



Fiber-to-the-Premises: Planning Considerations, Pitfalls, Cautions, and Opportunities

Many electric utilities are intrigued by the idea of offering high-speed broadband to their residents and members as an expansion of their own fiber networks. Due to the exciting prospect of this new business venture, and the apparent timeliness of customer demand, many electric utilities are jumping into decisions that may not be fully vetted and might have a substantial impact on the viability of the electric utility long-term.

It's important to conduct a thorough broadband feasibility study and carefully weigh some key considerations that impact the broadband business. Below, we use the structure of the "Tipmont 10" to describe ten key points for a successful fiber-to-the-premises (FTTP) evaluation.

The Tipmont 10

Tipmont REMC (Tipmont) of Linden, Indiana serves 23,000 consumers between the cities of Lafayette and Crawfordsville. Recently, Tipmont has entered into the broadband business. As indicated in the March 6, 2019 "Broadband Internet, Tipmont News," the decision was driven by reshaping the cooperatives' mission. In 2015, Tipmont's board of directors and leadership began an initiative to rethink the cooperatives' mission and purpose. In a time of rapid change, or even disruption in the energy business, the time was right for some soul searching.

As a result, the board concluded that Tipmont is in the security, comfort, and convenience business – not necessarily just the electric business. Tipmont began to measure their success in terms of the community's economic health in addition to more traditional measures. Electricity is vital to security, comfort and convenience – but in the end, is that enough?

1. Broadband is a competitive business: consumers do have choices.
2. Get your house in order (operations and finance).
3. Do a thorough feasibility study: be cautious of advisors or consultants that promote no risk deals or offers.
4. Know and understand every assumption and number in the financial analysis.
5. Facilitate team learning: give your team the time to learn, they are going to run the new business day-to-day.
6. Work closely with your Board.
7. Don't bet the bank: start slow.
8. Look at the potential for partnerships to avoid risks and reduce capital costs.
9. Know where failures occurred and why.
10. A spreadsheet is just a spreadsheet. It's only as good as the assumptions and how assumptions are treated.

Tipmont management concluded the exercise with a new mission statement: “Empowering our communities with state-of-the-art essential services.” This mission reflects that Tipmont’s role is larger than simply providing distributed electric services.

Tipmont’s new mission allowed the cooperative to reimagine nearly everything they do. It encouraged Tipmont to take a leadership role beyond just the consumers they serve, making meaningful and positive change through economic development efforts, education, and outreach. A key part of the new role was consideration of offering broadband services to their membership.

In development of the broadband plan, Tipmont management followed ten key principles – referred to as the “Tipmont 10.”

1. Broadband is a Competitive Business

The first tenet is to understand that broadband is a competitive business and that your customers do have choices. While broadband is becoming an essential service, it is a competitive business and therefore differs significantly from the positioning of an electric utility in the marketplace.

Many cooperatives may feel they have no competitors in the broadband business. This is a false sense of security. First, some households might choose not to acquire a service. These households are on a decline, but it’s also important not to dismiss substitute products that might also serve as a form of competition. For example, many rural areas have options from telephone providers, wireless ISPs, 4G services, and geostationary orbit (GEO) options. Further, 5G and low-earth orbiting (LEO) satellite are emerging competitors. In addition, the FCC has introduced new rules (Citizen Band Radio Service) with the 3.65 GHz band, with a goal of encouraging rural broadband deployments.

You may be hearing from your consumer base that there is a significant demand for broadband. In some cases, this might be true. But be cautious of estimating the true demand based on these unsolicited comments. They may be representative of a vocal minority, and they comprise a self-selected sample. Many consumers are satisfied with lower end broadband service such as DSL.

If you enter into the broadband market, you must ensure that your staff, management, and board are ready to operate in a competitive business. Understand that the top three activities in the broadband business are sales and marketing, sales and marketing, and sales and marketing! This is foreign to most electric utilities.

Customer service offerings to support broadband are also significantly different than those of the daily customer service offerings to support the utility and require different skills. Customers don’t usually call the electric utility when their toaster isn’t working, but with broadband offerings, customer service calls could become that granular.

Electric utilities have a monopoly service area, and electricity is an essential service. Electric utilities have virtually a 100 percent take rate. Cost recovery is accomplished by setting rates that are based on recovering investment and expenses. In broadband, the provider must set a service price that is a balance of demand at a given price. This balance is impacted by competitive pressures and individual consumer preferences. Acting as a broadband utility that has a monopoly service area without competition could be a financial disaster in a broadband offering.

2. Get Your House in Order

The first step is defining and understanding your mission. Are you in the electric utility business? Are you an essential service provider? Are you a comfort provider?

As indicated above, broadband is a competitive business. You only have room for staff that are top players. You'll need to assess your staffing requirements and hire the correct skill sets, if they aren't already present, with an understanding of the business and a head for marketing and sales.

Meanwhile, your electric operation should be humming along smoothly in financial and operational health. The new broadband service venture will require time and effort from your staff so the regular utility operations must be in a good position to withstand the growing pains. Have a strategic planning and performance management system in place if possible.

It's also a good time to review all your policies—think defense. The new broadband offering will bring your utility more attention that you may have had in decades, and it's important to prepare accordingly to prevent getting derailed.

Finally, set your cash flow objectives and goals. In the mid-term, at best, this is a break-even operation, and your utility will need to be prepared to cover early losses.

3. Do a Thorough Feasibility Study

You are about to make a multi-million dollar decision, so don't avoid shortcuts when performing the feasibility study. It's often beneficial to work with a neutral third-party consultant. To ensure your consultant is looking out for your best interests with integrity, you might ask your consultant how many studies resulted in a conclusion that broadband is *not* feasible. If they can't identify one, don't hire them.

When setting up the assumptions for the study, be careful not to underestimate your staffing needs. Most utilities are likely not to have all the resources and skillsets required for this new venture, and staffing can represent a significant cost. Similarly, don't overlook operational expenses.

Generalized assumptions yield generalized results—so make sure your study is tailored to your specific needs and situation, using utility-specific data, not boilerplate estimates based on national or regional averages. Your study should include capital construction cost estimates (including make-ready and easement perfection) and operating cost estimates.

As part of the feasibility study, you may elect to perform a demand-side market analysis, which requires segmentation, and possibly including a detailed market survey of residents. Remember that the vocal minority do represent a minority, so it's a good idea to understand the real scope of the demand across your customer base. If you choose, you may defer the market survey to the business planning or other later stage, in order to avoid raising customer expectations too early.

Recognize that a feasibility study is *not* a business plan. A feasibility study gives you a sense of risks and opportunity, whereas a business plan gives you direction on execution. Your staff will need to direct both.

Your competition has better economies of scale, so while you consider offering competitive pricing, it's important to remember that your competition will likely win a price war.

Lastly, do not turn over core operations to a management firm. Just imagine what your electric business would look like if this was done when municipal and cooperative electric utilities emerged.

4. Know and Understand Every Assumption

Whether or not you engage a third-party consultant to perform the feasibility study, it is critical that the key staff at the utility understand the basis for each assumption and how the model works. If you are working with a consultant, require a working copy of the financial model.

If you have questions, be empowered to challenge the consultant's assumptions and fully educate your team on how each assumption impacts the model. Many models use cost allocations to the electric operations. Question these allocations. Rely on your understanding of your own utility to question whether the projected cost allocations to the electric utility are reasonable, defensible, affordable, and legal.

The assumptions made are critical: the feasibility model does not correct, modify, or shape the assumptions made. Instead, the assumptions drive the financial projections.

5. Facilitate Team Learning

This new broadband venture will be a change for your staff, so it's important to provide ample time for your team members to learn. Since they will be running the day-to-day operations of the new business, it's important that each team member understands every assumption used in the feasibility model. To facilitate buy-in and maximize your team, find a place where everyone on your senior staff can participate.

6. Work Closely with Your Board

The board must ultimately make the decision, so work to create as many learning and sharing opportunities as possible along the way. It's also their collective value system that will ultimately define your direction. Make sure that you, your governing body, and your staff are comfortable. After all, you are going to own the new business after the vendors and consultants have moved on.

7. Don't Bet the Bank - Start Slow

Consider the phases of growing a new business and protect your utility by making slow-moving growth choices. For example: build, sell, work to positive cash flow, then build again. This cycle will help minimize risk and ensure the speed of growth that you can handle.

Go after the market where there is demand, limited choices, and a "reasonable" build cost. Many utilities choose to build all at once in order to start providing services to everyone across the service territory. This is usually a politically driven decision but often a disastrous business decision.

Remember that just because you may be enamored with broadband does not mean all residents and households are. Many households are happy with a data connection of 10 Mbps or less. Many

households will just use a smart phone for their data connection (about 20 percent nationwide today). And some households will choose not to acquire any service.

8. Look at the Potential for Partnerships

Partnerships can also help you avoid risk and reduce capital costs. Partnerships can bring you scale and expertise that is hard to develop on your own.

But as you consider potential partnerships, beware of one-sided offers. It's important to carefully weigh each partnership offer and ensure that it equally favors both sides. Take the initiative to define the rules yourself.

9. Know Where Failures Have Occurred

History is a great teacher, so try to take lessons from others' missteps, as well as from your own along the way. Common mistakes include under-estimating build costs, overlooking make-ready costs, overestimating take rates, and under-estimating staffing levels for maintenance and customer service.

Some utilities have neglected to focus their business plan and instead spread themselves too thin, trying to be all to all. Some have forgotten about the cost and resources needed for equipment replenishments, replacements, and vendor maintenance.

Bad debt is real. You will need to be prepared to recognize and cut off bad payers. And finally, don't let your governance board make operating decisions.

A common mistake that has led to some of the failures is adding the same inflation factor to revenues and expenses, which can make a bad feasibility model look good. With long-term capital intense projects such as FTTP, applying inflation can project substantial net revenues that are not obtainable.

In the calculations shown below, the table on the top uses the same inflation percentage on expenses and revenues. By contrast, the bottom table uses a lower inflation percentage on revenues, which results in relatively flat net revenues (net revenues historically with broadband have remained relatively flat). All other assumptions are the same.

As seen in the first table, net income rises steadily throughout the projection. In the second table, net income increases, but at a substantially lower rate. The difference in the resulting cash balances between the tables leaps between year 5 and year 10 (circled in green). This is due to the compounding on the net revenues (revenues less expenses) when the same inflation factor is applied to revenues and expenses. At the end of year 20, the difference between the projections is almost \$38 million (circled in red).

Income Statement	1	5	10	15	20
Total Revenues	\$ 380,000	\$ 11,288,550	\$ 12,939,710	\$ 14,867,670	\$ 17,277,620
Total Cash Expenses	(1,841,520)	(6,294,620)	(7,056,460)	(8,015,620)	(9,132,690)
Depreciation	(781,910)	(2,710,440)	(2,524,680)	(2,449,700)	(2,449,700)
Interest Expense	(552,000)	(1,599,810)	(1,232,700)	(794,600)	(251,900)
City Fees	-	-	-	-	-
Net Income	\$ (2,795,430)	\$ 683,680	\$ 2,125,870	\$ 3,607,750	\$ 5,443,330
Cash Flow Statement	1	5	10	15	20
Unrestricted Cash Balance	\$ 146,380	\$ 1,410,650	\$ 7,717,030	\$ 19,720,920	\$ 37,648,830
Depreciation Reserve	-	2,668,840	3,151,320	353,120	832,120
Debt Service Reserve	690,000	2,167,500	2,167,500	2,167,500	2,167,500
Total Cash Balance	\$ 836,380	\$ 6,246,990	\$ 13,035,850	\$ 22,241,540	\$ 40,648,450

Income Statement	1	5	10	15	20
Total Revenues	\$ 380,000	\$ 10,743,250	\$ 11,449,250	\$ 12,341,930	\$ 13,316,740
Total Cash Expenses	(1,841,520)	(6,350,740)	(7,203,630)	(8,294,680)	(9,595,680)
Depreciation	(781,910)	(2,710,440)	(2,524,680)	(2,449,700)	(2,449,700)
Interest Expense	(552,000)	(1,599,810)	(1,232,700)	(794,600)	(251,900)
City Fees	-	-	-	-	-
Net Income	\$ (2,795,430)	\$ 82,260	\$ 488,240	\$ 802,950	\$ 1,019,460
Cash Flow Statement	1	5	10	15	20
Unrestricted Cash Balance	\$ 146,380	\$ 159,770	\$ 646,400	\$ 985,120	\$ 16,490
Depreciation Reserve	-	2,668,840	3,151,320	353,120	832,120
Debt Service Reserve	690,000	2,167,500	2,167,500	2,167,500	2,167,500
Total Cash Balance	\$ 836,380	\$ 4,996,110	\$ 5,965,220	\$ 3,505,740	\$ 3,016,110

Again, the only difference between the models is how inflation is treated. It's amazing how a single assumption that is often treated as an afterthought can impact the projections.

10. A Spreadsheet is Just a Spreadsheet

Finally, the feasibility study is only as good as the assumptions it is based upon. As indicated above be cautious of adding "inflation" on revenues and expenses. Over a 20-year analysis, adding same inflation factor on revenues and expenses can make a bad business look good. With broadband you will be lucky to have revenue increases tracking dollar-for-dollar with expenses.

Many advisors will claim that the industry pricing is rising fast, but cite cable television increases. The fact is that although cable television revenues are increasing (on a per subscriber basis), expenses (content fees) are rising faster, resulting in eroding net margins. There are small to negative margins in cable, and internet service margins (on a per-sub basis) have remained flat.

The financial analysis needs to present a year-by-year income statement, cash flow statement, capital addition summary that follow accounting standards. Look carefully at cash flow, not just a Net Present Value (NPV) or an Internal Rate of Return (IRR) calculation. A projection can show a high 20-year IRR and have negative cash flows for the first 10 years, especially if inflation factors are misstated or misused. Also, clearly understand any allocations to electric utility capital or operations.

Finally, as stated above, a spreadsheet does not correct, modify, or shape assumptions made. The assumptions drive the projections. It is critical that you understand every assumption, its basis, and how the assumption is treated in the model. If you use a consultant, make sure that you are provided a working copy of the financial model.

Entering into the broadband business might be the correct choice for your utility, or it may be a high-risk venture. Conducting a study that incorporates the above steps can help determine the best approach for your utility. In the case of Tipmont, their entry into the broadband business followed methodical planning and preparation based on the above steps and included an acquisition of a competitive local exchange carrier (CLEC) and the development of a partnership with a local telephone cooperative. They are well underway in deploying broadband to their consumers.

Tom Asp, Consultant in Utility Automation and Communications at Power System Engineering, has more than 35 years of experience in communication planning and business development for electric cooperative and public power systems. He is recognized as a nationwide expert in evaluating and offering recommendations regarding electric utility broadband communications systems. Tom has been actively involved with broadband market research, network feasibility analysis, broadband system design, and the preparation of financial statements and quantitative business plan analysis for electric cooperative, municipal, and public power clients for more 20 years. He also has extensive experience presenting to utility leadership, conducting needs assessment interviews, and facilitating stakeholder sessions. Tom can be reached at aspt@powersystem.org.