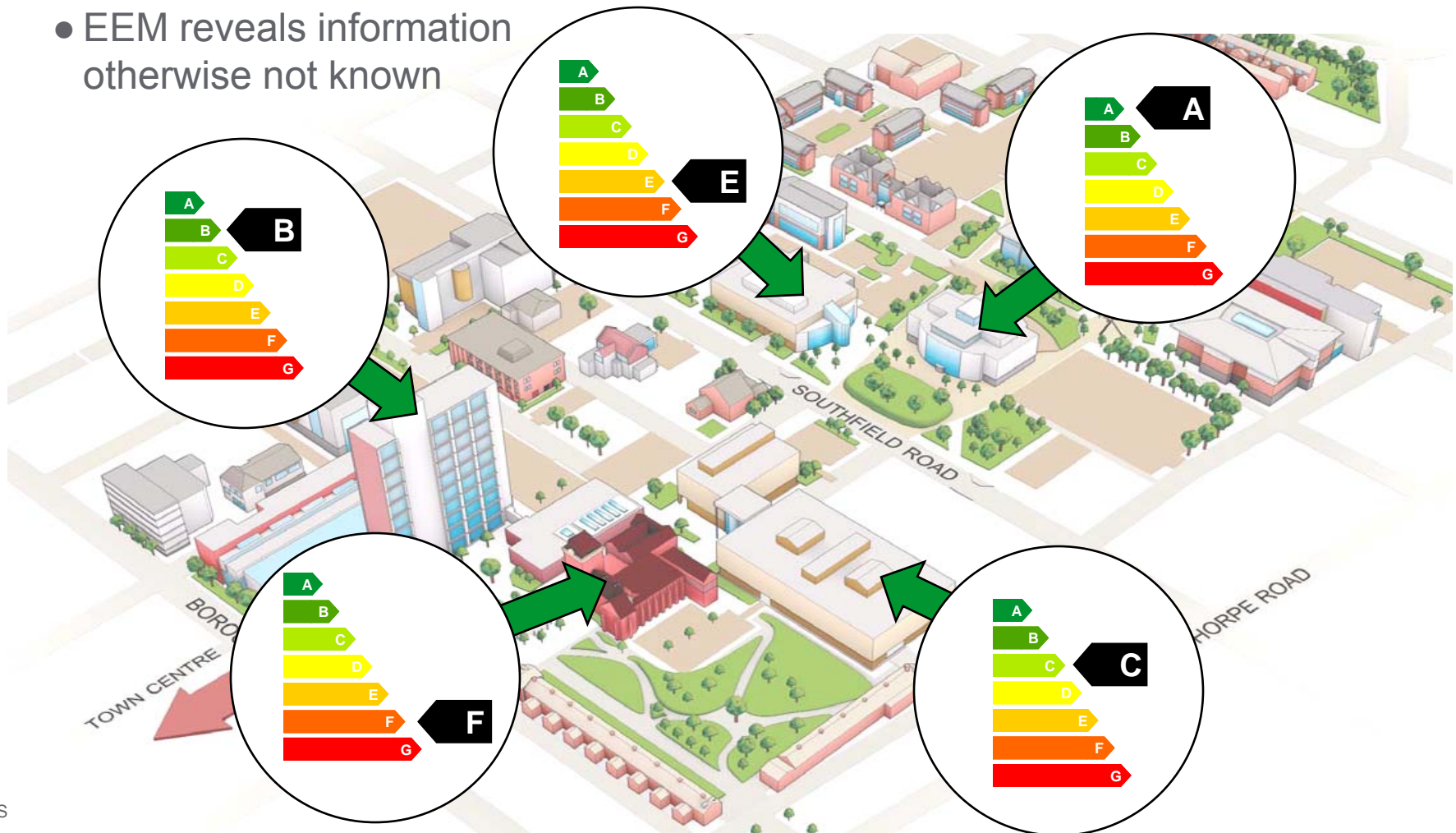- Challenges of universities
- Benefits
- Examples

Goal of Energy Management

- **Incentives for energy savings program**
  - Modernize the campus
- **Validate energy retrofits**
  - Compare before/after
- **Billing Verification**
  - Significant energy costs
  - Identifying even small errors drives big savings
- **Accurate sub-billing**
  - Bill all the buildings separately based on their actual consumption
  - Accounts for energy supply, distribution, maintenance
- **Reduce carbon footprint**
  - Greenhouse Gas emissions compliance
- **Raise awareness**
  - Kiosk displays
  - Change behaviors
  - Have students take part of the maintenance of the energy management system

Identify potential energy savings

- Reveal potentials savings for each building
  - Usually good knowledge of their operations but no information on energy efficiency
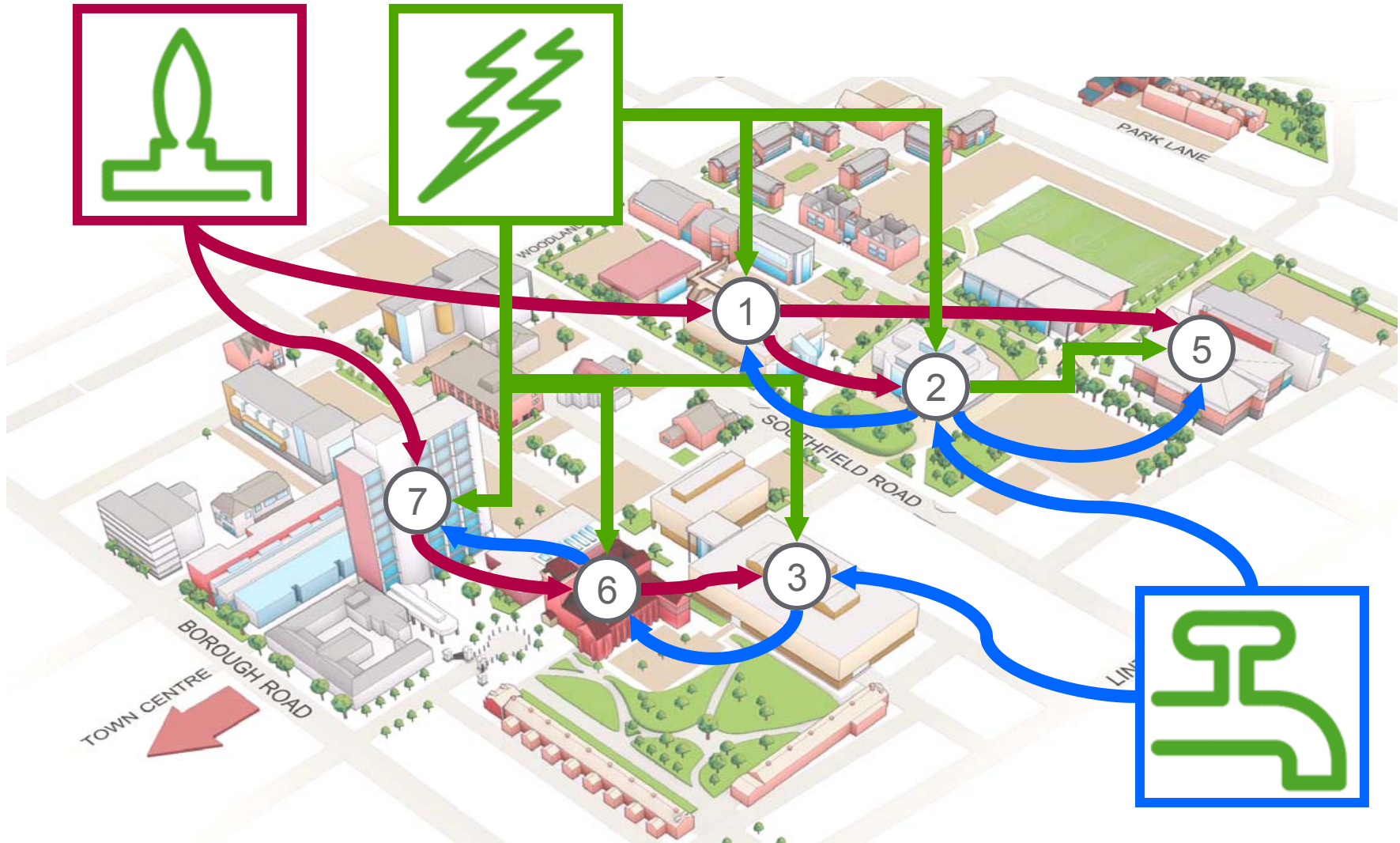 - EEM reveals information otherwise not known

Challenges

- Large campus
  - 50+ buildings
  - 100+ meters
  - History: Campus expanded over time
- WAGES
  - 5+ utilities (Water, Air, Gas, Electricity, Steam, Chilled Water…)
  - Rates change every month
  - Different charges and various delivery modes
- Interval meters are not always available
  - Pulse meters
  - Manual entry
  - Need to program custom ways of entering the data
- Interconnected buildings
  - Challenging to identify the actual consumption for each building

Interconnected buildings

- With EEM you can
  - Remove consumption from downstream buildings
  - Aggregate several buildings into a single cost center

Benefits

- Streamlined billing process for all the buildings on the campus
  - Minimum human intervention
  - Automated
  - Avoid errors
- Accurate billing
  - Import of real-time pricing from IESO
  - Co-generation on site can be accounted for accurately
- Prioritize maintenance and energy savings projects
  - Monitoring the consumption and setting efficiency criteria
- All departments become aware of their own consumption
  - Responsible for their own energy savings
  - Raise awareness
  - Change behaviors
  - Students want to know!

Questions?