

Work Plan 2010- 2012

Developed by the Coordinating Committee

for

Greenhouse Gas (GHG) Memorandum of Understanding (MOU)

between the

Alberta Roadbuilders and Heavy Construction Association (ARHCA)

and the

Government of Alberta (represented by Environment and Transportation)

BACKGROUND AND OBJECTIVE:

Under the GHG MOU the parties agreed to work together to develop a framework to enable the industry to achieve the following:

- GHG emissions reduction that enable our province and industry sector to be competitive and adjust to a carbon-constrained future; and
- help Alberta meet the objectives set out in the 2008 Climate Change Strategy and the Provincial Energy Strategy, which both include initiatives on energy efficiency.

The overall goal is to improve energy efficiency that would improve industry and the province's competitiveness and help to reduce greenhouse gas (GHG) emissions. This work plan presents the priority activities proposed to achieve the objectives of the MOU. It focuses on strategies for improving the energy efficiency of the construction and road building sectors and reducing consumption / combustion of carbon-based fuels in these sectors through the following approaches:

- fuel efficiencies;
- renewable or alternative (low carbon) fuels;
- waste minimization and materials recycling; and
- materials substitution using less GHG-intensive material.

This work plan is a living document that presents the key initiatives that the Coordinating Committee will be leading to achieve the objectives of the MOU.

KEY WORK PLAN INITIATIVES AND ACTIVITIES:

1. DEVELOP TOOLS / BEST PRACTICES

Purpose: To provide to members the tools and best practices to improve energy efficiency.

Timeframe: Develop plan winter 2011 with intent to launch a project in fall 2011.

- a. Develop project plan with timelines and resources needed.
- b. Review and develop best practices for member to consider adopting. Develop and provide useful tools “Best Practices” (BPs) for energy efficiency (EE) as a way to achieve GHG emissions reductions by construction and road-building industry sectors:
 - i. Specific BP development required or adaptation of existing BP for Alberta use.
 - ii. Review member profiles to determine whether targeted approach is needed.
 - iii. Case studies
 - iv. TAC Green Guide for Roads
 - v. Check and obtain approval from BC to use some of their existing BP materials.
- c. The ARHCA, with support of MOU partners, AENV and AT, prepares summary document of Alberta BPs for construction and road-building industry sectors.
- d. Consider value of and interest in self assessment tool. This might be a topic for a survey to determine level of adoption by the industry (benchmarking?)
- e. Rollout BP summary to ARHCA members. (see examples provided in Appendix)

Review/Discussion

One outcome would be a review of best practices appropriate to the industry and a survey of industry to see which of these best practices are currently in use – what are the barriers to the various best practices being used and which best practices are out there but not in common use that could benefit the members.

2. BASELINE INFORMATION ON INDUSTRY PRACTICES AND BENCHMARK TO LEADING JURISDICTIONS

Purpose: To understand the current state of practices in the industry, monitor progress, and provide the basis for building a positive image of the industry as a leader.

Timeframe: Initiate efforts in 2011 with target for initial phase complete within two years.

- a. After construction season, survey the ARHCA membership on Alberta best practices (BP) in use. Ask ARHCA members to identify new BP or revised other’s BP for Alberta use.

- b. With survey results, confirm existing BP, develop or adapt new BP. Start baseline for performance tracking, annual survey of the ARHCA membership on Alberta BP use.
- c. Determine availability of data sources and other factors that would have to be addressed in order to establish and develop baselines for measuring industry sector energy efficiency.
- d. Consider case studies.

Either conduct study in-house or engage a contractor to carry out a review of best practices which are appropriate for Alberta-based industry. – (leads into 3)

3. COMMUNICATION AND AWARENESS

Purpose: Raising industry sector awareness of energy efficiency issues and relationship with GHG emissions reduction.

Timeframe: commence immediately, and continue as ongoing effort.

- a. Develop a variety of strategies to inform ARHCA members about the existence, purpose and goals of the MOU and the Coordinating Committee and the proposed activities in the work plan. This is a priority effort to implement first and then follow up regularly.
 - i. First step, develop a one-page information article to be included in ARHCA publications, such as the e-roadrunner. This will introduce the Coordinating Committee, the work plan and inform members that Alberta is under increasing scrutiny regarding environmental issues and it is in the industry's interest to be proactive and demonstrate that energy efficiency can help make the industry more competitive.
 - ii. Inform ARHCA membership of efforts underway to promote energy efficiency and useful tools that become available.
- b. Develop and annually update a work plan and obtain approval and support of the parties of the MOU for the priority activities and projects identified.
- c. Prepare annual report on progress on work plan and provide to parties of the MOU.

4. REVIEW APPROACH TO ENERGY EFFICIENCY

Purpose: To avoid duplication, learn from others and position Alberta and industry to be competitive and a leader in energy efficiency.

Timeframe: to be developed in 2011 or 2012. Some elements will be ongoing.

- a.** Review strategies of other jurisdictions or industry trade associations on energy efficiency and GHG emissions reduction for construction and road-building industry sectors.
Candidates include;
 - i.** BC and other provinces
 - ii.** USA AASHTO, NAPA
- b.** Based on review findings, development Alberta-based strategies for construction and road-building industry sectors to be leaders in energy efficiency.
- c.** Review measures used by industry sectors (or reasons for not using) Alberta-based strategies. Review recommendations to change strategy (practical application) for respective industry sector.

APPENDIX:

Examples of Best Practices (BPs) for GHG emissions reductions by heavy construction and road-building industry sectors:

- Aggregate stockpile moisture content
 - Maintain 2-3% moisture content (equivalent to natural conditions)
 - Cover aggregates used in filling plant cold feed bins
 - Prepare sloped pads (5-6% grades) for aggregate stockpile drainage
- Dryer burner combustion efficiency
 - Emissions for aggregate dryer with efficient combustion characteristics
 - Using recycled waste oil fuels
- Upgrade paving plant insulation
 - Partial or complete insulation for Dryer casings (the asphalt dryer drum shell) Asphalt oil piping and fuel hoses
 - Storage tank and silos
- Modernize dryers and restore worn flights
 - Counterflow dryers have reduced emissions in comparison with parallel flow dryers
 - Restoring worn drum flights will improve fuel efficiency
- Hot-oil heater design efficiency
 - Hot-oil heaters have a 20-30 year lifespan. Older heater designs are not as efficient as current designs. Opportunity for energy and emissions reductions through heater upgrades.
- Lower carbon fuels for dryer burners
 - Switching from higher (recycle waste oil, bunker oil, No. 2 diesel) to lower carbon fuels (natural gas or propane) in aggregate dryer burners can reduce both GHG emissions and air pollutants. Fuel substitution would be site-specific, depending on plant operating location, fuel prices and fuel availability.
- Increased RAP content in HMA mixture
 - Recycle old asphalt pavement in production of new hot mix asphalt mixes will save on materials costs, energy use and emissions.
 - Storage and moisture content
 - Quality control

- Warm asphalt mixture use
 - Configure or dedicate HMA plant for warm asphalt mixture use. Site-specific, depending on plant operating location and raw WAM input availability.

Highway and Road Maintenance

- Maintaining equipment and vehicle fleets
 - Scheduled preventative maintenance program will reduce fuel use while maintaining equipment performance and productivity
- Optimize truck, vehicle and equipment operations
 - Driver training programs (specialized and no-specialized training) for equipment and vehicles will reduce operating costs, fuel use and emissions
- Reduce portable electricity generation
 - Electrify a facility location (fixed plant site or high annual usage). Site-specific, depending on plant operating location and power grid availability.
- Equipment and vehicle fleet age (highway & off road)
 - Determine appropriate replacement / retirement age for equipment and vehicles
 - Availability of Tier 2 v. Tier 3 engines in newer equipment
- Retrofit idle reduction equipment
 - After-market accessories meeting manufactures specifications
 - Emissions control retrofit
- Solar-powered signage / field equipment
 - Next generation (solar-powered) Portable Changing Message Signs (PCMS) function with lower operating costs, eliminate GHG and other emissions in comparison with PCMS using diesel generators.

Review/Discussion

Expand summary for use in potential ARHCA member survey document. Used to support Alberta BPs guideline compilation; for both heavy construction and road-building industry sectors.