



Slide 1: This is Marc Pfeiffer with our second webinar based on our report, Development of Town Center Microgrids. These webinars are overviews that summarize the different sections of the full report. You can see all the webinars, their accompanying fact sheets, and the full report at www.microgrids.io/.

On this webinar, I'll provide an overview of the challenges facing local governments once they've decided to procure their town center microgrid. But before we talk about procuring that microgrid, I want to make some comments about what happens before that.

A TC microgrid is a solution to a critical facility resilience and reliability problem that is defined by local officials. That problem can have many variables: the facilities to be covered, risks to mitigate, goals that may include reducing electricity costs and carbon emissions, updating facilities, and deciding on off-site critical facilities to be covered.

A solution to achieve that resilience and reliability may include a microgrid, but there are likely a range of solutions and technologies that might achieve that goal. Planning organizes the variables, determines priorities, assesses and evaluates options, and makes recommendations. There are lots of ways to go about planning a project and they need to meet the specific needs of the community.

So, before the procurement process starts, the agency needs to have gone through some kind of planning activity that, after considering other solutions to its critical facility resilience and reliability needs, concludes that a town center microgrid is the right decision for them. Then things will get serious.

Finally, as we proceed on today's webinar, keep in mind that procurement is all about risk management; that's how parties manage the possibilities that the project might not go as planned. See if you can analyze the impact of risks we discuss on the following slides and, don't worry, there won't be a quiz at the end of it.



Slide 2: Because a town center microgrid involves a government agency, most states and cities follow a legally prescribed procurement process. In today's environment, a transparent procurement process is important to ensure public support, otherwise a worthy project may not succeed.

The nature of TC microgrids and DER developments leads to three approaches:

The first alternative is for the agency to contract with a system developer who will do all the work and get paid through the sale of power to the offtakers. These agreements go by several names. Energy as a Service is common, but Energy Supply Agreements or Power Purchase Agreements are all variations on the theme.

A second option is where the public agency runs the project itself as a DIY – a do-it-yourself effort – and takes full responsibility, usually through contractors, to design, build, finance, operate, and own the facility. These are common if the agency doing the work is the local electrical distribution company – a local electric utility owned by the government.

Our final option is to develop the project through a public-private-partnership known generically as a P3. This is where a third party does all the work and the risk is shared with the public agency. These come in many flavors and we'll be talking about that in a few minutes.

We will look at all of these options, but first let's look at some key elements they have in common.

Setting up a TC microgrid is an exercise in project development of very specialized services. Depending on the approach chosen, there are steps necessary to bring the project to fruition. Depending on the development model these can include:

- Development of specifications – clearly defining what services you are looking for, what you want the project to be, making sure that everybody that's giving you a proposal on it is working off the same script;
- Financing – who's going to pay for it and what is the cost of that financing. This becomes critical as that cost of financing will reflect itself in the cost of energy that's being paid;

- Construction: how the contractors are chosen, their competency, and how the agency manages their performance;
- System operation contracts are next; that's who and how will the system be operated and maintained and the competency and qualifications of the organization doing that work;
- There may also be an energy supply agreement depending on the model you've chosen;
- And for all projects, always, you will need a public communications plan that is going to keep all the various constituencies you are working with up to date.

Contracts for these third parties are usually needed. Very few government agencies possess the in-house expertise to do this work on their own. These contracts need to be negotiated by experts who understand the energy supply industry, can develop risk mitigation strategies, and can assure that these strategies are carefully reflected in the contracts. It also requires a lead individual or organization that takes responsibility for overall project coordination and management.

Remember when I talked before about risks. This is where managing the risks becomes very important because you are writing down the solutions to them.

On our next slides, we'll dig into the details of those three general approaches to how a TC microgrid can be built, financed, and operated. Coincidentally, these same three approaches also apply to campus and single-site microgrid efforts.

ENERGY SUPPLY CONTRACT

Challenges

- Investor/Developer Financial Capacity and Technical Capability
- Agency Financial Capacity & Technical Expertise
 - To develop, review and execute complex RFPs and/or contracts
 - To avoid "asymmetric information" dynamic between developer and agency
 - To understand potentially complex risks
 - Contracts that don't address future circumstances

Design	3 rd Party	Agency
Design		
Build		
Operate		
Finance		
Own		
Offtake		

Slide 3: The first and what may turn out to be the most common way to develop any government microgrid is an agreement to buy the energy you want from a third party. In these cases, that party is fully responsible to design, finance, build, operate, maintain, and own the project. This is where your energy as a service, your EaaS project, comes into play, as well as a power/purchase agreement and an energy supply agreement.

Selecting and contracting with that developer warrants some type of competitive process to make a qualitative selection based on technical approaches and competence. Once chosen, the agency enters into an agreement with the developer to become the power supply offtaker and pay for the power supply they've used pursuant to the agreement.

Other plan-designated critical facility offtakers may enter into separate agreements with the developer or have an agreement with the lead agency to pay for their supply.

Of course, there are challenges to these and they're very important. The primary one is ensuring the developer and any investor have the financial and technical capability to develop and execute the project on time and on budget. To ensure that, however, requires the government agency to have its own expertise. They need to have the ability to develop, review, and execute complex requests for proposals and agreements. This is a critical issue because they have to handle all the possible contingencies and risks that may pop up on the project.

They also need to avoid what we call the "asymmetric information" dynamic. This is between the developer and the agency, where the developer/contractor has a greater understanding of the project, its cost, and its intricacies than the owner. It gives them that advantage of knowledge and it is inherent in most public construction projects. The way the public agency deals with this is to make sure that their experts have a real good in depth understanding of the intricacies of these agreements.

It also requires the owners and their representatives to understand and explain to the public the risks of the project. For example, a potential problem area would be avoiding contract provisions that don't adequately address future circumstances, such as energy market changes, technological innovations, ownership changes, energy use changes, and the like. These have to be part of the agreement so that you've got yourself covered in the event these things happen. And if these things are not well explained to the public, opponents could politically undermine the effort. So an enormous amount of diligence is required by the public agency to make sure they understand all these implications and can explain them to the public. They are why risk management needs to be part of how agreements are developed and the risks of uncertainty fairly balanced and well understood by the parties, and, ultimately, by the public.

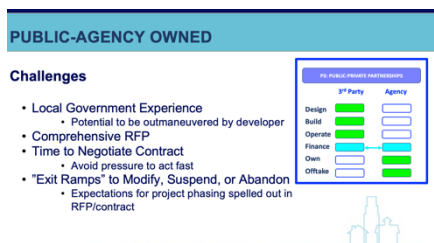


Slide 4: Next up is the traditional public agency approach: design, bid, and build public construction projects. This is the opposite of paying directly for energy through a supply agreement. In these cases, public debt is usually issued to cover construction costs.

This approach is appropriate when a government utility serves as the EDC. In some cases, the agency may operate and maintain the project with its own employees or contract that to a third party.

These contracts have their own risks. First of all, does the agency or its planners have sufficient experience in specialized energy procurement issues. Such experience is rare, unless they are the EDC. Without an experienced team during the negotiating, there is the risk of being outmaneuvered by the contractor during contract negotiations. So If you don't have it, be sure to get it, and realize up front that it might be expensive, but it's going to be worth it for you. The next question for you is are the bid specifications sufficiently comprehensive and detailed? You want your responders to be working off the same page, and that page needs to be sufficiently clear to allow for fair comparisons. Does the process allow sufficient time to negotiate the contract – this is important to avoid pressure to act too fast. You don't want to be rushed when it comes to something like this. Finally, does the project have a sufficient number of "exit ramps" to permit a project to be modified, suspended, or abandoned, if necessary. To address this, expectations for project phasing and a modification process needs to be clearly spelled out in the contract. You also need to ensure that the critical path elements are clearly defined and you have the capacity to adjust as circumstances may call for.

After this slide, we are going to go on to our final slide in this presentation, talking about the hybrid approach of public-private partnerships.



Slide 5: Our final option is the P3 – the public-private partnership. It is a hybrid of the two previous approaches. Here, the government agency owns the project and enters into an agreement for a developer/contractor to design, build, and operate the facility for the agency. As part of the deal, the developer takes on more risk to deliver the project on time and on budget and operate under an energy supply agreement that was previously negotiated. This reduces the government agency's construction risks. Depending on the project, either side might arrange for its financing.

Advocates suggest this added risk to the contractor warrants a more flexible procurement, contracting, and operating process. Translating that into government speak, that means a negotiated process that may involve some qualitative evaluation of potential partners, as opposed to a traditional public bid or not having any control at all under an EaaS agreement.

The challenges facing these projects will sound familiar, but go a little bit further:

- Unanticipated events that negatively affect guarantees or other liabilities. These need to be part of the contract.
- Performance shortfalls from projections based on variable, hard-to-measure, or unprovable standards. These can affect the cost of energy.
- Contracts that do not possess strong project management oversight by the owner.
- Contracts that do not require an efficient and equitable dispute resolution process.
- And ensuring that the partnership equitably shares both risks and rewards.

Every step of the development process is critical. Both the planning process and the procurement model are integral to a successful project. Government agencies considering a TC Microgrid need to carefully do their diligence as they determine how they want to proceed.

In our third webinar, we will go into the weeds of how projects are financed.

