Southern Alberta Energy From Waste Association (SAEWA)

April 2015
Annual General Meeting Update

Experience with P3 Energy-from-Waste Projects

Canada

- Durham/York Energy Centre
- Peel Energy Recovery Centre
- City of Surrey Biofuels Facility
- Organics Processing Facility (Confidential Client)

USA

- H-Power, Hawaii
- Lee County, Florida
- Union County, New Jersey
- Islip MacArthur RRF, New York
- Dutchess RRF, New York
- Baltimore RESCO, Maryland
- Etc.

Durham/York Energy Centre

HDR provides ongoing participation in the development of PPP Canada guidance documentation for the development of Energy-from-Waste projects in Canada and is a pre-qualified advisor for PPP Canada.

Work Completed in 2014

Project Plan

Background

- SAEWA completed a research study confirming the feasibility of establishing an energy from waste (EFW) facility.
- An REOI was also issued to gauge interest and support for an EFW facility.

In 2014, SAEWA prepared a ***Project Plan*** that includes; information needs, resources, schedule and budgets required for development of an EFW facility for Southern Alberta.

- The ***Project Plan*** is composed of the following sub-plans:
  - Regulatory Requirements Plan
  - Siting Process Plan
  - Communications Plan
  - Procurement Process Plan

Initial Business Plan

An ***Initial Business Plan*** was developed building upon the four sub-plans and was developed to:

- Explore elements of energy from waste from a business perspective;
- Integrate and expand on key business related to the sub-plans;
- Describe a recommended framework for implementation of an energy from waste business; and,
- Identify additional tasks and/or investigations needed to assist with future business planning.

Anticipated Next Steps

The following are anticipated next steps to be completed following approval of the formal governance model:

- Develop a Detailed Business Plan;
- Additional Waste Characterization;
- Facility Siting; and,
- Technology Procurement.

Each of these activities are described in greater detail in the following slides.

Significant progress on these activities over 2015/early 2016 will put SAEWA in an excellent position to submit an application for PPP Canada funding next spring.

Moving forward with the implementation of the governance model will also be a critical step to demonstrate organizational stability to the Province, PPP Canada (and other potential funding agencies/partners), and potential Technology Vendors, all of whom at this point appear to be interested in making the investment when the time is right.

The Detailed Business Plan

Key factors that should be addressed in the detailed business plan include the following, as a minimum:

- Outcome of the waste transportation business analysis and decision on inclusion in the scope of services
- Measures required to address specific factors for the preferred site and location that impact the planned energy from waste development
- Parties to the project, partnering arrangements and roles and responsibilities
- Analyses and projections of market pricing and potential fluctuations for major cost and revenue elements of the project
- Confirmation of:
  - Input waste quantities and characteristics
  - Scope of the planned energy from waste business
  - SAEWA's planned governance and business operation structure
  - Cost estimates including: Site acquisition and development; Infrastructure requirements; Capital, operating, maintenance and administration; Closeout; Project management and administration
  - Revenue streams, funding and financing

The Detailed Business Plan (cont'd)

- Financial analysis and projections including range of pricing for SAEWA's energy from waste services
- Identification of project-specific risk exposure elements, uncertainties and mitigations that can be defined at this time
- Progress status review with cost and schedule updates of procurement, regulatory and communications aspects of the project development plan
- Affirmation and/or refinement of SAEWA's goals, objectives, project direction and decision to continue with project development

The Detailed Business Plan (cont'd)

The following lists the core activities of the proposed energy from waste business:

- Capital development of the facility:
  - Design
  - Construction and commissioning
  - Capital financing
  - Project management
- Operations:
  - Receiving and handling of wastes
  - Processing of wastes
  - Recovery of materials from waste
  - Recovery of energy from waste
  - Control of emissions (and/or syngas clean-up)
  - Disposal of residues, ash and unprocessible materials
- Maintenance:
  - Preventive maintenance of the facility
  - Routine and non-routine overhauls and upgrades
- Administration:
  - Management of the facility and operations
  - Supply of inputs (e.g. waste feedstocks, fuel, water, consumables, etc.)
  - Marketing of services
  - Marketing of products (e.g. electrical power, heat energy, recyclables, etc.)
  - Management of other outputs (e.g. emissions, wastewater, residues, etc.)
  - Engineering and project management of major facility repairs and upgrades/modifications
  - Staffing
  - Regulatory compliance
  - Stakeholder relations
  - Accounting and financial administration of operations
  - Ownership of assets (e.g. land, building(s), equipment, etc.)

The energy from waste business should be structured with appropriate roles and responsibilities allocated to ensure that each of these elements is conducted as necessary to contribute to the overall success of the business.

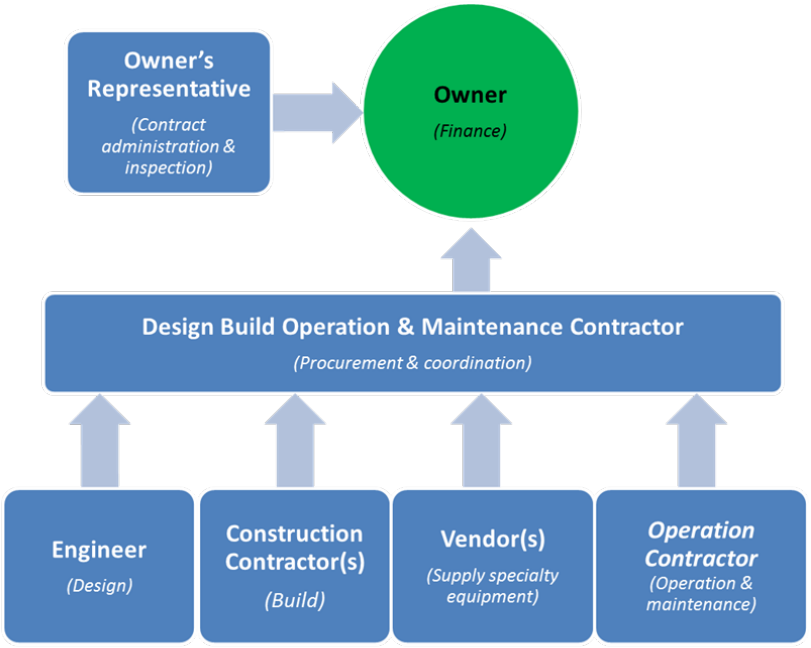
The Detailed Business Plan (cont'd)

SAEWA will also need to confirm its preferred business model which is currently a Design, Build, Operate, Maintain (DBOM) with the potential for third party financing (DBFOM).

Ownership in the context of a DBOM project delivery structure the Owner typically:

- Funds and/or obtains financing for the project;
- Defines the project requirements at a high-level;
- Makes contractual commitments necessary to conduct the work of the project;
- Delegates control, authority, responsibility and risk for certain aspects of the project to Contractor(s) and/or others; and,
- Retains ownership of assets and liabilities of the business, as well as primary responsibility for the commercial, financial, regulatory and legal commitments of the business.

Current Preferred Business Model



Design Build Operate & Maintain (DBOM) Project

Additional Waste Stream Characterization

The supply and composition of waste is critically important when considering Energy from Waste as these facilities are essentially power plants that utilize waste as a fuel. The quantity and specification of the fuel will determine how the facility is designed and its future operations performance.

Additional waste stream characterization is required to:

- Confirm the total estimated tonnes to be processed at the facility to:
  - Identify facility size required and throughput capacity
  - Identify total site area required for the facility
  - Identify estimated outputs (e.g. electricity) and power sale agreement requirements
  - Identify waste flows and transportation logistics
- Confirm the composition of the waste to be processed at the facility to:
  - Estimate the potential revenue associated with additional recyclable materials capture
  - Potential GHG impacts/reductions
  - Identify the heating value of the waste (i.e. how much energy can be captured)

Facility Siting

Typically the preferred site is selected by comparing the characteristics of a number of potential sites, taking into account the needs of the planned facility and a number of key criteria and priorities.

Evaluation criteria typically include:

- Economic
- Legal
- Public Health and Safety
- The Natural Environment
- Social, Cultural and Community
- Technical

Stakeholder input is important to help shape and influence decision making in the site evaluation and selection process.

Proposed Site Selection Process

Technology Procurement

The recommended procurement approach includes the following key activities:

- Initiate Procurement - where the overall approach, team members, etc. are confirmed.
- Request for Prequalification - where a list of technology vendors/developers are evaluated to determine those that are qualified to undertake the project.
- Request for Proposal – where the list of qualified technology vendors/developers are invited to submit proposals to undertake the project.
- Contract Negotiations – once a preferred technology vendor/developer is identified any outstanding contract details can be negotiated and a project agreement signed.

Key organizational tasks that need to be completed prior to conducting procurement include:

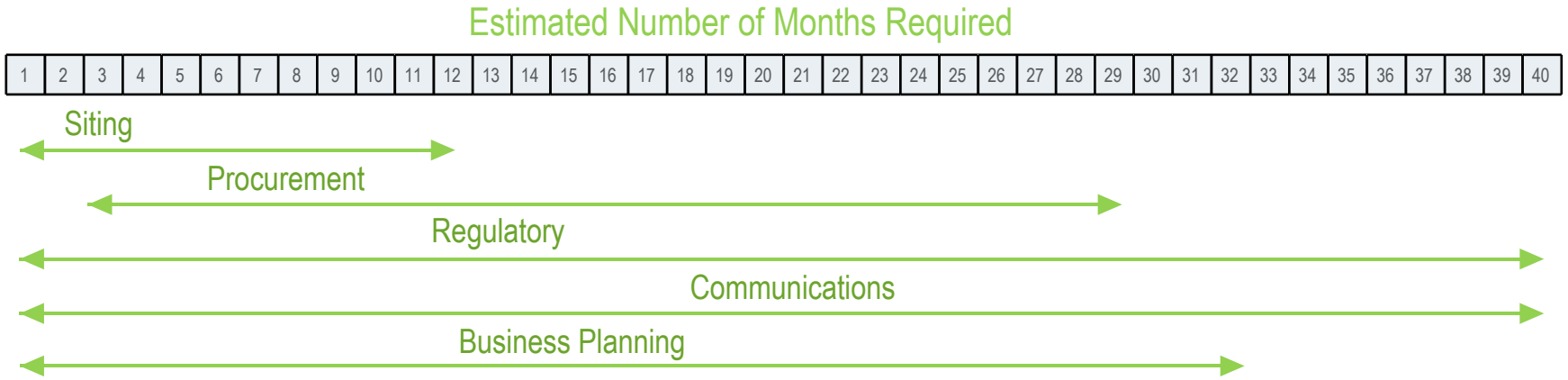
- Establish SAEWA governance structure including the legal authority to contractually bind SAEWA;
- Secure SAEWA's combined waste supply;
- Establish funding for initial project pre-development activities; and,
- Establish plans for financing the capital investment required to develop the facility as well as operation, maintenance and administration costs.

NOTE: Some of these activities can be carried out concurrently with other activities including siting.

Project Development Schedule

A preliminary schedule for business planning and project development activities has been developed and has been designed to correspond with other elements of SAEWA's project development plan.

As illustrated below, some activities may be carried out in parallel with others.



Questions/Comments?