



PROCUREMENT GUIDE: SELECTING A CONTRACTOR/PROJECT DEVELOPER

1. Overview

CHP project development and implementation are similar to many central plant construction projects or comprehensive energy conservation measures. However, a critical distinguishing characteristic of CHP system procurement is the multi-disciplinary nature of the project:

CHP project development requires the services of mechanical, electrical, and structural engineers and contractors; equipment suppliers; a project manager; environmental consultants; and financiers. The acquisition of these services may be through a traditional design-bid-build approach, which can require the host site or owner to provide a high level of oversight and project management. An alternate approach is to contract with a turnkey CHP project developer, who will offer a single point of contact for the end-user and provide all of the above through in-house capability or through subcontracting.

The selection of a contractor or project developer is a critical decision. The facility owner often relies on the contractor or developer to manage the process of transforming a feasible concept into a functioning project. Some owners have the expertise, resources, and desire to lead the development effort on their own, but even in this case, choosing the right contractor can greatly improve the likelihood of project success.

This section provides guidance to owners who are attempting to determine (1) the role that they might take in the

development process and (2) the right contractor or project developer to get the

project successfully developed, financed, and built. A number of CHP Partners provide both the experience and resources required for successful project development and management. To review a list of CHP Partners, visit www.epa.gov/chp/chp_partners.htm.

From the owner's perspective, there are three general ways to structure the development of a CHP project:¹

1. **Develop the project internally**

This is the traditional design-bid-build approach to project development. The facility owner or host site hires a consultant, plans and manages the design-construction effort, and maintains ownership control of the project. This approach maximizes economic returns to the owner, but also places most of the project risks on the owner (e.g., construction, equipment performance, financial performance) and requires a high level of oversight

¹ This section does not refer to build-own-operate (BOO) projects in which a third party builds, owns and operates the CHP plant and sells heat and power to the user at established rates. The contractor selection process in the BOO case would be very different than the selection for an engineering and/or construction contractor as described in this section. While the selection criteria for BOO partners would include many of the experience and capability qualities outlined in this section, they would also include critical financial terms such as delivered cost of power (\$/kWh) and/or thermal energy (\$/MMBtu). The BOO option is more fully explained in the "Financing" section of the CHP Project Development Process.



and project management from the owner.

2. Purchase a “turnkey” project

The facility owner selects a qualified project development company to design, develop, and build the project on a “turnkey” basis, turning over ownership and operation of the facility to the owner after commissioning. This option shifts some risk to the developer, at a price, sometimes reducing the economic return to the facility owner or limiting the types of technologies or equipment considered.

3. Team with a partner

The facility owner teams with an equipment vendor, engineering/procurement/construction (EPC) firm, or investor to develop the project and to share the risks and financial returns under various partnership approaches.

With these structures in mind, a facility owner can determine his or her desired role in the project development process by considering two key questions:

- Should the owner self-develop, procure through a turnkey project, or
- Find a developer or partner, and determine what kind of company best complements the owner and the project?

The facility owner can answer the first question through an examination of his or her own expertise, objectives, and resources. The second question is more complicated because it entails an assessment of the owner's specific needs and a search for the right developer or partner to complement those needs.

2. The Development Decision

Before deciding whether to develop the project internally, the facility owner must understand the role of the project developer, which is outlined in the box on page 3. Next, an assessment of the owner's objectives, expertise, and resources determines whether or not the owner should undertake project development independently or find a turnkey developer or partner.

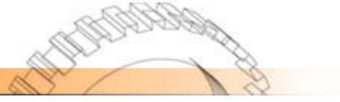
A facility owner with the following attributes is a good candidate for developing a project independently:

- Willingness and ability to accept project risks (e.g., construction, equipment, permitting, financial performance).
- Technical expertise with energy equipment and energy projects.
- Funds and personnel available to commit to the construction process.

3. Selecting Contractors and Consultants

Once the decision to develop a project internally is made, the facility owner should review the capabilities of individual contracting firms that meet the owner's general needs. When selecting a contractor, there are several qualities and capabilities that owner should look for, including:

- Previous CHP project experience.
- A successful project track record.
- In-house resources (e.g., engineering, finance, operation), including experience with environmental permitting and siting issues.



Information about individual firm qualifications can be gained from reports, brochures, and project descriptions, as well as from discussions with references, other owners, and engineers. Potential warning signs include lawsuits, disputes with owners, lack of operating projects, and



The Role of the Project Developer

- **Carry out project scoping**—Includes early-stage tasks such as selecting the location for equipment, determining structural and equipment needs, and estimating costs and potential energy savings.
- **Conduct feasibility analysis**—Includes detailed technical and economic calculations to determine the technical feasibility of the project and estimate project revenues and expenses.
- **Select CHP configuration**—Based on the results of the feasibility analysis, select primary equipment and configuration, and contact vendors to assess price, performance, schedules, and guarantees.
- **Create a financial pro forma**—Model the cash flows of the project to estimate financial performance.
- **Obtain environmental and site permits**—Acquire all required environmental permits, interconnection, and site permits/licenses.
- **Secure financing**—Secure financing for the project.
- **Contract with engineering, construction, and equipment supply firms**—Select firms, negotiate terms and conditions, and execute contracts.
- **Provide overall project management**—Provide overall project management services through design, engineering, construction, and commissioning of the project.

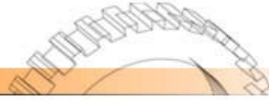
failed projects. Published information can be obtained by researching trade literature, through legal information services, and through computer research services.

4. Selecting a Turnkey Developer

Selecting a turnkey developer to manage the development process is a way for the owner to shed development responsibility and risks, and get the project built at a guaranteed cost. In addition, the developer typically provides strong development skills and experience. Other reasons for selecting a turnkey developer include:

- The developer's skills and experience may be invaluable in bringing a successful project online and keeping it operational.
- Many developers have access to financing.

In return for accepting project risks, most turnkey projects cost more than self-built systems. The turnkey option is a good approach if the owner does not want the risk and responsibility of construction. In a turnkey approach, the developer assumes development responsibility and construction risk, builds the facility, and then receives payment when the facility is complete and



performing up to specifications. The turnkey approach enables each entity to contribute what it does best: the developer accepts development, construction, and performance risk; and the owner accepts financial performance risk.

5. Selecting Other Types of Project Partners

There are a variety of project development approaches that can lie between (or extend past) developing the project independently or opting for a complete turnkey project. And there are a number of potential project partners to choose from, so the facility owner should look for a partner that provides the best match for the specific CHP project and the owner's in-house capabilities. Three general types of project development partners, listed in order of decreasing scope of services, are:

- **Pure developer**
A firm primarily in the business of developing, owning, and/or operating energy projects. Some developers focus on onsite power projects, while others may be involved in a broad project portfolio of technologies and fuel types. Pure developers usually will own the completed CHP facility, but sometimes a developer will build a turnkey facility.
- **Equipment vendor**
A firm primarily in the business of selling power or energy equipment, although it will participate in project development and/or ownership in specific situations where its equipment is being used. The primary objective of this type of developer is to help facilitate purchases of its equipment and services.
- **EPC firm**
A firm primarily engaged in providing engineering, procurement, and

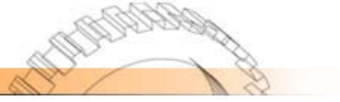
construction services. Many EPC firms have project development groups that develop energy projects and/or take an ownership position.

Ideally, a developer or partner can be identified that fills specific project needs such as the ability to finance the project or supply equipment. Issuing a request for proposals (RFP) is often a good way to attract and evaluate partners. A partner reduces risks to the facility owner by bearing or sharing the responsibilities of project development, although the amount of risk reduction provided depends on the type of partner chosen. For example, a "pure developer" partner will usually take the risk/responsibility of construction, equipment performance, environmental permitting, site permitting, and financing, whereas an equipment vendor partner may only bear the risks of equipment performance.

6. Preparing a Request for Proposals

A facility owner will most likely find it beneficial to issue an RFP for a developer or partner because if the RFP is prepared correctly, respondents will generally offer creative, informative, and useful responses. The RFP process is a good way to screen proposals and focus on the best one(s) for further discussions and negotiation.

An owner who plans on issuing an RFP should carefully examine the needs at the facility and ask respondents to propose ways to meet those needs or solve problems. For example, if ability to secure financing or environmental permits is important, that should also be stated in the RFP. In this way, respondents will be encouraged to offer innovative proposals that meet the project's specific needs. In general, RFP respondents should be asked to provide the following information:



- Description of the energy project and available options.
- Scope of services being offered (e.g., developer, owner, operator).
- Project development history and performance.
- Turnkey facility bid (if appropriate).
- Technology description and performance data.
- Environmental permitting, interconnection, and site permitting plan.
- Financing plan.
- Schedule.
- Operation and maintenance plan.

The RFP should state that the owner reserves the right to select none, one, or several respondents for further negotiation, depending on the proposal's responsiveness to the owner's criteria.

RFPs can be issued for various portions of the project development process, including:

- Investment grade feasibility analysis
- Equipment
- Construction
- Engineering (100% design)
- Permitting
- Maintenance

7. Preparing a Contract

Once the contractor, developer, or partner has been selected, the terms of the project structure will be formalized in a contract. The contract should accomplish several objectives, including allocating risk among project participants. Some of the key elements of a contract include project schedule and milestones, performance penalties and bonuses, and potential remedies and/or arbitration procedures (see the box on page 6). Each contract will be different depending on the specific nature of the project and the objectives and limitations of the participants. Because of this complexity, it is often useful for the facility owner to consult in-house counsel or hire a qualified attorney to serve as a guide through the contracting process.



Elements of an Effective Project Development Contract

- **Commercial operation date**—Date on which the facility will achieve commercial operation.
- **Milestones**—Engineering completion, construction commencement, genset delivery, start-up.
- **Cost, rates, and fees**—Structures include fixed EPC or turnkey price, hourly labor rates, cost caps, fee amount or percentage.
- **Performance guarantees**—Specified output (kW, MMBtu/hr), heat rate, availability, power quality.
- **Warranties**—Output, performance degradation, heat rate, outage rates, component replacement costs.
- **Acceptance criteria**—Testing methods and conditions, calculation formulae.
- **Bonus amounts and conditions**—Bonus for early completion, exceeding specifications.
- **Penalties and conditions**—Damages for late completion, failure to meet specifications.
- **Integration/impact of construction on facility operations**—Schedules for power outages, limits to access, etc.