

DEVELOPING LOCAL GOVERNMENT MICROGRIDS

FINANCING CHALLENGES



Financing microgrids generally and TC microgrids specifically is an evolving commercial activity with obstacles to overcome. There are a range of TC project financing challenges that must be considered.

RETURN ON INVESTMENT

The challenge is that investment decisions must be based first on the investor’s expectation to be paid back with interest. If there is more than a small risk that this or an insufficiently high enough return on the investment to offset that risk will not be achieved, financing is unlikely or will require a higher interest rate. This is true for both energy supply agreements and self-funded government projects.



Return on Investment

MANAGING FINANCIAL AND PUBLIC POLICY RISKS

Next comes an assessment of the project owner’s ability to manage the financial and public policy risks, who bears the risks, and how they are reflected financially. The greater the risk borne by the developer, the more expensive the project’s financing cost, as the investor will expect a higher return for taking on greater risk. Greater risk absorbed by offtakers can reduce the costs of financing, but this shifts the risk to increased long-term costs for the offtaker.



Managing Risk

UNDERSTANDING FINANCIAL PRO FORMAS

Another challenge is ensuring the parties understand the full financial picture of a microgrid project through the financial pro forma document based on a spreadsheet. This allows revenues, development, operational and maintenance costs, and investor returns to be varied and test different scenarios. This can also test the robustness of the financial projections by identifying weaknesses and risks.

Both developer and offtaker attorneys, engineers, and experts must understand the business and electrical supply needs of the parties and how the pro forma can vary with underlying assumptions and when variables are adjusted.

Pro Forma Financial Statement				
		Year 0	Year 1	Year 20
Sources and Uses of Funds	Sources			
	Uses - Direct & Indirect Development Exp.			
	Total Revenues and Benefits			
	Total Operating Expenses			
	Operating Income - EBITDA			
	Non Operating Expenses			
	Project Pre-Tax Profit			
	Tax Expense			
	Project Net Income (Loss)			
	Less Debt Repayment, Plus ITC & Deprec.			
	Project Cash Inflow (Outflow)			
	Appropriate Discount Rate			
	Project Net Present Value (NPV)			
	Project Internal Rate of Return (IRR)			

Financial Pro Forma

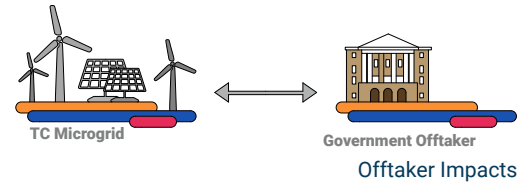
Thus, due diligence, careful analysis, and understanding proposals are essential for decision-makers. This is important because a developer has a better grasp of financial and energy supply issues than government representatives. Government decision-makers cannot abdicate their understanding to their experts and need to fully understand and be capable of explaining a contract to others.

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UNDERSTANDING FINANCIAL IMPACTS ON OFFTAKERS

Another element is the implication of microgrid design on offtakers. For example, if a microgrid requires installing parallel or undergrounding of distribution lines, switches, and controls, it adds to the capital to be recovered in rates paid by the microgrid's offtaker(s), unless initially subsidized.

These and other offtaker impacts warrant consultation with the EDC and potentially regulators as part of the contract negotiation process. In some cases, regulatory policy changes may be necessary to facilitate some projects. In addition, the development of industry standard agreements and processes to package deals could also make projects more attractive to investors. In most cases, for example, the availability of multiple competing bids will lower the costs to offtakers. Alternatively, reduced competition or negotiating with just a single contractor can increase financing costs (this often relates to more complex projects).



Contract Negotiations/Standard Agreements

UNDERSTANDING RISKS TO GOVERNMENT OFFTAKERS

Government offtakers can only take on so much risk before political risks become an issue. This highlights the importance of a knowledgeable and competent team and the diligence that goes into the negotiations and the contract. The speed and overlapping nature of these changes adds to uncertainty that will affect public and private capital investments.

Key points to consider are:

Energy Supply Agreements

Supply agreements may have offtaker rates tied to regional or state price indexes that are influenced by energy market elements that affect price calculations. Some of these risks include:

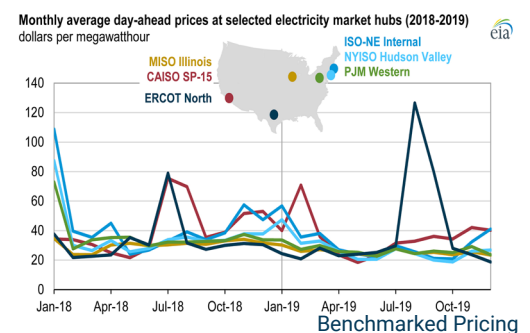
- Changes in regional generation supply and costs, e.g., solar PV and wind, and early-stage evolving fuel supply (e.g., renewable natural gas, hydrogen, and small nuclear).
- Changes in independent system operators/regional transmission organizations (ISO/RTO) and the state and federal regulatory environment, particularly regarding competition-related supply incentives and subsidies and changes in market rules.

Energy Supply Trends

- Unpredictability in energy source costs can be hedged by sophisticated financial analysts.
- Rate formulas that have fixed and variable rates are often a strategy for both offtaker and investor.
- Understanding the implications of using industry or regional benchmarked pricing (i.e., ISO/RTO day-ahead markets), especially when used in conjunction with inflation or supply-based formulas, is critical.



Regional/State Price Indexes



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- Considering potential contract modifications or renegotiating cost components based on changes in technology and public policy.

Operational Risks

- Sound and attentive management with a good track record and inflation protection practices/formulas can hedge unanticipated changes in operating costs that can adversely impact project finances.
- Other risks include the potential of stranded investments from technological and supply market change, investment time horizon changes, and replacement/retirement costs.



Operational Risks

STRATEGIES TO MEETING MICROGRID FINANCING CHALLENGES

Access to multiple revenue streams mitigates risk and adds cost-stability for any project. Developers can take advantage of strategies to offset development costs and lower or moderate the cost of supply to offtakers.

These include:

- Revenues from supply sales to third-party offtakers.
- Sale of excess power or grid services (e.g., frequency regulation) to the EDC or independent system operator.
- Ancillary revenues, such as from the sale of renewable energy certificates, or extra conduit capacity to third parties such as telecommunications providers.
- Taking advantage of EDC avoided costs programs (by keeping demand off the grid) and demand response program management.
- Incorporating energy efficiency practices (using less energy to perform the same task) to reduce energy supply needs.
- State government support for feasibility and design studies, direct development cost contributions, or financing preferences for low interest loans (e.g., Green Banks).
- Leveraging any cost spread between local DER and long-distance transmission-based delivery, the former costing less and the latter costing more.
- Incentivizing building automation and accelerating electrification of traditional natural gas-based activities (i.e., replace gas-fired furnaces and hot water heaters with heat pump-based systems).
- Enhancements to offtaker credit security can support investor risk calculation.
- When permitted by state laws, government agencies may have tools that can support projects with lower costs or risk absorption.



Increased Revenue Streams



Reduced Costs

