Southern Alberta Energy from Waste Association Project Development Plan: Procurement Process Plan

May 2014

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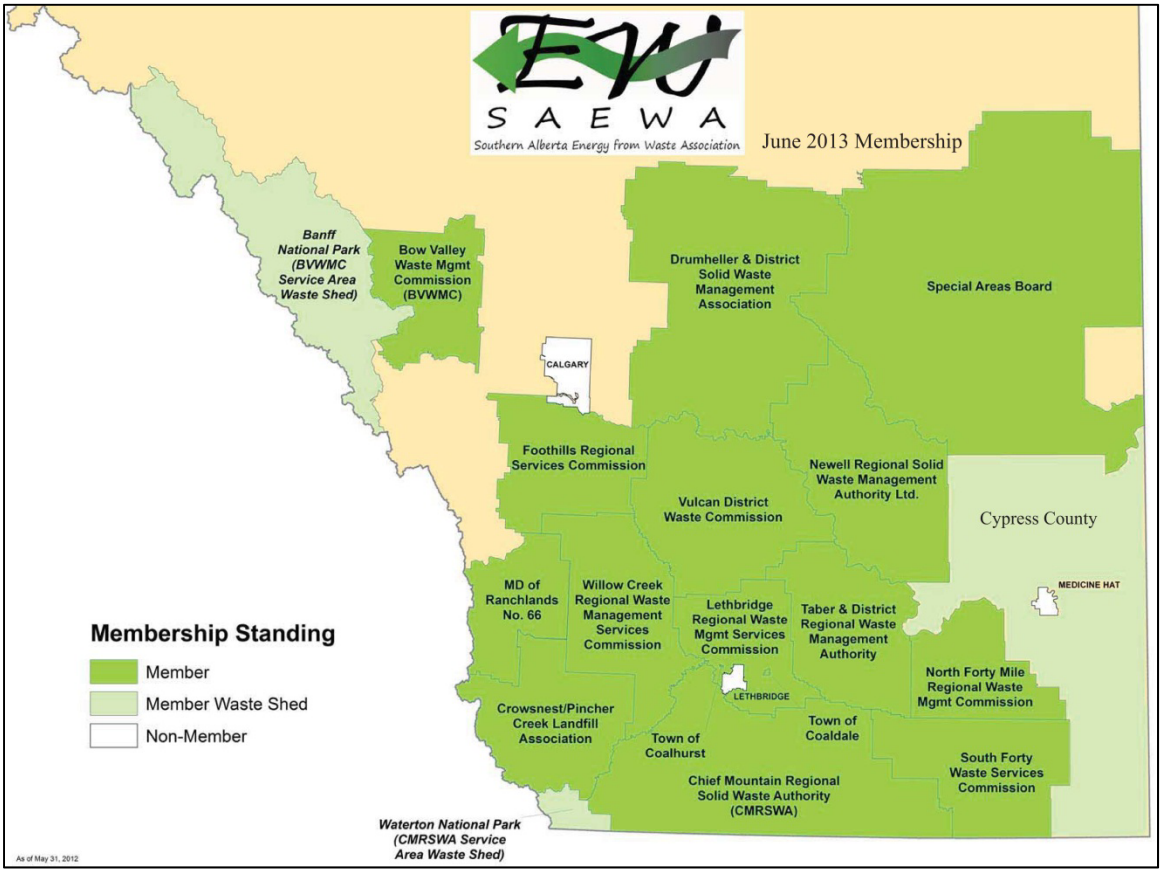
1.0 INTRODUCTION

The Southern Alberta Energy from Waste Association (SAEWA) is a coalition of waste management jurisdictions with an interest in implementing technologies to recover energy from residual waste and reduce long-term reliance on landfill disposal.

With membership totalling 62 municipalities, encompassing 12 waste authorities and waste commissions, SAEWA represents a large portion of the population of Southern Alberta outside of the greater Calgary area.

Figure 1: SAEWA Membership Map



In 2011/2012 SAEWA completed a research study confirming the feasibility of establishing an energy from waste facility for southern Alberta. The research study reports are available on-line at www.saewa.ca.

Subsequent to completion of the research study SAEWA completed a Request for Expressions of Interest (REOI) process targeting:

- Potential host communities for an energy from waste facility;
- Potential energy from waste project Developers/technology Vendors; and,
- Potential energy hosts/customers.

Responses to the REOI demonstrated that there is a strong base of positive interest and support for a southern Alberta energy from waste facility among numerous potential host communities and technology Vendors. The REOI also provided valuable information to help shape SAEWA's plans moving forward.

Proceeding with the next-stage in decision-making, SAEWA is preparing a plan to map-out the steps, information needs, resources, schedule and budgets that would be required to move forward with development of an energy from waste facility for southern Alberta. The project development plan is made up of the following four sub-plans:

- Regulatory Requirements Plan
- Siting Process Plan;
- Communications Plan; and,
- Procurement Process Plan.

These four project development plans are consolidated and integrated in the "Initial Business Plan for Energy from Waste" prepared for SAEWA.

This report presents the Procurement Process Plan component of SAEWA's project development plan. The purpose of this report is to outline the options for project delivery and procurement in the context of an energy from waste project, document the outcomes of SAEWA's procurement workshop and describe a recommended approach to procurement for an energy from waste project for SAEWA's consideration.

2.0 OVERVIEW OF PROJECT DELIVERY AND PROCUREMENT

Procurement can be defined as the acquisition of goods, services, equipment, materials, supplies and labour necessary to complete a project from start to finish. Typically initiated following completion of project planning, procurement establishes the framework to proceed with implementing project delivery activities including: design, construction and commissioning, operations and maintenance, and project close-out.

The model that is chosen for project delivery defines the relationships to be established between the various parties involved with implementing a project. The mechanics of conducting procurement processes can vary, depending on the project delivery model chosen. Selection of the preferred project delivery model is a very important early stage task in planning the procurement process.

2.1 PROJECT DELIVERY MODELS

The project delivery model defines the roles and responsibilities of the various parties working together to achieve the objectives of the project. The project delivery model determines the nature and content of the various contracts which will need to be established to govern the work of the project.

The following lists the major elements of project delivery:

- Design
- Construction
- Operations
- Maintenance
- Administration, including:
    - Project management – primarily focused on capital works
    - Management of business operations:
        - Supply of inputs (e.g. waste feedstocks, fuel, water, consumables, etc.)
        - Marketing of products (e.g. electrical power, heat energy, recyclables, etc.)
        - Management of other outputs (e.g. emissions, wastewater, residues, etc.)
        - Asset management
        - Staffing
        - Regulatory compliance
        - Financial administration of operations
- Ownership of assets (e.g. land, building(s), equipment, etc.)
- Capital project financing

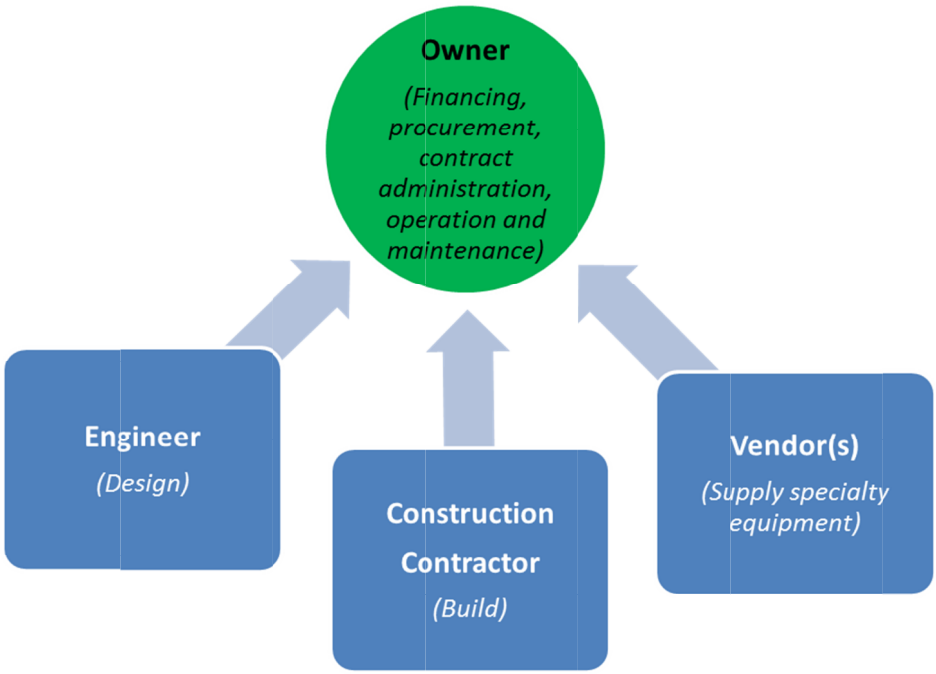
Selection of the preferred project delivery model is essentially a process of delegating responsibility for each of these elements to the party (or parties) best able to manage those responsibilities, in a manner that meets the objectives of the project Owner.

The following are some of the major factors which should be considered in making decisions regarding which project delivery model is preferred for a given situation:

- Appropriate, efficient and cost-effective allocation of responsibilities, risks and control;
- Size, scope and complexity of the project and coordination needs;
- Owner's familiarity with the technical details of the project;
- Owner's preferences regarding degree of involvement and level of control over project details;
- Availability of resources to manage the project;
- Industry practice and Contractors' familiarity with different delivery models; and,
- Budgetary and schedule constraints.

There are numerous project delivery models ranging from: the traditional linear process of design then bid then build, with responsibilities largely compartmentalized; to more collaborative alternative delivery models where some tasks are carried out in parallel and responsibilities are delegated and/or shared to varying degrees. The following profiles provide schematics illustrating the roles of the project parties and summarize some of the key characteristics for each project delivery approach.

Figure 2: Traditional Design-Bid-Build

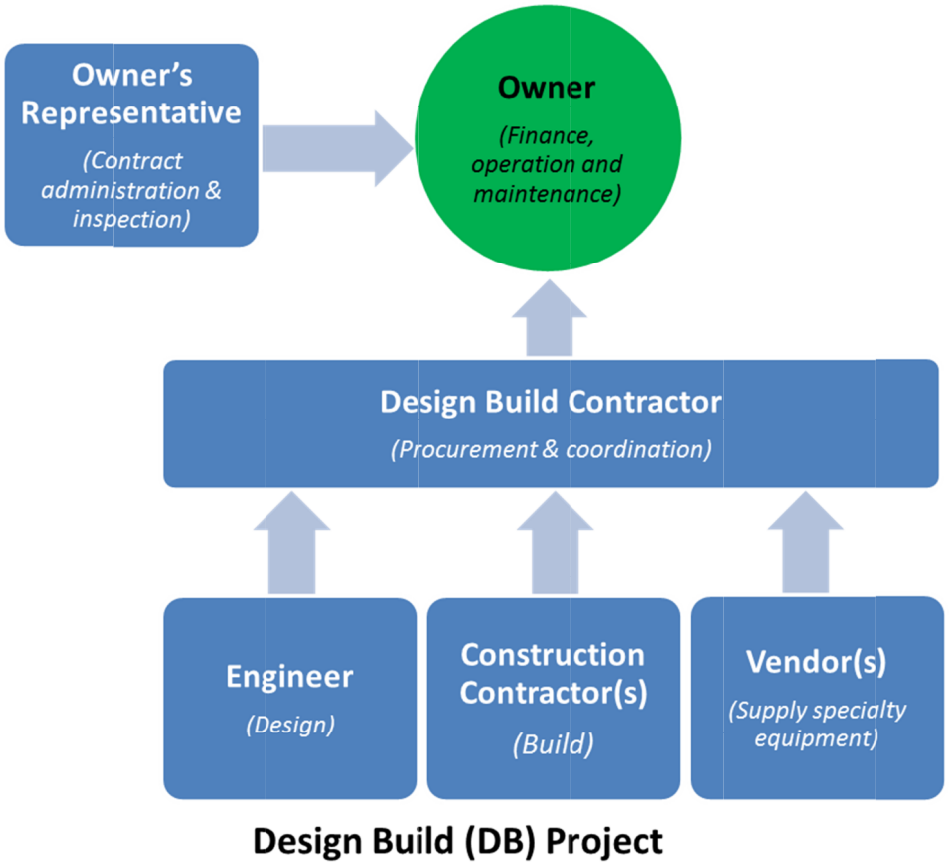


Traditional Design-Bid-Build (DBB) Project

Key Characteristics:

- Owner coordinates work of the project parties and has complete and direct control, as well as authority and responsibility for decision-making on all aspects of the project
- Project requirements are defined through detailed design and specifications
- There is a clear division of responsibilities among the various parties reporting to the Owner
- Owner has full control and responsibility for post-construction phase of the project
- Most commonly applied approach for straight-forward, well-defined and predictable projects
- Costs and schedule well-defined at bid, however high potential for cost and schedule increases when changes are necessary
- Linear process is typically more time consuming than alternatives

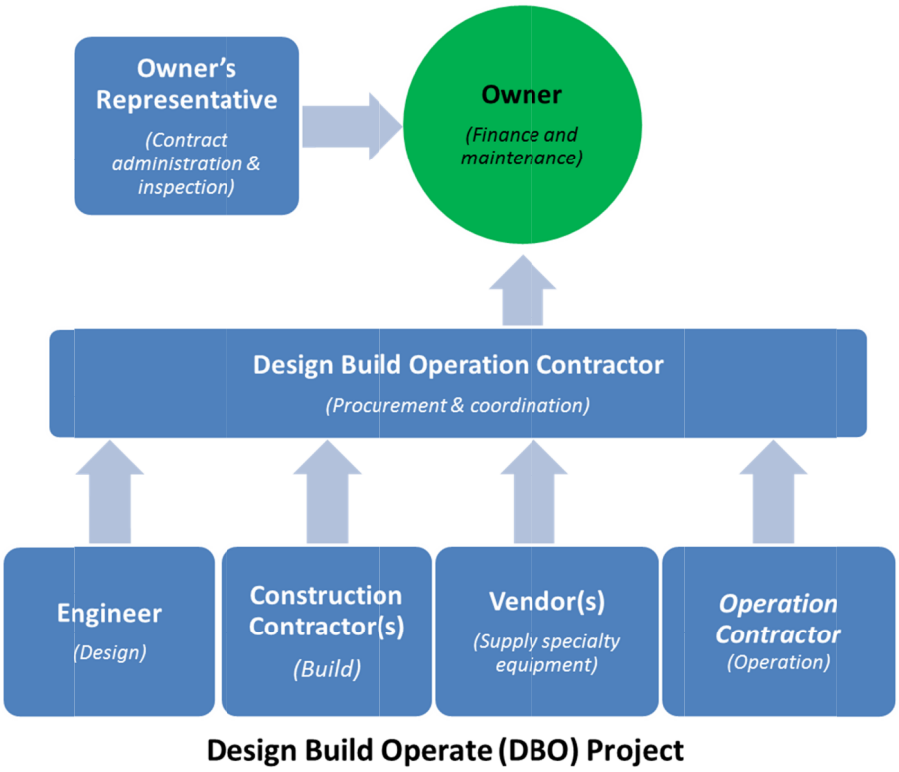
Figure 3: Design Build



Key Characteristics:

- Owner and Owner's representative define project requirements through high-level, primarily outcome-based agreement with DB Contractor
- Owner delegates coordination, control, and a large measure of authority and responsibility for decision-making regarding project details to the DB Contractor
- Capability and expertise of DB Contractor's team is important to successful delivery
- Some potential for "risk" pricing to increase costs
- Owner retains full control and responsibility for post-construction phase of the project
- Moderate potential for cost and schedule increases
- DB Contractor can coordinate parallel activities to compress schedule

Figure 4: Design Build Operate

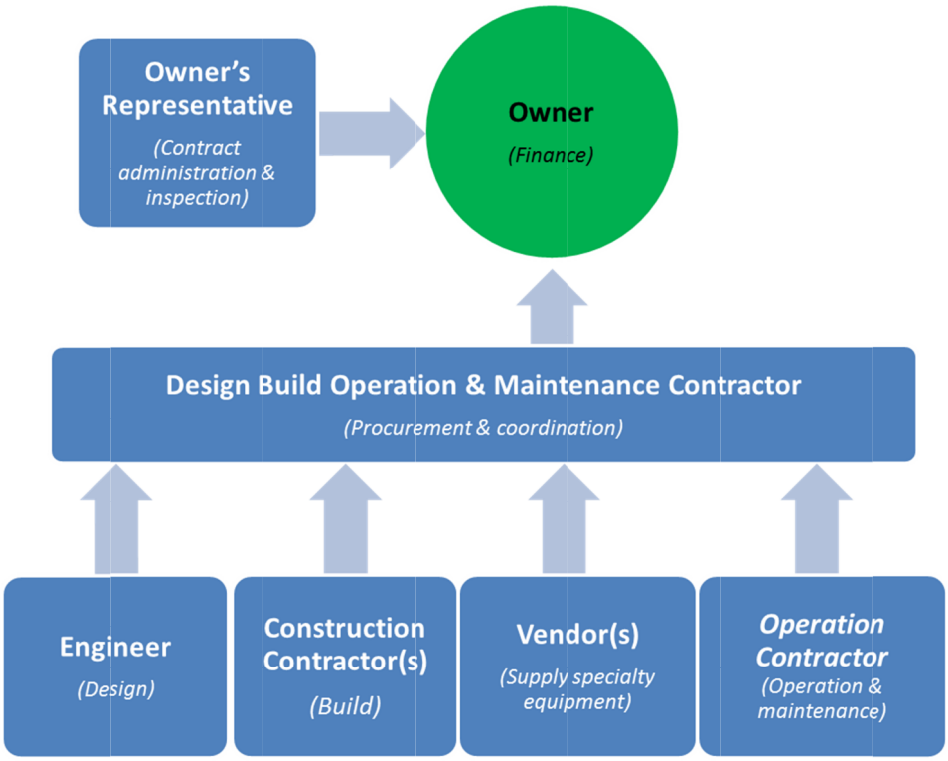


Design Build Operate (DBO) Project

Key Characteristics:

- Owner and Owner's representative define project requirements through high-level, primarily outcome-based agreement with DBO Contractor
- Owner delegates coordination, control, authority and responsibility for decision-making regarding project details to the DBO Contractor
- Capability and expertise of DBO Contractor's team is important to success
- Owner delegates control and responsibility for post-construction operations but retains control and responsibility for facility maintenance
- Contract linkage between design, construction and operation transfers some post-construction risk from Owner to DBO Contractor
- Administrative requirements contribute to costs
- Moderate potential for "risk" pricing to increase costs
- Moderate potential for cost and schedule increases
- Owner retains full control and responsibility for maintaining value of the asset (Note: potential for impact on operations)
- DBO Contractor can coordinate parallel activities to compress schedule

Figure 5: Design Build Operate & Maintain

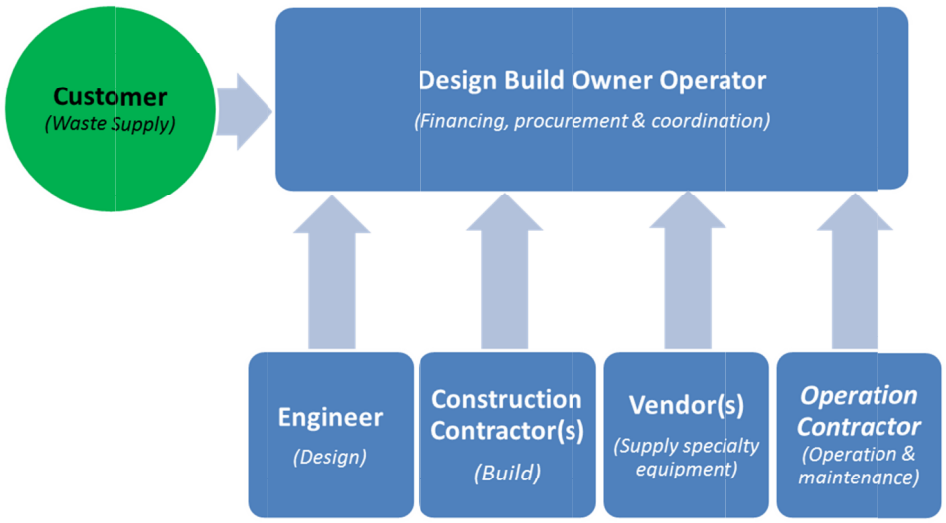


Design Build Operate & Maintain (DBOM) Project

Key Characteristics:

- Owner and Owner's representative define project requirements through high-level, primarily performance-based agreement with DBOM Contractor
- Owner delegates coordination, control, authority and responsibility for decision-making regarding project details to the DBOM Contractor
- Capability and expertise of DBOM Contractor's team is critical to success
- Owner delegates control and responsibility for post-construction phase of the project
- Contract linkage between design, construction, operation and maintenance transfers post-construction risk from Owner to DBOM Contractor
- Term of operation and maintenance services is an important consideration
- Owner's on-going verification of maintenance (i.e. asset value) is advised
- Administrative requirements contribute to costs
- High potential for "risk" pricing to increase costs
- Low potential for cost and schedule change
- DBOM Contractor can coordinate parallel activities to compress schedule
- Variations may be available with Contractor providing or obtaining project financing on behalf of Owner

Figure 6: Design Finance Build Own & Operate



Design Finance Build Own & Operate (DFBOO) Project

Key Characteristics:

- Public entity becomes a secured customer purchasing services from DFBOO organization
- Public entity commits to long-term waste supply – typically "put or pay"
- Public entity is a "price taker" - ability to influence costs and judge value relies on the competitive alternatives that are available at the time of procurement
- Project requirements are defined by service offering of DFBOO organization
- DBFOO organization is financially motivated to achieve long-term efficient performance and to innovate (within the boundaries defined by the service agreement)
- Public entity delegates ownership, much of the risk, control and project responsibilities to DFBOO organization, however public entity retains waste supply risk
- High degree of cost and schedule certainty
- Stability and security of service delivery is dependent on contractual terms
- Variations may be available involving eventual transfer of ownership of facility to public entity upon occurrence of specific contract terms and conditions

The potential for exposure to different types of risk is a key consideration in selecting among project delivery approaches. The following lists some of the risk exposure elements often associated with development of energy from waste projects:

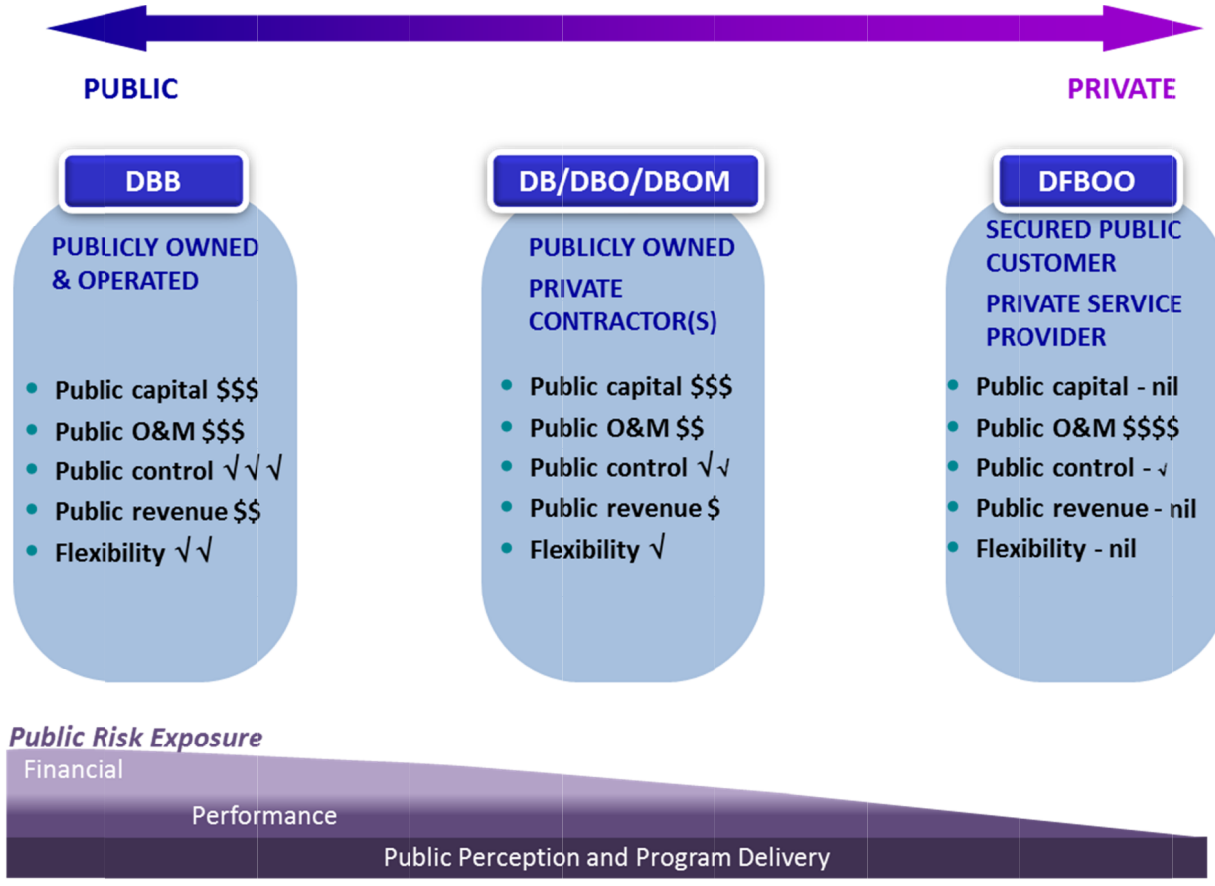
- Site:
  - Soil/groundwater conditions
  - Site servicing including water, electrical interconnection, wastewater
  - Future changes to adjacent/nearby land use
  - On-going community relations
- Waste supply:
  - Security of supply
  - Variations in waste quantities and composition
  - Competitive waste management alternatives
- Construction:
  - Performance - compliance with specifications and quality
  - Cost control and escalation
  - Schedule delays
  - Coordination of various parties
  - Safety
- Operations:
  - Technology - efficiency, performance, reliability and change
  - Equipment - maintenance and repairs
  - Management of residues
  - Safety
- Changing markets:
  - Energy products – electricity, heat, fuels
  - Recyclables and other output products
  - Consumables
- Regulatory:
  - Facility development approvals
  - Emissions performance
  - Operational compliance
- Financial and business risks:
  - Revenue from sale of energy and/or products
  - Costs for labour and materials
  - Debt financing, interest rates, inflation
  - Security and stability of contracts – construction, waste supply agreements, energy, operations and others
- Facility condition – asset value
- Stakeholder relations – public perceptions
- Change in law/force majeure – responding to change

- Unforeseeable external events/changes – strikes/service interruptions, supplier/Contractor failures, extreme weather events, political change

Effective allocation of risk relies on assignment of responsibilities to the parties best able to manage the risks. It is important to recognize that risk and control are essentially two sides of one coin; delegation of an element of risk to a particular party carries with it the neccessity to delegate the control to be able to manage that risk. It is equally important to recognize that absolute avoidance of risk through contracting arrangements may not be possible and attempts to do so often prove to be very expensive.

The following figure schematically illustrates some general characteristics and public risk exposure potentials associated with the spectrum of project delivery models examined.

Figure 7: Project Delivery Models and Public Risk Exposure



DBB = Traditional design-bid-build
EPC = Engineering procurement and construction
DB = Design build
DBO = Design build operate
DBOM = Design build operate & maintain
DFBOO = Design finance build own & operate (& maintain)

Public-private partnerships (often referred to as P3s) are public sector projects which make use of some degree of private sector financing. P3 projects include some element of long-term performance such as operations and maintenance. The main benefits targeted in undertaking P3 projects include:

- Mobilization of private sector funds to preserve public sector financial resources;
- Transfer of risk from the public sector to the private sector, and
- Creation of financial motivation to achieve performance through the entire project life cycle.

In the project delivery options discussed above, the role of private sector financing is explicitly identified only for the DFBOO model, however P3 opportunties may also be available for other options. While P3 options offer some potential benefits for some projects, it is important to recognize that P3 is not necessarily the preferred solution for all projects. Similar to alternative project delivery models, it is also very important that the parties involved have some degree of familiarity and comfort working within the P3 framework. Public-private partnerships are generally most effective for large, complex projects with long-term performance requirements, where the public sector partner is willing to delegate a large measure of control to the private sector partner. As discussed above, it is important to recognize that there are costs associated with risk transfer and so the the potential costs associated with P3 need to be carefully considered.

PPP Canada is an organization created by the federal Government of Canada to support P3 initiatives by provision of expertise, best-practices tools and potentially funding. Project financing and project delivery models are interrelated issues. Public-private partnership considerations are discussed in greater detail in SAEWA's Initial Business Plan report.

2.2 PROCUREMENT PLANNING

In large complex projects, procurement activities represent a significant investment of time and expense on the part of both the project Owner and the prospective Vendors. It is important that the procurement plan recognizes and respects the investments required of all the parties involved. The following outlines several of the key principles that are important to take into consideration in developing and implementing a procurement process:

- ***Competition***: The energy from waste industry is a diverse market-place with many players competing to advance their technologies and capture additional market share. Effectively harnessing this competition can assist with selecting the right technology and achieving value for money. It is important that the specifications for the procurement focus

competition in a manner that is consistent with the project objectives defined by the Owner or Customer. Given that the costs for conducting and participating in an energy from waste procurement process can be very substantial, to achieve the benefits of competition, the procurement process needs to be seen as credible and fair by all stakeholders.

- ***Fairness***: Fairness in procurement is a principle with deep roots in Canadian case law and equally importantly, fairness shapes the relationship between the procuring organization (i.e. Owner) and the Vendor community. The topic of fairness in procurement is complex and encompasses the following key principles:
    - Consistent and unbiased application of the procurement rules;
    - Non-discrimination and impartiality in selection processes;
    - Integrity and ethical conduct of the parties involved; and,
    - Transparency of the process.

  In many public procurements an independent third party is engaged to monitor the procurement process and at its outcome, report on compliance with the fairness objectives defined for the procurement. This creates accountability to uphold the fairness objectives; helps build trust between the Owner and Vendors, and assists with managing some of the risks associated with procurement processes.
- ***Dispute resolution:*** Inclusion of a defined dispute resolution procedure enhances the credibility of the procurement process by providing participants with commitment to a mechanism for dealing with complaints. Dispute resolution processes typically include: identification of eligible types of complaints or challenges; definition of information required to support a complaint; deadlines for filing and responding to complaints; tools for communication to assist with resolution of disputes; and pre-defined mechanisms to elevate the dispute, should resolution not be attained. Dispute resolution can be a time-saving and cost-effective alternative to litigation as a means to deal with conflicts.
- ***Achievement of desired outcomes:*** To achieve the desired project outcomes, the Owner's objectives and priorities for undertaking the project must be well-defined beforehand; the project delivery method must be selected that best suits those objectives; and the contractual terms and technical specifications must be prepared to define not only the outcomes that are required, but to also define the ways in which those outcomes will be measured and success determined.
- ***Address the project lifecycle:*** The lifecycle of a project can be defined as including the following major stages: design, construction, commissioning, operation (including maintenance) and close-out. The project delivery system embedded within the

procurement process should proactively reflect the Owner's preferences for allocation of roles, responsibilities and risk for carrying out various project activities during each of these stages.

- ***Due diligence:*** As a risk management technique, due diligence is the process of investigating key information provided by Proponents in a procurement process, to verify the accuracy and truth of the information. A due diligence review is essentially a check on a Proponent's ability to deliver on its commitments. In the context of an energy from waste project, due diligence measures can include: reference checks to verify Proponents' qualifications; interviews with Proponents to verify their understanding of the contract obligations; inspections of reference facilities to observe application of certain technologies in operation; and confirmation of the Proponent's financial viability. Due diligence reviews are typically completed in conjunction with evaluation of submissions to confirm that the Owner can rely on the information provided by the Proponents.
- ***Compliance:*** Public contracting in Alberta is subject to a number of regulatory requirements and agreements. Given that the Developer/Vendor community for energy from waste projects is geographically distributed throughout the World, it is likely that certain international trade requirements may come into play. Requirements that could apply to public procurement for an energy from waste project in Alberta include:
    - Alberta-British Columbia Trade, Investment and Labour Mobility Agreement;
    - Canadian Agreement on Internal Trade;
    - North American Free Trade Agreement; and,
    - World Trade Organization Agreement on Government Procurement.
- ***Legal Advice:*** Notwithstanding the need to comply with well-established and binding trade agreements, procurement law in Canada is largely defined by contract case law as tested in the courts. Procurement is a complex and dynamic area of Canadian law with increasingly frequent litigation and potentially very large stakes. Inclusion of legal advisory services on the project team is a well-advised and common practice in energy from waste project development that contributes to the credibility of the process.

2.3 PROCUREMENT MECHANISMS

The following outlines the typical mechanisms for conducting procurement processes.

- ***Request for Information (RFI*)**: Generally undertaken as an early part of project planning, an RFI is a solicitation of information, typically to support decision making. RFIs usually specify certain requirements regarding the type and format of the information that is to be submitted. The type of information sought in an RFI can be straightforward (e.g. which

suppliers provide certain types of equipment) to much more complex (e.g. details regarding the application, capabilities, specifications, costs, availability etc. of technologies). RFIs can target specific Vendors/sectors, or can be widely publicized. RFIs can also be used to notify Vendors about a pending project. Generally intended to be mutually non-committal (i.e. not an offer for purchase and sale and no contractual obligations intended), RFIs tend to be brief, provide only basic information regarding the prospective service or supply, and are relatively informal in comparison to other procurement documents. In decision making, it is important to consider the reliability of information received in response to a mutually non-committal RFI.

- ***Request for Expression of Interest (REOI):*** REOIs are typically issued during project planning or as an early stage procurement activity. REOIs are used to solicit information to support decision making and are typically intended to be mutually non-committal, with no short-listing or disqualification process. Some procurement organizations see no distinction between an RFI and an REOI, however in practice; REOIs tend to be more detailed regarding the business opportunity being explored and often have more stringent requirements regarding the type and format of information to be received. In decision making, it is important to consider the reliability of information received in response to a mutually non-committal REOI.
- ***Request for Pre-Qualification (RFPQ):*** Typically an early stage formal procurement activity, RFPQs are issued to allow assessment of the qualifications and capabilities of potential project participants (i.e. Contractors, Vendors, suppliers etc.) with a view to selecting a short-list of suitable parties (or a single preferred party) to proceed in the next steps in the procurement process. It is important to be able to rely on the information provided under an RFPQ process and so reference checks and other due diligence measures are often included in the process of evaluating and selecting the short-list of potential project participants. In the context of energy from waste projects, the qualifications of Contractors, Vendors and suppliers are often linked to a particular technology.
- ***Request for Tenders (RFT):*** Tendering is a procurement practice that is commonly applied following completion of all detailed design work in the traditional design-bid-build delivery model. Tendering is the process of soliciting firm bids for construction and services where the details of the design and performance of a project are well known and defined before-hand, and communicated to Bidders in drawings and specifications. Because the detailed design and specifications are largely pre-determined, Bidders' qualifications are not typically a major focus of evaluation in the selection process. Award of a contract to complete the work is frequently based on the lowest valid bid; with contractual terms,

conditions and financial bonds relied on to motivate acceptable performance to meet the specifications.

- ***Request for Proposal (RFP):*** RFPs are a competitive bidding tool used in cases where the high-level performance or outcome objectives for a project are established, but not all details of the project implementation are fully known and so detailed design and specifications have not been prepared. Procurement for alternative project delivery models (i.e. DB, DBO, DBOM and DFBOO) typically make use of RFPs. RFPs are often used to motivate competition regarding some aspects of design, technological innovation and performance efficiency. Consideration of the Proponent's qualifications (both team and technological) is generally an important element in evaluation and award of a contract under an alternative project delivery model so RFPs are often preceded by or combined with an RFPQ process. Because the details of the project are not fully defined prior to issuance of the RFP, award of a contract to complete the work is often subject to negotiation of the final details and contract terms and conditions, subsequent to identification of the preferred Proponent.

Large procurement processes are often complex and have high stakes. To assist with undertaking and coordinating these types of procurement processes, a number of policies, tools and systems will need to be developed and applied. Policies and procedures will be needed to manage communications, documentation, behaviour of parties involved in procurement, along with a number of other procurement related issues. It is recommended that an early step in undertaking the procurement process include development of a manual to document in detail the policies, procedures, tools and systems that will be used in completing the energy from waste procurement.

2.4 SAEWA'S PROCUREMENT AND BUSINESS PLANNING WORKSHOP

A workshop was held on February 25, 2014 in Nanton, Alberta and was attended by 13 representatives of SAEWA. The primary purpose of the workshop was to explore and understand the implications of several key considerations regarding procurement and business planning, essential to SAEWA proceeding with an energy from waste project. In addition to fulfilling this informative function, the SAEWA representatives present were asked to provide feedback on their preferences among alternatives related to procurement and business planning for SAEWA's energy from waste project. The materials presented and discussed at the workshop are contained in Appendix A.

The following summarizes key outcomes of the workshop:

- ***Waste Supply:*** Attendees concluded that establishment of a method to secure SAEWA's combined waste supply is critical to being able to proceed with an energy from waste project in Southern Alberta and that establishment of a governance model for SAEWA is key to being able to accomplish this.
    - Attendees concluded that the waste supply commitments could be initially established on the basis of memoranda of understanding between SAEWA and each member, defining certain conditions under which waste supply commitments are made and providing future opportunities for members to "opt-out" under certain pre-defined conditions as development of the project progresses.
- ***Project Funding:*** Attendees concluded that establishment of a method to fund the project is critical to being able to proceed with an energy from waste project in Southern Alberta and that establishment of a governance model for SAEWA and securing the combined waste supply are keys to being able to accomplish this.
    - Potential options for project funding/financing were identified as including some combination of: member capital contributions and tipping fees, Provincial/Federal government funding, private sector financing and/or partnerships (i.e. public-private partnerships per Alberta Infrastructure's Alternative Capital Financing Office and/or PPP Canada).
    - It was acknowledged that some degree of initial project funding will be required to allow SAEWA to proceed with implementation of the early stages of the project development plan (i.e. work activities associated with siting, initial approvals, procurement and communications) prior to engagement of a project Developer/Vendor.
- ***Scope of Services:*** Attendees concluded that the core elements of SAEWA's energy from waste business should include: receiving and processing of waste, recovery of energy, recovery of materials, marketing and management of outputs and administration of the business.
    - Attendees also acknowledged that future consideration should be given to how a transportation business model (see below) could be addressed as a separate initiative or possibly combined with the energy from waste project.
- ***Project Delivery Model:*** Attendees expressed a preliminary preference for use of the general DBOM project delivery model for development of an energy from waste facility, with funding/financing methods still to be determined as noted above.

- ***Ownership:*** A preliminary preference was expressed for SAEWA (on behalf of its membership) to retain a degree of ownership and control over key aspects of project development and business operations.
- ***Waste Transportation:*** Attendees expressed that development of a business model for transportation of waste to a proposed energy from waste facility would be important to many of SAEWA's members. It was acknowledged that development of a business model for transportation would depend on the outcome of the siting process and should address:
    - Consideration of ways that transportation costs could be averaged among the members (i.e. utility model) to recognize the shared benefit of a large combined waste supply and encourage members to commit their waste supply to the facility;
    - Flexibility to address the diverse situations and needs of SAEWA's membership; and,
    - A process for consultations with SAEWA's membership on development of the transportation business model.
- ***Waste Stream Analysis:*** Attendees expressed a preference for SAEWA's project development plan to address the need to complete detailed waste stream analysis and characterization to support:
    - Securing waste stream commitments; and,
    - Identifying waste composition and energy value; and,
    - Development of information on facility size and processing capacity to inform the regulatory and procurement processes.

3.0 PRE-DEVELOPMENT ORGANIZATIONAL TASKS

There are several key organizational tasks that need to be completed prior to conducting procurement including:

- Establish SAEWA governance structure including the legal authority to contractually bind SAEWA;
- Secure SAEWA's combined waste supply and conduct waste stream analysis;
- 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.

These activities are discussed in the Initial Business Plan report. Achieving significant progress toward completion of these key organizational activities is essential to SAEWA being able to undertake the procurement process to attract reliable offers from qualified project Developers/technology Vendors.

4.0 PROCUREMENT PROCESS PLAN

The recommended procurement plan outlines steps for SAEWA to engage potential project Developers/technology Vendors and select the preferred firm/consortium to enter into a Contract for development of an energy from waste facility.

The recommended procurement plan includes the following key activities:

- Initiate Procurement;
- Request for Prequalification;
- Request for Proposal; and,
- Contract Negotiations.

The following subsections provide details of the activities.

4.1 ACTIVITY 1: INITIATE PROCUREMENT

Procurement Manual and Training

Large procurement processes are often complex and have high stakes. It is recommended that an early step in undertaking the procurement process include development of a manual to document in detail the policies, procedures, tools and systems that will be used to complete the energy from waste procurement. It is recommended that the procurement manual address the following, as a minimum:

- Overview of planned procurement process including guiding principles, objectives and anticipated timelines;
- Identification of SAEWA's procurement lead, designated with primary responsibility to run and administer the procurement activities;
- Identification of the evaluation team for the RFPQ and RFP process, including:
    - Delegated SAEWA representatives as evaluators
    - Technical advisory and guidance support
    - Legal advisory and guidance support
-

- Identification of Contract negotiators;
- Definition of roles and responsibilities of parties to be involved in the procurement activities;
- Written procurement administration procedures and checklists;
- Use of electronic procurement portals;
- Vendor registration;
- Communications protocols;
- Defined mechanisms for receiving and responding to inquiries;
- Standards of conduct;
- Anti-lobbying restrictions;
- Policies on distribution and confidentiality of information;
- Guidelines for review and evaluation of submissions;
- Fairness monitor; and,
- Documentation management system.

In large complex procurement processes issues such as channels of communication, confidentiality of information, anti-lobbying and standards of conduct can become very important in terms of managing legal liabilities, as well as the perceived fairness and transparency of procurement. Requirements regarding these key issues need to be established early and in a manner that is binding on all individuals involved in the procurement process. It is recommended that a standard agreement pertaining to anti-lobbying and non-disclosure of information be developed and required to be signed by all individuals who may be involved in SAEWA's procurement including: the project team members, SAEWA's decision-makers and any project Developers/technology Vendors interested in participating in the project.

Once the procurement manual has been completed, individuals identified as participants on the evaluation team should be provided with training on their roles, responsibilities and the requirements of the procurement process outlined in the procurement manual.

Notification of Pending Procurement

Procurement processes in the energy from waste industry are often time consuming and require substantial effort and investment on the part of Proponents. To enhance the competitive nature of the procurement, it is important that the most highly qualified project Developers/technology Vendors are aware of and remain interested in participating in SAEWA's procurement process. The previous REOI issued by SAEWA was successful in raising initial awareness of the project. As procurement proceeds, it will be helpful to continue to

communicate to the project Developer/technology Vendor community regarding the progress of the project. Once the procurement manual is completed, it is recommended that SAEWA advertise its intent to proceed with procurement. This advance notification of pending procurement should be publicized using a wide range of international solid waste industry trade journals and information outlets. Advance notification should be issued at least 4 weeks prior to issuance of the Request for Prequalification. The notification of pending procurement should provide basic information to introduce the project and provide directions on how and where interested parties can obtain additional information.

Activity 1 Summary	
Objective	— Develop a detailed procurement manual — Provide sufficient advance notice to project Developers/technology Vendors to allow them to assemble teams and resources necessary to participate in the procurement activities
Timeline	— 4 to 6 weeks
Desired Outcomes	— Detailed documentation of SAEWA's program to conduct procurement including establishment of key requirements and expectations and training of procurement team members — Publicize advance notice of SAEWA's pending procurement process

4.2 ACTIVITY 2: REQUEST FOR PREQUALIFICATION (RFPQ)

The following outlines the steps and tasks recommended for prequalification of energy from waste project Developers/Vendors:

Prequalification Criteria and Selection Methodology

In the context of a DBOM energy from waste project, the qualifications and experience of the project Developer/technology Vendor and the track record of its proposed technology are very important elements of project success. The criteria and process for selection of prequalified firms/consortia should be developed to reflect the anticipated requirements of the project, addressing both the technical and business aspects. It is recommended that the criteria and selection methodology be prepared prior to issuance of the RFPQ.

Examples of criteria that may be considered in a prequalification process include:

- Project Team/Consortia:

  - Experience;
  - Value and profile of completed and booked work;
  - Completion of similar projects;
  - Resumes of key personnel;
  - Organizational structure;
  - Resources;
  - Quality control program;
  - Safety - policies, program and record;
  - Project performance references;
  - Historical and/or pending litigation;
  - Conflicts of interest;
  - Financial condition;
  - Eligibility to enter into Contract;
  - Parent Company credentials;
- Technology Criteria:
  - Ability of the technology to perform to meet the anticipated requirements;
  - Ability to comply with applicable regulatory criteria;
  - Reference facilities where proposed technology is applied in a similar context;
  - Overall track record of the technology; and,
- Timeliness and adequacy of the submission.

Request for Prequalification

The RFPQ is the first step in the formal competitive procurement process to engage project Developers/technology Vendors with an interest in participating in SAEWA's project. The objective of the RFPQ process is to short-list qualified project Developers/technology Vendors to take part in a subsequent invited Request for Proposal (RFP) process.

It is recommended that the RFPQ be prepared to include the following main elements, as a minimum:

- A project overview and relevant background information;
- Description of the planned scope of work;
- Description of the project delivery model including definition of anticipated roles and responsibilities of the parties to the project;
- Guidance specifications regarding the qualifications that are sought (i.e. experience of team and/or individuals in a specific sector, technology performance requirements,

reference facilities and/or projects demonstrating successful application of the technology, financial status and capacity, etc.);
- Stipulations regarding the type and format of qualification information to be submitted;
- Outline of the process to evaluate qualification submissions; and,
- Terms and conditions governing the RFPQ process.

Due to the early stage of project development and parallel initiation of other project activities, much of the project-specific information provided in the RFPQ will be high-level. Despite this it is important to provide prospective Proponents with a reasonable understanding of SAEWA's plans and objectives for proceeding with development of an energy from waste facility. To allow flexibility in subsequent procurement activities, one key element of the terms and conditions recommended for the RFPQ is for SAEWA to reserve the right to change (or even cancel) its plans to proceed with procurement and project development.

The RFPQ should be issued and sufficient time allowed for prospective project Developers/technology Vendors to prepare their submissions to meet the requirements of the RFPQ. Typically, a minimum of 2 months is allowed for preparation and submission of prequalification submissions. The appropriate response timeframe may be influenced by the period of advance notification that can be provided, the time of year that the RFPQ is issued since many international firms scale-back administrative operations in the summer months, and other the occurrence of other similar energy from waste procurement activities that may be going on concurrently.

During the RFPQ response period, it is likely that prospective Proponents will have inquiries and SAEWA and its project team need to be prepared to receive and respond to such inquiries in a timely manner. SAEWA and its project team should also be prepared to deal with media inquiries during this time (see Communications Plan) while at the same time, following protocols and policies governing communications and information distribution to be established in the procurement manual (see Section 4.1).

On the specified RFPQ deadline, prequalification submissions should be received and maintained in confidentiality; distributed only to authorized members of the procurement team who have signed non-disclosure agreements. An initial important task is to review the submissions to determine compliance with mandatory submission requirements as specified in the terms and conditions governing the RFPQ. In-keeping with the principles of fairness in a competitive procurement process, only those submissions which are found to be materially compliant should be considered eligible for subsequent review and evaluation.

It is generally a given that information provided in procurement submissions must be accurate, truthful and reliable. Typically, terms and conditions governing procurement activities stipulate that provision of false or misleading information may be cause for disqualification. As an early due diligence step, the following elements of the compliant RFPQ submissions should be verified, as a minimum:

- Project performance references;
- Reference facility information;
- Financial condition; and,
- Litigation background.

The compliant RFPQ submission packages and summaries of the due diligence checks should then be provided to the evaluation team for review. The evaluation team will carefully review the compliant submissions to evaluate and score each based on the pre-defined criteria, using the methodology to be established in the procurement manual (see Section 4.1). The methodology for selection is typically based on evaluation of a combination of pass/fail and rated criteria. If necessary, the evaluation team may also wish to conduct interviews of prospective project Developer/technology Vendors.

The project team will then document the reviews, evaluations and interviews (if conducted), to identify the top prequalified project Developers/technology Vendors recommended for invitation to participate in the subsequent RFP process.

Activity 2 Summary	
Objective	— Develop the Vendor prequalification criteria and selection methodology — Engage energy from waste project Developers/technology Vendors in a formal RFPQ process
Timeline	— 6 to 8 months
Desired Outcomes	— Selection and identification of a short-list of prequalified energy from waste Proponents to be invited to participate in a subsequent RFP process

4.3 ACTIVITY 3: REQUEST FOR PROPOSALS (RFP)

The following outlines the steps and tasks recommended for solicitation of proposals from pre-qualified energy from waste project Developers/Vendors.

Proposal Evaluation Methodology and Criteria

In contrast to a Tender where detailed project requirements are spelled out in terms of precise specifications for material and methods; Requests for Proposals define high-level performance or results oriented objectives that are most important to the Owner. The Contractor is given flexibility and control to accomplish other necessary elements of the work as they see fit, so long as the specified performance objectives are met. Because of this, it is important that the RFP specifications and the process for evaluation of proposals be carefully designed and structured to reflect the Owner's priorities for the project.

Because proposal submissions will often differ from one another in certain key aspects, evaluation of proposals typically relies more heavily on scoring a number of rated criteria based on the degree to which the proposed approach fulfils the specified objective. Evaluation of proposals typically minimizes the number of mandatory pass/fail criteria to only those specified items which are critical to the reliability of the proposal (e.g. timeliness and completeness of submission, duly authorized signatures on affidavits and disclosures).

It is recommended that the proposal evaluation methodology and criteria be prepared prior to issuance of the RFP and reflect SAEWA's priorities for development of the project. Given that a preceding RFPQ will have been completed, criteria for evaluation of proposals typically exclude those considered in the RFPQ process. Criteria used for evaluation of proposals generally focus on certain details of the Proponent's plan to complete the work. A wide range of potential proposal evaluation criteria are available to be considered and should reflect the key aspects of the RFP as outlined in the following section.

Request for Proposals

The RFP should be developed with roles, responsibilities and contract terms and conditions reflecting the DBOM project delivery model identified as the preferred model by SAEWA (see Section 2.4). The RFP document should include the following, as a minimum:

- A project overview and relevant background information;
- Description of the planned scope of work;
- Description of the project delivery model including anticipated roles and responsibilities of the parties to the project;
- Requirements on the type and format of information to be submitted;
- Outline of the process to evaluate proposals;
- Terms and conditions governing the RFP;

- High-level performance based specifications describing the scope of the services to be provided (i.e. design, construction, commissioning, operation and maintenance) the outcomes to be achieved;
- The methods by which performance and outcomes will be measured and paid;
- Schedule and coordination of various work activities; and
- Draft terms and conditions intended for the subsequent Contract for the project.

Development of the performance based specifications and draft Contract terms and conditions is a very involved process that requires careful consideration of the implications of numerous aspects of the project. Development of the RFP will require extensive discussion between the project team and SAEWA's decision-makers to shape the RFP to direct the project as SAEWA wishes. The following lists a sample of several key aspects of the project which should be addressed in the RFP:

- Technical considerations:
    - Site information, existing conditions and investigations
    - Waste input information
    - Facility design features and performance requirements
        - Site and access
        - Buildings and infrastructure
        - Aesthetic considerations
        - Process equipment and controls
        - Environmental controls and monitoring
            - Air emissions
            - Noise
            - Odour
            - General environmental management
    - Energy recovery
    - Recovered recyclables and/or other material products
    - Residue management
    - Water use
    - Operations:
        - Waste receiving and handling
        - Processing
        - Energy outputs
        - Material outputs
        - Residue management

    - Maintenance to support operations and preserve asset value
- Commercial considerations:
    - Capital costs
    - Operating costs
    - Maintenance costs
    - Asset value preservation
    - Revenue streams
    - Lifecycle pro-forma
    - Guarantees and financial security
- Administrative and other considerations:
    - Early, pre-design involvement of the Contractor in finalization of approvals and permitting processes
    - The design process
    - Construction program
    - Quality assurance/quality control
    - Health and safety
    - Cost and schedule control
    - Community relations
    - Approvals and regulatory compliance

Other aspects of the project may also need to be included in the RFP, dependent on future development and refinement of the details of SAEWA's plans and objectives.

As an optional task, the prequalified Proponents may be provided with a confidential draft of the RFP to review and provide comments either in writing or in commercially confidential meetings. This serves three purposes:

- Provides Proponents with the opportunity to begin planning their proposal response and begin making arrangements for the resources that will be needed to avoid delays in preparing their proposal submission;
- Provides SAEWA with the opportunity for final changes to the RFP, should feedback from the Proponents indicate any substantive change is warranted; and,
- Establishes an initial basis of understanding on agreed upon contract terms and conditions to aid in later negotiations.

The RFP should be issued and sufficient time allowed for prospective project Developers/technology Vendors to prepare their submissions to meet the requirements of the

RFP. As a great deal of work is needed to prepare a credible and reliable energy from waste proposal, typically a minimum response period of 6 months is required.

During the RFP preparation period, Proponents will have inquiries and SAEWA and its project team need to be prepared to receive and respond to such inquiries in a timely manner. SAEWA and its project team should also be prepared to deal with media inquiries during this time (see Communications Plan) while at the same time, following protocols and policies governing communications and information distribution to be established in the procurement manual (see Section 4.1).

On the specified RFP deadline, proposals should be received and maintained in confidentiality; distributed only to authorized members of the procurement team who have signed non-disclosure agreements.

An initial important task is to review the submissions to determine compliance with mandatory submission requirements as specified in the terms and conditions governing the RFP.

Similar to the RFPQ process, due diligence activities may need to be conducted to verify the reliability of information provided or claims made in the proposals. Due diligence activities associated with proposal submissions would be specific to the requirements of the final proposal and may focus on the following:

- Additional or changed information relating to matters that were addressed in the preceding RFPQ and its associated due diligence activities;
- Additional reference information or certifications that are provided to support the proposal; and,
- Evaluation of claims made in the proposal which may require research and or investigation to verify.

The compliant proposal submission packages and summaries of the due diligence checks should then be provided to the evaluation team for review. The evaluation team will carefully review the compliant submissions and score each using the proposal evaluation methodology and criteria to be established. The methodology for selection is typically based on evaluation of primarily rated criteria, with few mandatory pass/fail elements. If questions arise as a result of evaluation of the proposals, Proponents may be asked to provide clarifying information without modifying their submission.

It is recommended that interviews of the Proponent teams be conducted by the evaluation team, including a brief summary presentation of their proposal followed by a structured question and answer session.

The project team will then document the reviews, evaluations, clarifications and interviews and scoring to identify the preferred proposal and Proponent to enter into contract negotiations.

Activity 3 Summary	
Objective	— Develop the RFP evaluation methodology and criteria — Solicit proposals from invited, prequalified project Developers/technology Vendors
Timeline	— 10 to 12 months
Desired Outcomes	— Selection of the preferred proposal and Proponent to enter into contract negotiations

4.4 ACTIVITY 4: CONTRACT NEGOTIATIONS

Given that the RFP process relies on high-level performance based specifications describing the scope of the services to be provided, some form of negotiation of final details is typically required to allow the parties to enter into a Contract. Dependent on many issues (i.e. the specificity of the RFP, interpretations by the parties, the competitive market, uncertainties related to potentially changing conditions and/or regulatory requirements, defined timelines for the project etc.) negotiations can be very straightforward or detailed and lengthy.

At the start of Contract negotiations, SAEWA and its project team should develop a negotiation strategy. Contract negotiations are typically accomplished through face-to-face meetings between delegated negotiation representatives, discussions and exchanges of revisions to the proposed Contract. The time required for Contract negotiations is difficult to predict, however firm and enforceable deadlines can be defined and used to keep negotiations from getting bogged down.

Once negotiations are completed, Contract execution can take place followed by issuance of authorization to proceed to the successful Proponent.

Activity 4 Summary	
Objective	— Develop and apply SAEWA's Contract negotiation strategy — Finalize details of the Contract that are mutually acceptable to both parties
Timeline	— Allowance of 6 weeks (potentially longer)
Desired Outcomes	— Execution of the Contract and issuance of authorization to proceed

4.5 RESOURCES

Several different resources will be required to complete the Procurement Process Plan. Carrying out the work described requires an experienced project leadership group working in collaboration with a diverse group of specialists and subject-matter experts. It is strongly recommended that a fairness monitor be utilized. To provide effective leadership of the overall project development plan and contribute to the regulatory program, it is recommended that SAEWA designate the following key roles from among its representatives:

SAEWA's project steering group:

- Liaison between SAEWA membership and the project team;
- Guides implementation of the project development plan;
- Provides direction to the project team and expedites day-to-day decisions on behalf of SAEWA as necessary to advance the project;

SAEWA's evaluators:

- Designated SAEWA member representatives who will evaluate and rank compliant submissions received in response to RFPQ and RFP

SAEWA's Contract negotiators:

- Designated SAEWA member representatives who will participate in Contract negotiations

The following table summarizes the credentials recommended for the members of the procurement team.

Table 1: Procurement Team

Activity	Required Resources	
	Description	Minimum Credentials
Activity 1: Initiate Procurement	SAEWA's project steering group	—Designated and authorized by SAEWA —Experience in management of municipal capital works
	SAEWA's evaluators (3 to 5 persons)	—Designated and authorized by SAEWA —Free of conflicts of interest —Experience in public sector procurement would be an asset —Familiarity with energy from waste would be an asset
	SAEWA's Contract negotiators (2 to 3 persons)	—Designated and authorized by SAEWA —Free of conflicts of interest —Experience in negotiations
	Procurement Lead and support (individual and supporting organization)	Minimum 10 years experience in: —Procurement of large public sector capital works in Canada
	Project Management Lead (spans all activities)	Minimum 10 years experience in: —Development and approvals for large waste management projects in Canada —Energy from waste facility, engineering, specifications, design, construction and operation —Procurement, public consultation and project management.
	Legal Advisor	Minimum 10 years experience in contract and procurement law in Canada
	Fairness Monitor	Independent third party with minimum 10 years experience in: —Fairness monitoring of procurement for large public sector capital works projects
Activity 2: Request for Prequalification	SAEWA's project steering group	As above
	Procurement Lead	As above
	Evaluation Team including: -SAEWA's evaluators -Project Management Lead including technical support -Legal Advisor	 As above As above (Advisory and guidance role) As above (Advisory and guidance role)
	Fairness Monitor	As above
Activity 3: Request for Proposal	SAEWA's project steering group	As above
	Procurement Lead	As above

Activity	Required Resources	
	Description	Minimum Credentials
	Evaluation Team including: -SAEWA's evaluators -Project Management Lead including technical support -Legal Advisor	 As above As above (Advisory and guidance role) As above (Advisory and guidance role)
	Fairness Monitor	As above
Activity 4: Contract Negotiations	SAEWA's project steering group	As above
	Procurement Lead	As above
	Negotiation Team including: -SAEWA's Contract negotiators -Project Management Lead including technical support -Legal Advisor	 As above As above (Advisory and guidance role) As above (Advisory and guidance role)

4.6 BUDGET

The costs to execute the procurement plan can be influenced by a number of factors including:

- The number of interested parties submitting in the RFPQ process;
- The number of prequalified proponents invited to participate in the RFP process (recommended 3 to 5);
- The role that SAEWA's member organizations may be able to fulfil to support the procurement process in terms of both administration and participation;
- Decision to conduct optional tasks identified;
- Specifics regarding the features and level of detail SAEWA chooses to incorporate into the RFP;
- Complexity and duration of contract negotiations; and,
- Scheduling and coordination needs with other aspects of the project development program.

Bearing in mind that costs vary based on factors mentioned above and recognizing that there remain a number of areas of uncertainty and potential for change, an initial budget estimate for the Procurement Plan is presented in Table 2. It should be recognized that this budget estimate is approximate and cannot reasonably address all eventualities that may occur. It is recommended that project budgets be periodically reviewed and revised to address changes in the work plan that occur as the project proceeds.

Table 2: Preliminary Procurement Plan Budget

Task	Description	Units	Qty	Unit Price	Task Totals	Activity Totals
	Activity 1: Intiate Procurement					***$ 243,000***
1.1	Management and Coordination of Procurement Plan	%	10	NA	$ 163,000	
1.2	Prepare Procurement Manual	LS	1	$ 40,000	$ 40,000	
1.2	Procurement Training	LS	1	$ 25,000	$ 25,000	
1.4	Notice of Pending Procurement	LS	1	$ 15,000	$ 15,000	
	Activity 2: Request for Prequalification					***$ 355,000***
2.1	Prequalification Criteria and Selection Methodology	LS	1	$ 25,000	$ 25,000	
2.2	Prepare and Issue RFPQ	LS	1	$ 50,000	$ 50,000	
2.3	Respond to Inquiries During RFPQ Period	LS	1	$ 25,000	$ 25,000	
2.4	Receive Prequalification Submissions and Conduct Initial Compliance Checks	LS	1	$ 25,000	$ 25,000	
2.5	Prequalification Submissions Due Diligence	LS	1	$ 30,000	$ 30,000	
2.6	Review Prequalification Submissions	LS	1	$ 75,000	$ 75,000	
2.7	Optional - Vendor Interviews	LS	1	$ 25,000	$ 25,000	
2.8	Consensus Evaluation of Prequalification Submissions	LS	1	$ 30,000	$ 30,000	
2.9	RFPQ Results Report	LS	1	$ 20,000	$ 20,000	
2.10	Fairness Monitor Participation	LS	1	$ 50,000	$ 50,000	
	Activity 3: Request for Proposals					***$ 985,000***
3.1	Proposal Evaluation Methodology and Criteria	LS	1	$ 45,000	$ 45,000	
3.2	Prepare Draft Request for Proposals	LS	1	$ 350,000	$ 350,000	
3.3	Option - Conduct Commercially Confidential Meetings with Proponents	LS	1	$ 40,000	$ 40,000	
3.4	Finalize and Issue RFP	LS	1	$ 40,000	$ 40,000	
3.5	Respond to Inquiries During RFP Period	LS	1	$ 75,000	$ 75,000	
3.6	Receive Proposals and Conduct Initial Compliance Checks	LS	1	$ 35,000	$ 35,000	
3.7	Proposals Due Diligence (Allowance)	LS	1	$ 50,000	$ 50,000	
3.8	Review Proposals	LS	1	$ 120,000	$ 120,000	
3.9	Vendor Clarifications	LS	1	$ 15,000	$ 15,000	
3.10	Vendor Interviews	LS	1	$ 40,000	$ 40,000	
3.11	Consensus Evaluation of Proposals	LS	1	$ 50,000	$ 50,000	
3.12	RFP Results Report	LS	1	$ 50,000	$ 50,000	
3.13	Fairness Monitor Participation	LS	1	$ 75,000	$ 75,000	
	Activity 4: Contract Negotiations					***$ 50,000***
4.1	Negotiations with the Preferred Vendor (Allowance)	LS	1	$ 50,000	$ 50,000	
				Recommended Contingency (10%)		**$ 163,300**
				Regulatory Requirements Total		**$ 1,796,300**

4.7 SCHEDULE

A preliminary schedule for the activities involved in this Procurement Plan has been developed and is presented in Appendix B. The schedule presented has been designed to correspond with

other elements of SAEWA's project development plan. Some of activities may be carried out in parallel with others and some may be carried out concurrently with activities identified in the other Project Development Plan reports. There remains some uncertainty as to some of the specific elements of the work program and as such the schedules presented are preliminary. It is recommended that schedules be periodically reviewed and revised to address changes in the work plans that occur as the project proceeds.

5.0 SUMMARY OF FINDINGS AND RECOMMENDATIONS

This report presents the Procurement Process Plan component of SAEWA's project development plan. The preceding sections include: an overview of project delivery models and procurement processes, the rationale behind the proposed methodology to prequalify, select and negotiate a Contract with the preferred project development Proponent; identification of resources required to carry out the procurement, and a budgetary estimate for SAEWA to execute the recommended procurement plan.

The procurement process methodology outlined herein is based on the preferred approach expressed by SAEWA for implementation of a Design Build Operate Maintain contract for development of an energy from waste facility.

Key organizational tasks are identified that need to be completed prior to conducting procurement including:

- 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.

Elements of the recommended procurement process plan will need to interface and coordinate with other elements of the overall project development plan. In particular, it would be preferable to have the proposed Site identified and incorporated into the RFP. Further, following completion of the procurement process, it will be incumbent on the successful Proponent to contribute to and assume responsibility for finalization of certain aspects of the approvals and permitting process. As noted previously, communications in the context of procurement should also be closely coordinated with the overall project communications plan.

The recommend procurement process plan presented in this report consists of 4 steps:

1. **Initiate Procurement -** develop the procurement manual, train procurement team members and issue advance notice of the pending procurement.
2. **Request for Prequalification –** prepare and issue the RFPQ, evaluate submissions and identify the short-list of prequalified Proponents to be invited to participate in the subsequent RFP process.
3. **Request for Proposals** – prepare and issue the RFP, evaluate proposals and identify the preferred Proponent.
4. **Contract Negotiations** – conduct negotiations with a view to enter into a contract with the preferred Proponent, for the DBOM development of an energy from waste facility for Southern Alberta.

To complete the work involved in the proposed procurement process plan, SAEWA will need to engage several resources including a procurement lead, a project management lead with technical support specialists, a procurement legal advisor, a fairness monitor and delegation of SAEWA's procurement evaluators.

APPENDIX A
PROCUREMENT AND BUSINESS PLANNING WORKSHOP MATERIALS

Southern Alberta Energy from Waste Association

Procurement and Business Planning Workshop

February 25, 2014

Agenda:

A. Background Information:

- Energy from Waste Overview ("EFW 101")
- SAEWA Vision and Research Project
- Overview of Project Delivery Models
- Overview of Risk and Control

Southern Alberta Energy from Waste Association

Procurement and Business Planning Workshop

February 25, 2014

Agenda (cont'd):

B. Key Issues

- Scope of waste management services
- Project delivery
- Ownership and partnering
- Funding
- Waste supply
- Competition in procurement
- Fairness in procurement
- Due diligence in procurement
- Other important issues raised by participants

Background: Energy from Waste Overview

Energy from Waste Procurement and Business Planning Workshop

What is Energy from Waste?

- Terminology: Energy from Waste (EFW) = Waste to Energy(WTE) = Thermal Treatment = Incineration*
- An approach to managing residual waste that also produces energy
- A category that includes several different types of technologies
- Wastes are processed to produce:
  - Energy (electricity and/or heat); or,
  - Fuel from which energy is then produced
- Additional outputs:
  - Emissions – treatment required
  - Ash (two types) – disposal, treatment or beneficial use
  - Process residues – disposal required
  - Additional recyclables – send for recycling

*With energy recovery

Background: Energy from Waste Overview

Energy from Waste Procurement and Business Planning Workshop

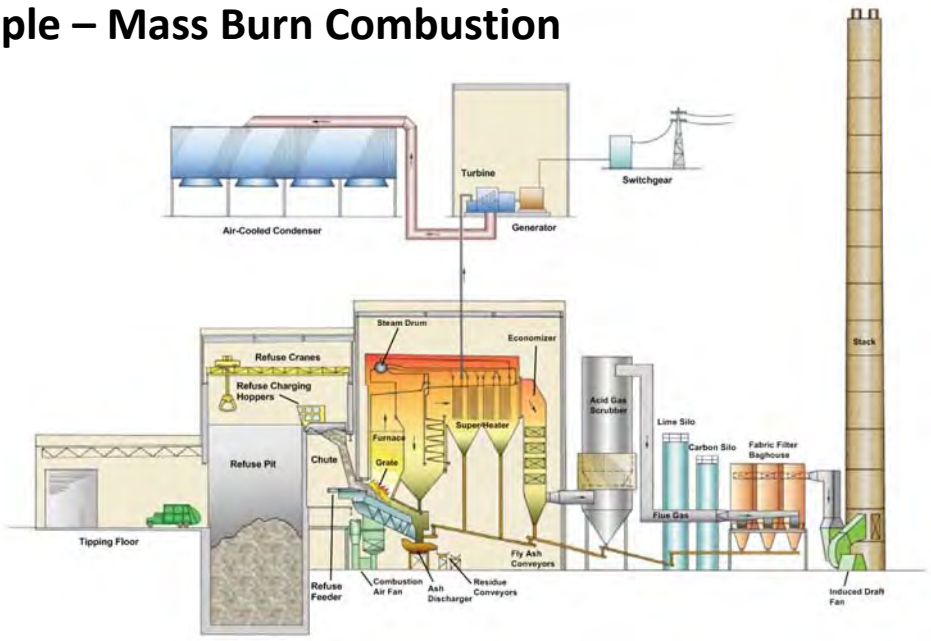
Technology Classes

- **Thermal**
  - Conventional Gasification
  - Pyrolysis
  - Plasma Arc Gasification
  - Mass-burn combustion
- **Biological**
  - Anaerobic digestion
- **Chemical**
  - Hydrolysis
  - Depolymerization (thermal & catalytic)
- **Mechanical**
  - Mechanical biological treatment (MBT)
  - Refuse-derived fuel (RDF)

Background: Energy from Waste Overview

Energy from Waste Procurement and Business Planning Workshop

Example – Mass Burn Combustion

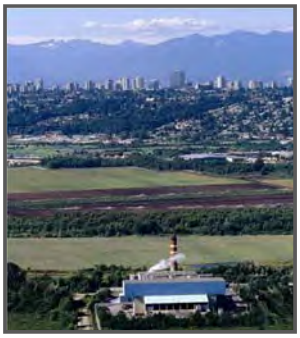


Background: Energy from Waste Overview

Energy from Waste Procurement and Business Planning Workshop

Why EFW?

- Reduce reliance on landfill disposal
- Recovery of useful energy that would otherwise be lost
- Lower greenhouse gas emissions
- Long-term sustainability
- Environmental performance
- Long and proven track record

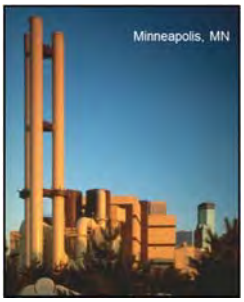


Background: Energy from Waste Overview

Energy from Waste Procurement and Business Planning Workshop

Key Considerations

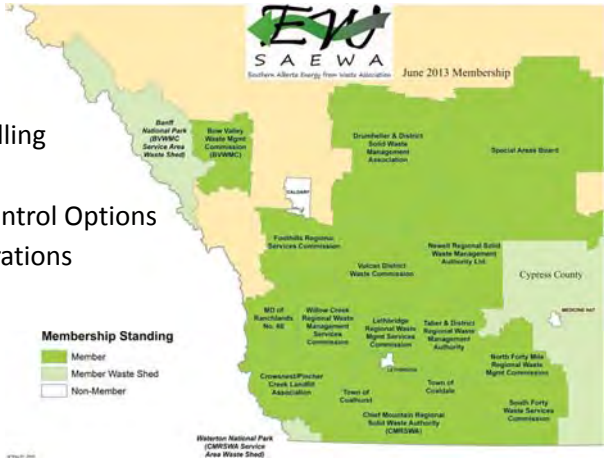
- Modern pollution controls are needed for protection of the environment and air quality
- Siting can be controversial and sometimes challenging, depending on:
  - Host community perspectives
  - Stakeholder perceptions, attitudes and background
- Life cycle costs are comparable to other options, but up-front capital investment is high
- Implementation can be long and issues can be complex



Background: SAEWA's Vision and Research Project

Energy from Waste Procurement and Business Planning Workshop

- SAEWA Established in 2009
- Committed to research and implementation of energy recovery from non-recyclable waste materials to reduce long-term reliance on landfills
- **Research Project Reports:**
  1. Waste Generation Rates & Facility Sizing
  2. Technology Review
  3. Waste Collection, Transportation & Handling
  4. Energy Recovery Options
  5. Air Emissions, Greenhouse Gases and Control Options
  6. Permitting, Siting and Schedule Considerations
  7. Capital and Operating Costs
- **Requests for Expressions of Interest:**
  1. Community Hosts
  2. Energy Hosts
  3. Developers and Vendors



Waste Quantities

Up to 366,000 tonnes/year of waste potentially available to the facility

Background: Research Project

Waste Stream	Total Waste Quantities (Tonnes/year)	Potentially Available Waste for SAEWA (Tonnes/year)
MSW from SAEWA Members	196,850	196,850
MSW from Non-SAEWA Members	919,300	13,300
Other Waste Sources:		
ICI Sector Waste	290,000*	0**
Agricultural Waste	0***	0
Biosolids	22,232	1,232
Contaminated Soils	66,500	0
Combustible Oilfield Waste	2,500	2,500
Railway Ties	124,650	124,650
Specified Risk Materials - MBM	27,500	27,500
TOTAL	**1,649,532**	**366,032**

HDR

Background: Research Project

Energy from Waste Procurement and Business Planning Workshop

EFW SAEWA

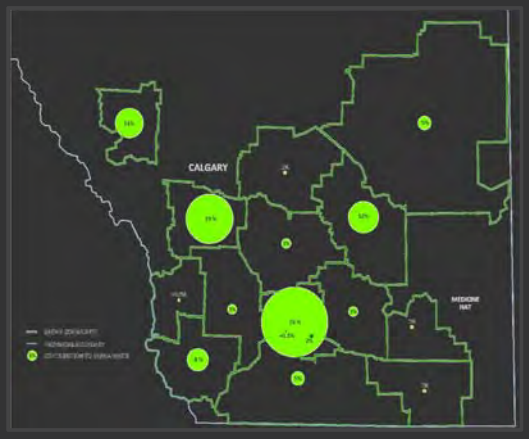
Technology Review

- Key Criteria Examined:
  - State of development of the technology
  - Environmental considerations
  - Greenhouse gas emission reductions
  - Suitability to process the anticipated waste stream
  - Energy recovery efficiency
  - Costs
  - Potential risks – development, performance, markets
- Recommended for consideration:
  - RDF processing and combustion
  - Mass Burn Combustion
  - Gasification
  - Plasma Arc Gasification

HDR

Transportation Logistics

- Waste sources widely distributed*
- Transport costs a significant factor
- Extensive highway and rail network



**Note: SAEWA membership and waste distribution has changed since completion of the research study*

- Direct haul limit = 80 km round trip
- Material aggregation, transfer and rail haul can assist with transport logistics

Background: Research Project

HDR

> > Background: Research Project

Energy from Waste Procurement and Business Planning Workshop

SAEWA

Energy

	Energy Outputs		
	Electricity	*Heat*	*Gas Fuel*
Technologies			
RDF Processing and Combustion	✔	✔	
Mass Burn Combustion	✔	✔	
Gasfication	✔	✔	⊙
Plasma Arc Gasification	✔	✔	⊙
Key Market Characteristics (Non-financial)			
Access Mechanism	Grid	Pipeline	Pipeline
Nature of Market	Widespread	Local	Local or Widespread
Demand Variability Risk	Stable	High	High or Stable
Market Security Risk	Reliable	Customer Specific	Variable
Primary Barriers	Administrative	Geographic Opportunity	Product Quality

Note: ✔ represents a primary output. ⊙ represents an alternative output.

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Background: Research Project

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SAEWA

Emissions

- EFW facilities with modern air pollution controls are capable of meeting stringent air quality criteria
- All energy from waste options considered offer substantial GHG emission reductions compared to landfill

Summary of Estimated GHG Annual Emissions	Refuse Derived Fuel with Combustion	Mass Burn Combustion	Gasification	Plasma Arc Gasification	Landfill
Disposal (MTCO2/yr)	7,030	0	7,030	7,030	58,587
Combustion (MTCO2/yr)	84,140	78,116	84,140	84,140	0
Transportation (MTCO2/yr)	2,483	2,456	2,483	2,474	1,635
Facility Fuel Usage (MTCO2/yr)	244	228	244	238	532
Electrical Purchase and Sales (MTCO2/yr)	-92,276	-104,265	-76,894	-45,650	0
Ferrous & Non FerrousRecovery (MTCO2/yr)	-31,906	-31,906	-31,906	-31,906	0
Net GHG Estimated Emissions (MTCO2E/yr)	**-30,300**	**-55,400**	**-14,900**	**16,300**	**60,800**
GHG Emissions Reduction Relative to the Landfill (MTCO2E/yr)	91,100	116,200	75,700	44,500	-
Percent Reduction	150%	191%	125%	73%	-

- Mass burn combustion achieves the greatest reductions due primarily to higher energy generation efficiency

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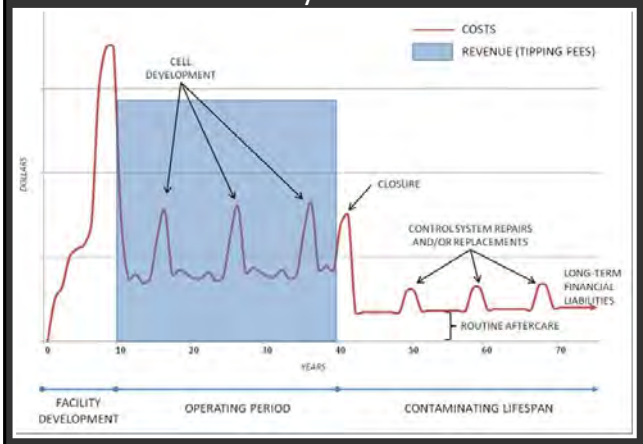
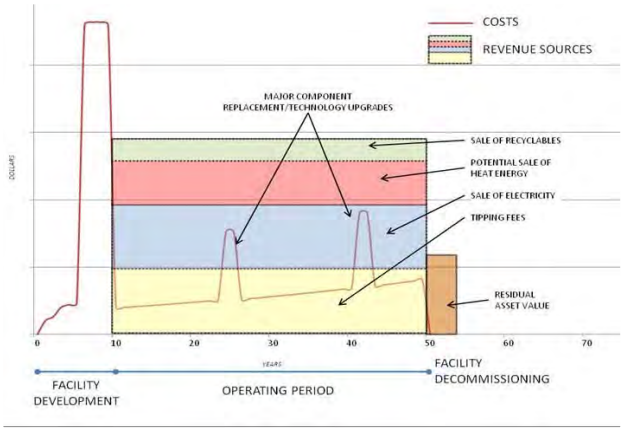
Lifecycle Cost Profiles

Landfill Lifecycle Cost Profile





EFW Lifecycle Cost Profile

When **true** long-term liabilities and revenue potential are taken into consideration, net unit lifecycle costs are roughly comparable

Background: Research Project

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Background: Research Project

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Estimated Life Cycle Costs

	Base Case Landfill System	*Energy From Waste Based Systems* RDF and Combustion	Mass Burn Combustion	Gasification	Plasma Arc Gasification
Total Waste Disposed (tonnes)	*11,000,000*	*16,425,000*	*16,425,000*	*13,687,500*	*12,775,000*
Operating Lifespan (years)	*30*	*50*	*50*	*50*	*50*
Lifecycle Expenditures					
Capital	$266,717,000	$476,889,000	$464,039,000	$468,714,000	$429,354,000
Operating	$763,333,950	$1,664,446,100	$1,356,937,500	$1,272,689,600	$1,414,693,400
Total Expenditures	$1,030,050,950	$2,141,335,100	$1,820,976,500	$1,741,403,600	$1,844,047,400
Gross Lifecycle Unit Cost ($/tonne)	94	130	111	127	144

- Sources of revenue:
  - Energy sales: electricity, heat, fuel products
  - Greenhouse gas offsets
  - Sale of recyclables
  - Residual asset value
  - Tip fees

Background: Requests for Expressions of Interest

Energy from Waste Procurement and Business Planning Workshop

3 Different Requests issued:

1. Technologies & Vendors
   - 24 Responses
2. Potential Energy Users
   - 0 Responses
3. Potential Willing Hosts
   - 6 Responses

Six (6) Communities responded with Potential Interest in Hosting the Facility

Background: Project Delivery Models

Energy from Waste Procurement and Business Planning Workshop

Elements of Project Delivery

- Design
- Construction
- Operations
- Maintenance
- Administration:
  - Project management – primarily focused on capital works
  - Management of business operations:
    - Supply of inputs (e.g. waste feedstocks, fuel, water, consumables, etc.)
    - Marketing of products (e.g. electrical power, heat energy, recyclables, etc.)
    - Management of other outputs (e.g. emissions, wastewater, residues, etc.)
    - Asset management
    - Staffing
    - Regulatory compliance
    - Financial administration
- Ownership of assets (e.g. land, building(s), equipment, etc.)
- Project financing

Background: Project Delivery Models

Energy from Waste Procurement and Business Planning Workshop

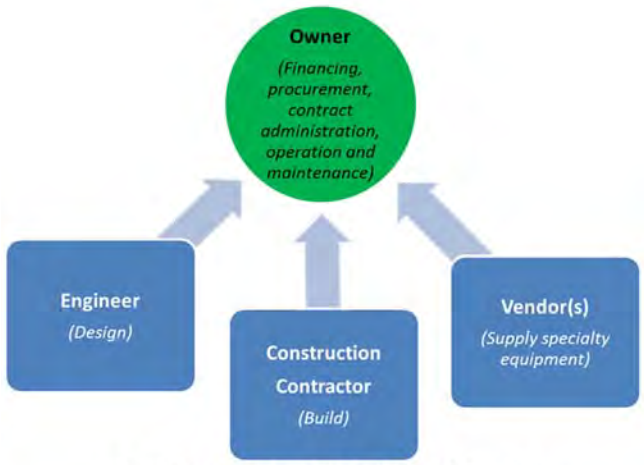
Project Delivery Models

- "Who Does What"
- Parties involved in project delivery:
  - Owner(s)
  - Contractor(s)
    - Sub-contractor(s) and trades
  - Equipment Vendor(s)
  - Engineer(s)
  - Others (financiers, surety, insurers etc.)
- Project delivery models:
  - Traditional Design-Bid-Build
  - Design Build
  - Design Build Operate
  - Design Build Operate and Maintain
  - Design Finance Build Own & Operate
- Choice of model is primarily based on:
  - Allocation of responsibility for elements of project delivery to the party (or parties) best able to manage those responsibilities
  - Preferences for risk/control

Background: Project Delivery Models

Energy from Waste Procurement and Business Planning Workshop

Project Delivery Models



Traditional Design-Bid-Build (DBB) Project

Background: Project Delivery Models

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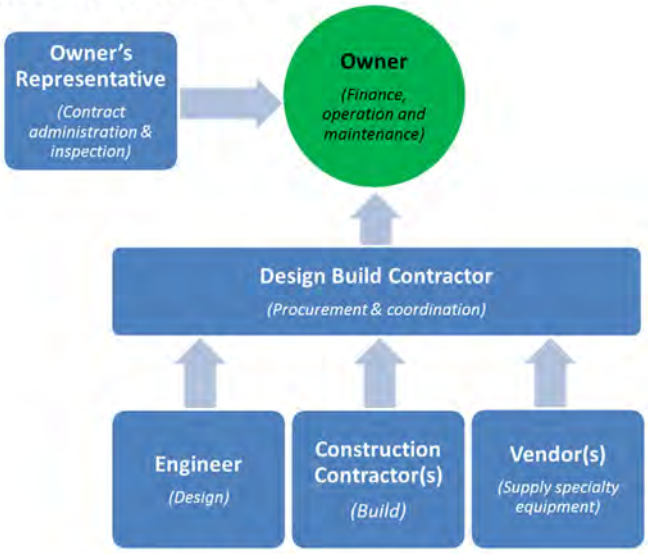
Project Delivery Models



Design Build (DB) Project

Background: Project Delivery Models

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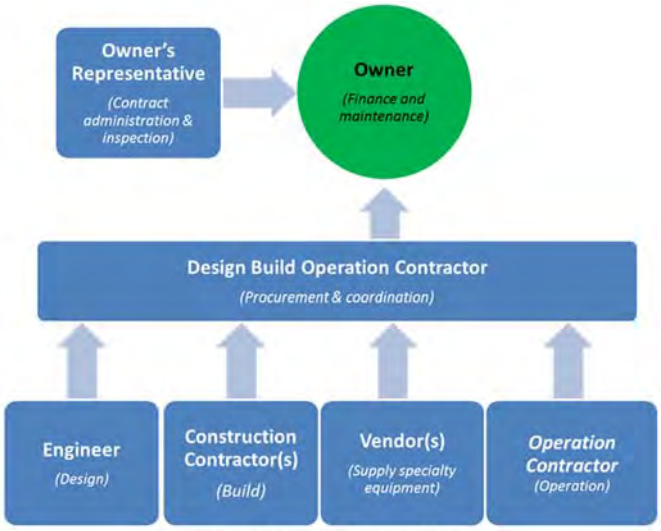
Project Delivery Models



Design Build Operate (DBO) Project

Background: Project Delivery Models

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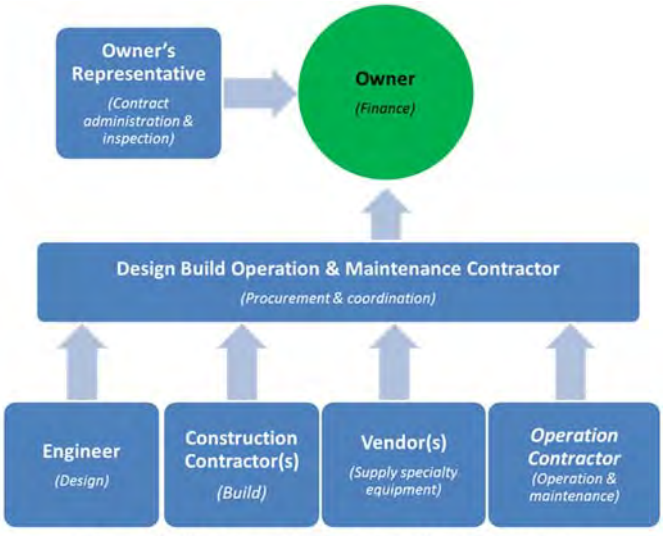
Project Delivery Models



Design Build Operate & Maintain (DBOM) Project

Background: Project Delivery Models

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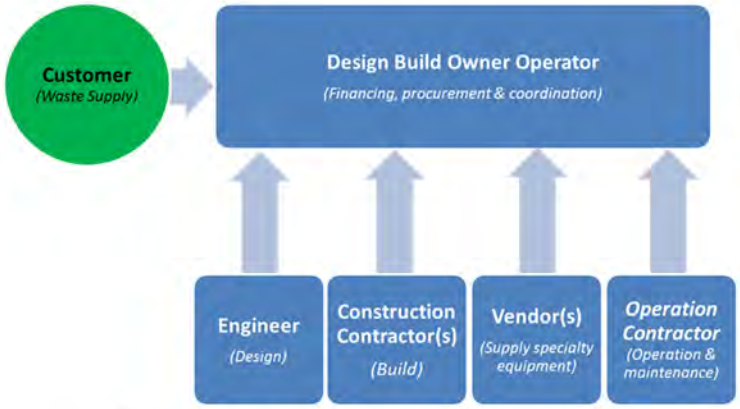
Project Delivery Models



Design Finance Build Own & Operate (DFBOO) Project

Key Issues: Project Risk and Control

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- A Balancing Act
  - Risk and control are two sides of one coin
  - To effectively manage risk, the responsible party must also have a degree of control
  - Risk off-loading in the absence of control leads to "risk" pricing, inflating costs
  - Risk off-loading can create a false sense of security dependent on ability and willingness to exercise contract remedies
  - Hand-over of too much control can unbalance the relationship
- Elements of Risk:
  - Financial
  - Performance
  - Asset value
  - Schedule
  - Regulatory compliance
  - Public perceptions
  - Others

Key Issues: Project Risk and Control

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Project Risk and Control (cont'd)

- Risk/Control Management Tools:
  - Selection of the appropriate project delivery model and structure of roles to reflect careful choices and commitments to fulfilment of the obligated responsibilities
  - Careful construction of the Contract terms and conditions
  - Clear, unambiguous specification of performance requirements
  - Management of cash flow linked to performance of obligations
  - Firm, clear and enforced consequences tied to performance:
    - Incentives and disincentives

Background: Risk and Control

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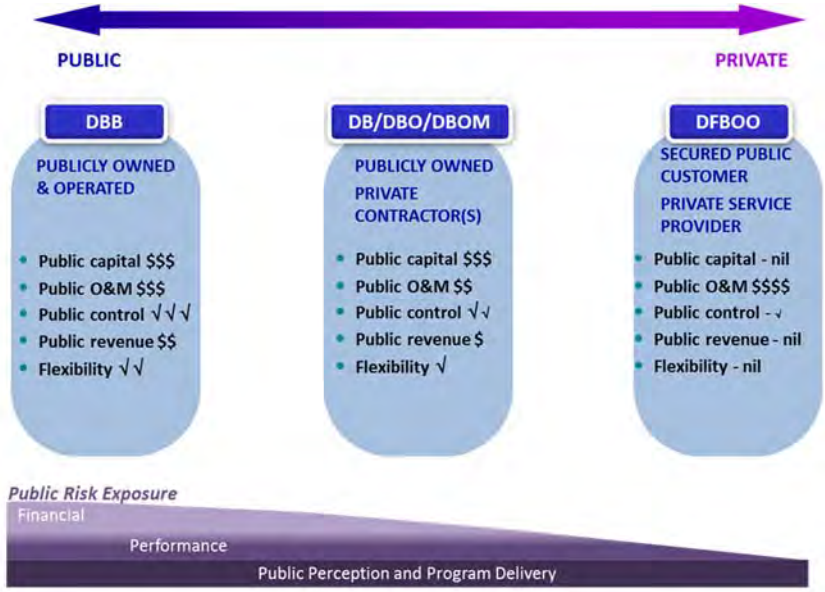
Risk and Control – Public/Private Context



Discussion Issue: Scope of Services

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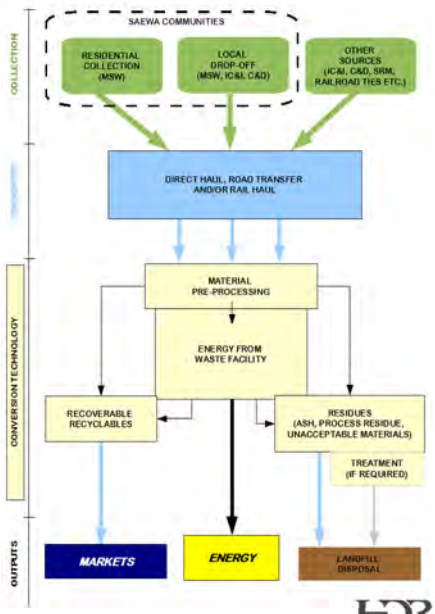
What will be included in the business?

- **Core Elements:**
  - Receiving and processing waste
  - Recovery of energy
  - Recovery of materials
  - Marketing and management of outputs
    - Energy, products, recovered recyclables, ash/residues
- **Other Potentially Related Elements:**
  - Collection of waste?
  - Transfer and transportation of waste?
  - Marketing of surplus or ***merchant*** processing capacity?
  - Development of new products from outputs?
  - Others?



Discussion Issue: Project Delivery

Energy from Waste Procurement and Business Planning Workshop

What is the preferred method of project delivery?

- **Models:**
  - Traditional Design-Bid-Build
  - Design Build
  - Design Build Operate
  - Design Build Operate and Maintain
  - Design Finance Build Own & Operate
  - Variations on above
- **Key Considerations:**
  - Allocation of risk and control
  - Capabilities to assume roles
  - Ability to fund
  - Preferences regarding price and schedule
  - Ownership preferences

Discussion Issue: Ownership and Partnering

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- **Ownership:**
  - *"The ultimate and exclusive right conferred by a lawful claim or title, and subject to certain restrictions to enjoy, occupy, possess, rent, sell, use, give away, or even destroy an item of property."*
  - Responsibilities and rights ⟷ risk and control
- **Who should own the:**
  - Site?
  - Facility?
  - Equipment?
  - Outputs?
- **Is there interest in partnering?**
- **Who could be potential partners:**
  - Private sector?
    - EFW project developers/technology vendors?
    - Others (e.g. waste services companies, venture funds)?
  - Public sector (e.g. non-SAEWA municipalities, Province, P3 Canada)?

Discussion Issue: Funding

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Who will fund the project?

- SAEWA's membership?
  - Through capital contributions and tipping fees?
  - Through contributions from other public sector funding organizations (i.e. Provincial and/or Federal)?
- Private sector:
  - Through capital payments and/or tipping fees?
- Other options?
- The basis for all funding options will include:
  - Secured waste supply tip fees
  - Confidence in other revenue streams including:
    - Energy purchase and sale
    - Greenhouse gas emission offsets
    - Marketing of recyclables

Discussion Issue: Waste Supply

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SAEWA's waste supply is the cornerstone of the project

- **How will the waste supply be secured?**
  - Agreements between SAEWA and its member communities?
  - Tip fee contracts on a put or pay basis?
  - Risk of short-term fluctuations?
  - Long-term stability of waste supply agreements?
  - Any allowances for surplus or merchant capacity to be sold as an alternative revenue generation?

Discussion Issue: Competition in Procurement

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Competition in Procurement

- Procurement is the process of acquiring goods and services needed to complete a task or project
- Can be competitive (typical) or sole-sourced (not generally allowed for public expenditures)
- Competitive procurement:
  - Requires a competitive market-place
  - Can be time consuming
  - Creates certain mutual legal obligations (i.e. fairness and transparency)
  - Might achieve lowest pricing, but may not achieve best value
    - Heavily dependent on the bid terms and conditions and the bidders qualifications
  - Can motivate innovation
  - Establishes a level playing field
  - Generates the most reliable information regarding performance and commitments

Discussion Issue: Competition in Procurement

Energy from Waste Procurement and Business Planning Workshop

Competition in Procurement (cont'd)

- Typical elements of competitive procurement:
  1. Prequalification
     - Experience, expertise, track record, demonstrated capabilities through reference projects
     - Develop a short-list of prequalified proponents
  2. Request for Proposals
     - Technical specifications, performance requirements, contractual terms and conditions
  3. Negotiations
     - Establishment of final details of agreement
- **It is strongly recommended that SAEWA use competitive procurement be as a tool to select the preferred EFW technology from among those recommended for further consideration**
  - Technologies are rapidly changing
  - Maximize the potential for SAEWA to achieve best value
  - Provides opportunity for qualified vendors to participate
  - Keeps vendors "inside the tent"
  - A common industry practice

Discussion Issue: Due Diligence in Procurement

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Due Diligence

- **The stakes are high**
- Important to be able to differentiate claims, interpretations and embellishments from accurate information
- Due diligence checks need to happen early in each procurement step
- **It is recommended that the competitive procurement approach incorporate due diligence measures including:**
  - Careful and detailed specification of required prequalification criteria
  - Affidavits and clear and substantive contractual consequences for false or misleading information (disqualification, loss of bid deposit)
  - Interviews of various types of reference contacts (clients, host community representatives, regulators)
  - Inspection visits to reference facilities identified by short-listed proponents
  - Financial condition investigation of short-listed proponents
  - Detailed assessment and evaluation of claims, statements, offers, terms and conditions presented by proponents

Discussion Issue: Fairness in Procurement

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Fairness

- **The stakes are high**
- Project developers and technology vendors will seek to gain advantages in the selection process
- Procurement processes in Canada create mutual legally binding obligations on Owner and Proponents
- Fairness in procurement means: un-biased, non-discriminatory, no preferential treatment, transparent, mechanism for challenge and resolution of disputes
- **It is recommended that the competitive procurement process incorporate:**
  - Fairness principles in the selection processes for prequalification and request for proposals
  - The services of a third party fairness monitor to independently observe, provide feedback and report on the fairness of the procurement process
  - Experienced legal advisory services from a procurement specialist
  - Pre-defined channels of communication
  - Legally binding and enforced anti-lobbying restrictions applied to all potential proponents, all SAEWA decision-makers and all project team members
    - Anti-lobbying clause should be imposed concurrent with SAEWA's decision to proceed with procurement

Discussion Issue: Other Issues

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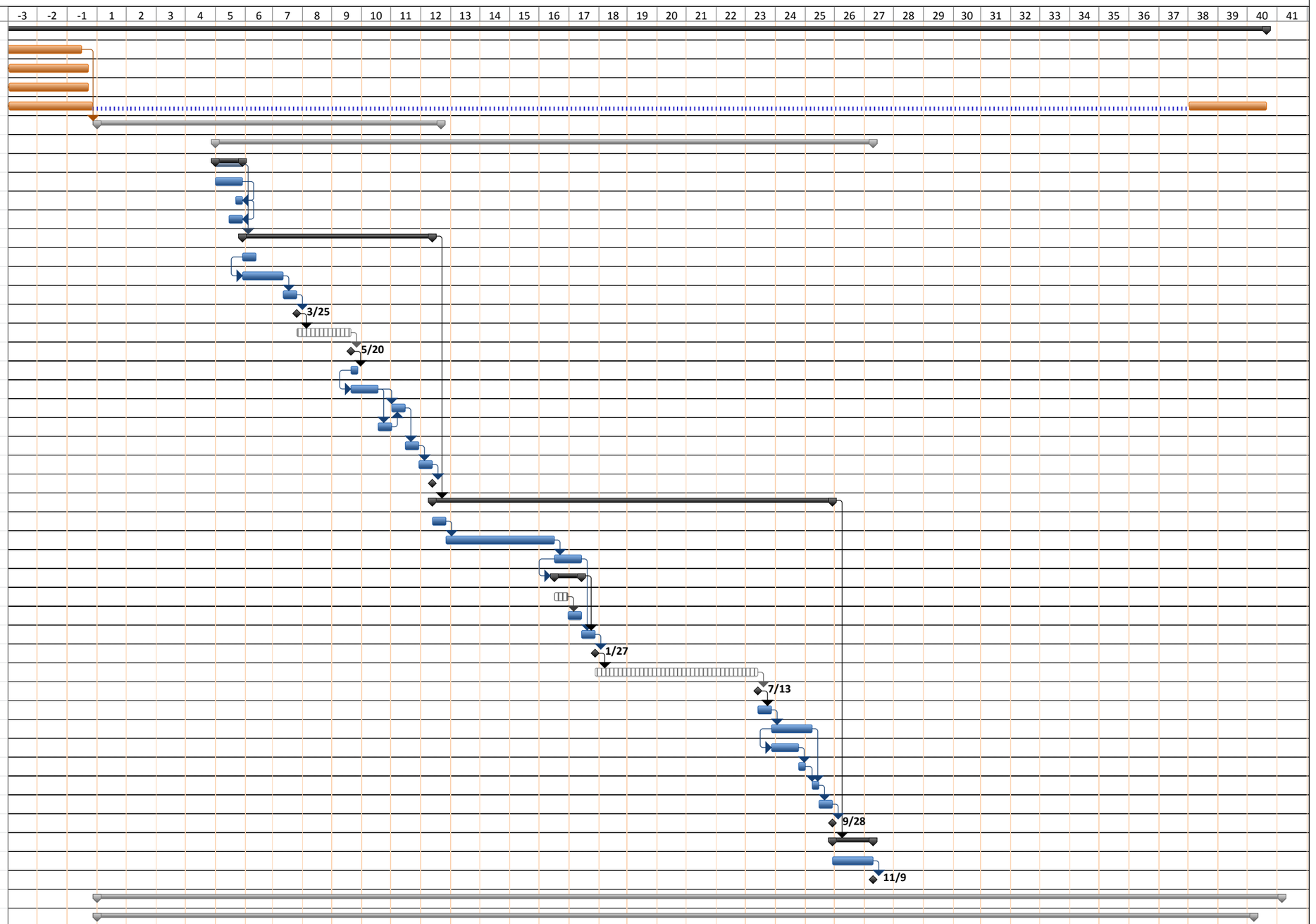
Other Important Issues?

APPENDIX B
PRELIMINARY PROCUREMENT PLAN SCHEDULE

SAEWA Project Development Plan
DRAFT PRELIMINARY SCHEDULE - PROCUREMENT

ID	Task Name
1	**Pre-Development Organizational Tasks**
2	Governance Structure
3	Secure Waste Supply and Conduct Waste Stream Analysis
4	Establish Funding for Early Project Development Activities
5	Establish Mechanisms for Financing Facility Capital and Operating Costs
6	**Siting**
7	**Procurement**
1	**Initiate Procurement**
2	Prepare Procurement Manual
3	Conduct Procurement Training
4	Advance Notification of Pending Procurement Process
5	**Request for Prequalification**
6	Develop Prequalification Criteria and Selection Methodology
7	Prepare Draft Request for Prequalification (RFPQ)
8	Review Draft RFPQ
9	Issue RFPQ
10	RFPQ Submission Period
11	RFPQ Close
12	Initial Compliance Check of Prequalification Submissions
13	Review Prequalification Submissions
14	Conduct Due Diligence Reviews of Prequalification Submissions
15	Optional - Conduct Vendor Interviews
16	Final Review and Consensus Confirmation of Evaluation Results
17	Prepare Vendor Prequalification Report
18	Identification of Prequalified Vendors
19	**Request for Proposals (RFP)**
20	Develop Proposal Evaluation Methodology and Criteria
22	Prepare Draft RFP
23	Review Draft RFP
24	**Optional - Confidential Review of Draft RFP**
25	Prequalified Proponents Review Confidential Draft RFP
26	Commcercially Confidential Meetings
27	Finalize RFP
28	Issue RFP
29	RFP submission period
30	RFP close
31	Initial compliance check of proposals
32	Review proposals
33	Conduct proposal due diligence, if required
34	Clarification queries to proponents
35	Conduct proponent interviews
36	Consensus evaluation and scoring of proposals
37	Identification of the preferred vendor
39	**Establish Contract**
40	Conduct negotiations with the preferred vendor
41	Execute the Contract
8	**Regulatory**
9	**Communications**



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