SOS Software Development Consultation

Vancouver

Dec. 11, 2008
BCIT Downtown Campus

ECOSMART™

Agenda

08:30 Coffee and muffins
09:00 Introduction of key people, explanation of purpose of session
09:05 Plenary presentation: Climate Change, GHGs and the SOS
09:30 Objectives of Breakout Session 1
09:35 Breakout Session 1
10:05 Plenary session – presentations of results by group
10:20 Break
10:40 Objectives of Breakout Session 2
10:45 Breakout Session 2
11:15 Plenary session – presentations of results by group
11:30 Plenary general Q&A session
11:45 Summary and wrap-up
12:00 Lunch

ECOSMART™

Some definitions: SCMs and SOS

- **SCM**s – Supplementary Cementing Materials
  - Used to partially replace cement in concrete
  - Fly ash, ground granulated blast furnace slag (GBFS), silica fume, metakaolin, etc.
- **SOS** – Supplementary Cementing Materials Optimization System

ECOSMART™

Key people

ECOSMART Foundation
- SOS Project Manager
- Non-profit corporation promoting environmentally friendly technologies –especially in construction.
- Has championed numerous case studies of high volume SCM projects in Canada and elsewhere

- SIMCO
- SOS Software Developer
- Experts in concrete modeling
- Developers of STADIUM Software

ECOSMART™

Climate Change and GHGs

- Now take as a given that:
  - the world is warming at a rate unprecedented in human history
  - Man-made emissions of GHGs are a major factor in this warming
- Most important GHG at present is CO_2

ECOSMART™

Cement and CO2

- Cement is an essential building material
- Manufacturing cement releases about one tonne of CO_2 for each tonne of cement produced (world average).
- World-wide, cement manufacture accounts for more than 5% of total man-made emissions of CO_2
- Much interest – by governments, cement producers and the construction industry – in reducing this CO_2 burden

ECOSMART™

SCMs and EcoSmart

- Supplementary cementing materials can partially replace cement in concrete.
- In recent years EcoSmart, with strong government and industry support, has fostered a number of successful demonstrations of SCM use – especially at high levels (up to 50% cement replacement)
- Major lesson learned: SCMs work very well provided expert advice and guidance is available

ECOSMART™

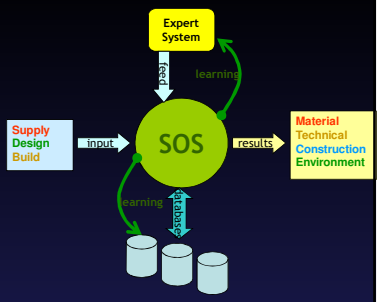
SOS

- Rationale
  - Computer-based expert guidance system to help industry determine the optimal replacement level of cement by SCMs for a given project, and the benefits thereby accruing.
  - SOS will be a mix guidance tool. It will give guidance on the suitability of SCMS, the percentage replacement, the factors to consider, and the cost and GHG implications.

ECOSMART™

SOS: Basic Structure

- Databases
  - Concrete data
  - Cost data
  - Climatic data
- Expert System
- GHG Module
- Financial Module



ECOSMART™

SOS Consultation

- Ensure SOS meets needs of intended users
- Timeframe for development SOS is to end December 2010
- EcoSmart will meet user groups across Canada
- Today's workshop is the first
- Two objectives
  - Obtain valuable user input
  - Improve future workshops

ECOSMART™

Questions

?

ECOSMART™

Breakout session 1

- Given the intent to increase usage of SCMs in concrete, what inputs and outputs would the end user envisage?
- Considerations
  1. Which factors are important when specifying/choosing/designing concrete?
  2. What works now in software used for design, project management, etc.?

ECOSMART™

Reports from Breakout Session 1

ECOSMART™

Break

ECOSMART™

Breakout Session 2

- Given the SOS is available, how would you ideally interact with it?
- Some examples:
  1. MetroQuest
  2. HOMER

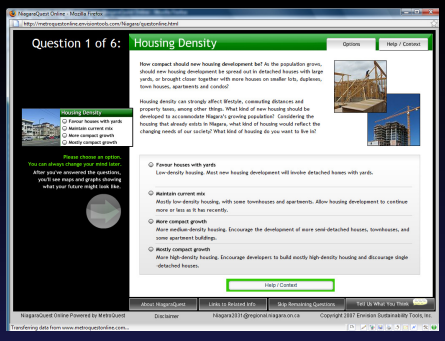
ECOSMART™

MetroQuest

- Community Planning Tool
- Lets user see consequences of various decisions
  - Asks questions on housing density, housing location, land development, roads and transit, transportation policy and environmental program
  - Outputs: animated graphs and displays

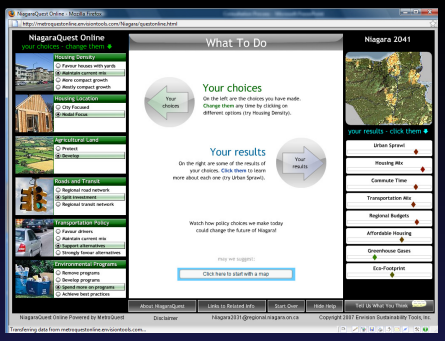
ECOSMART™

Example - MetroQuest



ECOSMART™

Example - MetroQuest



ECOSMART™

Example - MetroQuest

ECOSMART™

Example - MetroQuest

ECOSMART™

Example - MetroQuest

- Notes
  - Animated visuals, graphs and charts
  - Comparison against previous case only
  - Illustrates the interplay between choices
  - Does not directly show assumptions and calculations
  - Used in consultation processes

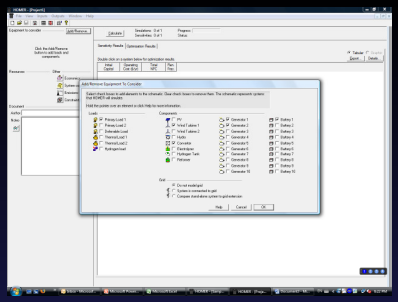
ECOSMART™

Homer

- Energy Systems Optimization Program
  - Determines the optimal energy generating mix according to various system designs
  - Geared towards a technical audience

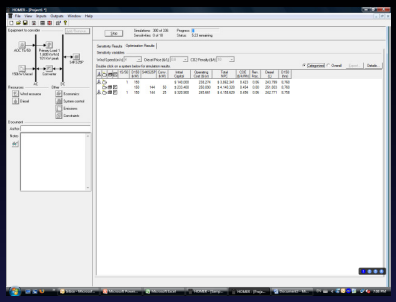
ECOSMART™

Example – Homer



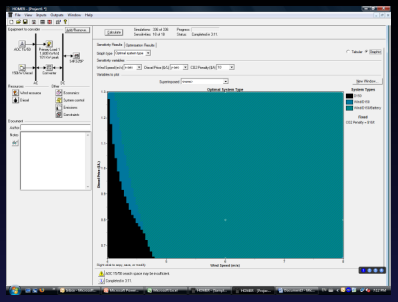
ECOSMART™

Example – Homer



ECOSMART™

Example – Homer



ECOSMART™

Example – Homer

- Descriptive and user defined inputs (and outputs)
- Little in the way of guidance (assumed knowledge)
- Simple but structured layout
- Varying complexity of analysiss available
- Focused on a technical audience

ECOSMART™

Breakout session 2

- Given the SOS is available, how would you ideally interact with it?
- Considerations
  1. Which information presentation styles are most useful (e.g. graphs, charts, scales, timelines, graphics)?
  2. How should various choices/options/scenarios best be compared (i.e., which factors are likely to be most important in ranking results)?
  3. How can the way output is presented help you decide on SCM usage?
  4. Where would SOS fit into your organization
     - can it save you time, improve stakeholder relations, or streamline project development?

ECOSMART™

Reports from Breakout Session 2

ECOSMART™

Final Plenary

1. General questions?
2. What worked and what didn't?
3. What should we change for future workshops?

ECOSMART™

Summary of workshop

ECOSMART™

Next Steps

1. Compile information from discussions
   - Redesign workshops
2. Hold other workshops across Canada
3. Translate information into system specifications and SOS code
4. Provide regular updates on program development through EcoSmart / SOS website, newsletters or emails

ECOSMART™

Thank you

Roy Sage & David Barrie

The EcoSmart Foundation
e: roy@ecosmart.ca or david@ecosmart.ca
p: 604-689-4023 ext. 122 or 127

ECOSMART™