GREEN IDEAS: CO-OP CASE STUDIES ON SUSTAINABILITY

ELIZA MOORE – CO-CHF FALL CONFERENCE OCT.24, 2015

WORKSHOP OBJECTIVES

- Share information (from workshop leader and participants) about what “green strategies” have been done by co-ops and how they worked
- Discuss co-op decision-making processes, phasing strategies, prioritizing
- Review current funding options and how to evaluate pay-back periods

AGENDA

- Introduction
- What has your co-op done to save energy and water?
- Case studies
- What will your co-op do next?
- How to make decisions about energy retrofits
- Motivation and priorities
- External funding options

WHAT HAS YOUR CO-OP DONE TO SAVE ENERGY AND WATER?

- Take a few minutes and think about what your co-op has done to save energy and water
- Did those actions save money?
- Make some notes, we'll come back to this later

CASE STUDY #1 – START SMALL, SAVE BIG

- Science 44 student co-op in Kingston, Ontario has 155 beds in 20 buildings, 18 of which are old houses
- Started “green initiatives” about 10 years ago
- Met Rick Mercer’s “one tonne challenge” and saved one ton of carbon output for each member in the first few years
- Started with very modest budget ($2000), to replace all exit lights with LEDs
- Now have spent total of $600,000 or so on various measures – funded by savings supplemented with small bank loans

CASE STUDY #1: START SMALL, SAVE BIG

- Replaced exit lights with LEDs (one small step)
- Installed new windows, converted oil and electric heating to high-efficiency natural gas
- Early in the program, they installed new toilets, low-flow shower heads, tap aerators, member awareness program re conservation
- More recently, front-loading washers, now looking at solar hot water when roof replacement happens
- Kept their utility costs at the same level since the beginning of the program

CASE STUDY #2: PASSIVE SOLAR AND MORE

- **Beaver Creek Co-op in Waterloo has south-facing townhouse units with large passive solar windows**
  - Light and heat well on ground floor to get sun-heat into basement concrete
  - Insulated blinds didn't last long, but still helps heating the house
  - The co-op uses this as a marketing feature with new members
- **More building retrofits**
  - Doubled the attic insulation with blown cellulose, noticed immediate difference in comfort and heating costs
  - Installed more attic vents to cut down condensation and mould

CASE STUDY #2: PASSIVE SOLAR AND MORE

PASSIVE SOLAR

Light and heat well on ground floor to get sun and heat into basement concrete

Filling in the floor to get more space defeats the purpose

CASE STUDY #2: PASSIVE SOLAR AND MORE

- **Built in 1982, the co-op had relatively low efficiency furnaces near the end of their life**
  - Wanted upgrade to geo-thermal system, applied unsuccessfully for stimulus grant (2011)
  - Could not vent high-efficiency furnaces in all units
  - Spent all the reserves in upgrade to medium-efficiency furnaces
  - Still hoping for geo-thermal system next time around

CASE STUDY #3: NEW TECHNOLOGIES

- **Two co-ops in Toronto – Arcadia and Cathedral Court**
- High rise and stacked townhouses
- Building problems and high operating costs leading to environmental solutions:
  - Leaking garage roof → SOLUTION: high tech waterproofing membrane covered by soil and plants
  - High cost of natural gas → SOLUTION: solar water heating
  - Unbalanced and expensive electric heating → SOLUTION: supplementary solar room heaters

CASE STUDY #3: NEW TECHNOLOGIES

- **ARCADIA – Green garage roof:**
  - Previous roof with concrete deck and conventional waterproofing started leaking after only 3 years
  - Sunlight speeds up the deterioration
  - New “green roof” provides protection for the new waterproofing membrane, as well as increased green space for co-op members → should last 25-30 years
- Cost: $65,000 including replacement of private patio fences, sidewalk along property line, steps and ramps (new “ground level” is up two steps)
- About $10,000 more than straight replacements

CASE STUDY #3: NEW TECHNOLOGIES

- **ARCADIA – Solar water heating** (Note that this is different from solar PV for generating electricity – these panels are heavier, with water pipes.)
  - Supplements existing gas-fired boilers
  - Computer controlled, monitored off site, very challenging to operate, have had lots of problems
  - Installed 7 years ago – savings have not been as expected
- Cost: $105,000 was net cost after receiving a grant
- Targeted savings: $10,000 per year

CASE STUDY #3: NEW TECHNOLOGIES

- **CATHEDRAL COURT – Solar wall heaters:**
  - Electric ceiling coils were not efficient and very expensive (3rd floor heaters heating 4th floor units!)
- What they did at first:
  - Installed solar heaters in the walls of three units
  - Monitored electric bills for members in those 3 units
  - Cost: $3000 per heater
- But it didn't work!!!

CASE STUDY #3: NEW TECHNOLOGIES

- CATHEDRAL COURT – So they disconnected them, and tried heating-cooling pumps:
  - Mitsubishi Mister Slim, heating contractor got them a grant
  - Indoor air handler installed in each storage closet
  - System is ductless, uses thin pipes to connect air handler to the through-the-wall unit
  - They also dismantled the heating coils in the floors
- This worked much better!!!
  - They are saving 50% on electrical costs

CASE STUDY #4: SUSTAINABLE PROGRAMMING

- **Sundance Co-op (Edmonton, Alberta)**
- Townhouses
- Co-ops was built using higher standards than was normal at the time
- Founding members made this a priority, and this principle has lived on in the way the co-op operates, from decisions made about replacements to some ecologically friendly programs

CASE STUDY #4: SUSTAINABLE PROGRAMMING

- Sustainable Programming – working together to reduce waste
  - Free store – a room where members can leave “gently used” items for swapping with others
  - Bottle shed – a shed where members leave returnable, refundable beverage containers (note that in Ontario this would be only beer and wine bottles);
    Environment Committee returns the containers, uses the money to fund all its activities
- Toxic waste – electronics, light bulbs, batteries are collected and taken to the proper disposal site
- Bi-annual clean-up days – dumpster brought in to collect large items that can’t be recycled

CASE STUDY #4: SUSTAINABLE PROGRAMMING

- Equipment shed – members can borrow push lawn mowers and other maintenance tools
- Co-op dish collection – reusable dish collection used for co-op events, can be borrowed by members
- Rain barrels – members can bring watering cans and buckets to fill up with free water
- Front-load washer program – members pay $10 per month to have energy-efficient washer; maintained by the co-op and stays with the unit on move out

CASE STUDY #5: GUELPH CAMPUS CO-OP

- Has rooming houses, apartments and townhouses
- Water conservation –
  - Low flush toilets – one house reuses grey water for flushing
  - Low water showers
  - Rainwater harvesting for laundry use
- Solar panels –
  - Generating electricity or pre-heating water
- More –
  - LED and compact fluorescent lighting
  - Environmentally friendly cleaning products

CASE STUDY #5: GUELPH CAMPUS CO-OP

- Sustainable building with four-bedroom apartments
- Features passive solar, in-floor radiant heating, rain-water harvesting

WHAT COULD YOUR CO-OP DO NEXT TO SAVE MONEY?

- Discuss with the person or group you worked with during the introductions
- Look back at the notes you made before, about what you did, what saved money, what didn't
- How could you turn the losers into winners?
- What else could you do?
- Make more notes
- Decide who will report back to the group

HOW TO MAKE DECISIONS ABOUT ENERGY RETROFITS

Scenario:

- Refer to the scenario on the handout
- Appoint a note-taker for your discussion, and someone to report back to the group
- Pretend that you are the co-op members trying to make a decision about whether to go ahead with the heating conversion project
- What points come up in your discussion?
- What final decision would you make?
- What additional information do you wish you had?

POINTS RAISED DURING DISCUSSION

- It's not fair for all the money to be spent on the apartments
- We would like to see a list of all the other possible energy saving projects that the co-op could do
- We should do other energy-saving upgrades first, and then use the savings to put towards this project
- The sooner we do this, the more money we'll save
- The reason the apartments cost so much to heat is that those members have no incentive to turn down the heat
- The housing charge should go up in the apartments because of this new system
- We would like to know what government grants are available to help with this project

WHY GO GREEN?

- **Co-ops care – there is more than the "bottom line", because co-ops exist for social purposes**
  - Helping members keep utility costs low
  - Having concern for the environment
- **Benefits to the co-op to spend money on retrofits:**
  - Encourages current members to stay, less turnover
  - Helps with marketing vacant units
  - Members have more disposable income
  - Helps everyone feel good about the reduced carbon footprint

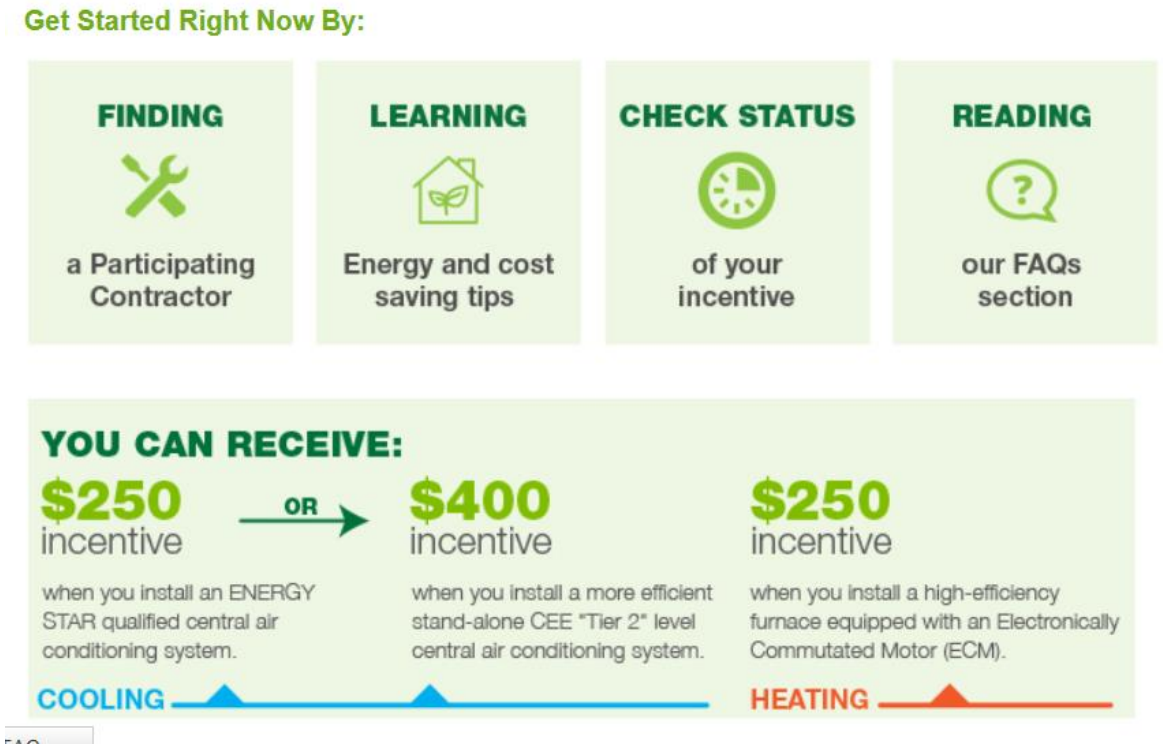
PRIORITIZING

- If you have a long list, where do you start?
- Changing member behaviour on water use, energy use, waste reduction, etc.
- If you don't have a list yet, energy audits can help identify potential savings
- Getting technical help – Housing Services Corporation (HSC), CHF Canada (asset management services), other professionals

HOW TO FINANCE YOUR RETROFITS

- **Grant programs**
  - Not very many these days
  - Various rebate programs from your local hydro distribution company (covers furnaces, appliances, lighting, windows, etc.)
- **Energy services company (ESCO) lending**
  - Loan repaid using operating savings
- **Green loan from Infrastructure Ontario (HRA co-ops only) – administered by HSC Energy Services**
  - Must have “debt coverage ratio” of 1.1 to 1
  - Service manager must agree
- **CHF Canada refinancing program**
  - Section 95 and section 61 co-ops only

SAVE ON ENERGY PROGRAM



- Programs like this can help you with high energy furnace venting or other projects
- Your best source of information is a heating contractor

HOW TO FIND OUT MORE ABOUT FINANCING PROGRAMS

- **Ask your regulator – Agency or Service Manager**
- **Ask your consultants and suppliers**
- **Ask CO-CHF or CHF Canada**
- **Ask me**
  - Eliza Moore emoore@chfcanada.coop
    1-800-268-2537, ext.802
- **Ask HSC Energy Services**
  - Mike Parkes energyservices@hscorp.ca
    1-866-268-4451, ext.306

SOME FINAL ADVICE

- Consider greener alternatives with every purchase, including major replacements
- Consider renewable energy options
- Monitor consumption – you'll need to know this to evaluate potential savings
- Do something this year! (Start small.)
- Use your savings to create a "start small" reserve
- Build a culture of conserving energy and water

GOOD LUCK!