

NW Bicester Eco-Town



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**FTTH REVENUE SHARE  
PROPOSAL**

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## 1. Overview

A2Dominion, developers of the NW Bicester eco-town, are interested to investigate the possibility of a Fibre to the Home (FTTH) network infrastructure on the development to deliver broadband, telephony and television services, as well as supporting Smart Metering applications in each property.

Fibre Options have experience in designing, building and operating such networks and are committed to working with developers to create business models which enable delivery of the next generation services that such networks offer.

While integrating an FTTH network into the development plans necessarily adds to the build costs, the potential revenue opportunities from the delivery of services can lead to a reliable long term income stream. This document proposes a business model that will not only enhance the value of the properties on the NW Bicester development and deliver a potentially valuable asset to A2Dominion but will also provide a substantial income for the foreseeable future.

The proposal requires A2Dominion to pay Fibre Options a fixed fee for each residential property connected in order to secure the ownership of the fibre optic network. Fibre Options would then be contracted to operate that network and deliver a share of the line rental income to A2Dominion.



## 2. Technical Solution

By installing a conventional telecommunications duct infrastructure comprising nominal 100mm ducts around the site and 50mm ducts leading into each individual property, a fibre optic network can be laid to support all possible current and future services.

The duct network would feature standard telecommunications chambers located to accommodate changes in direction of the duct routing and provide service to the individual properties. Typically chambers will be positioned to service clusters of 7 properties.

A high speed Internet connection – initially 100Mbps carried over a 1Gbps capable service – will be commissioned for connection to the Energy Centre. Equipment located in the Energy Centre will control and meter the delivery of this service to individual homes over the fibre optic network infrastructure emanating from the Energy Centre.

A single fibre core connects to the Optical Network Terminal (ONT) within each property which allows high speed broadband (up to 1Gbps) and Voice over IP (VoIP) telephony services to be delivered through 4 fixed network ports, 2 telephone ports and wireless. The fixed network ports can be connected directly into the home's structured wiring scheme and the wireless is made available as a conventional home router connection.



*ONT – Customer Premise Broadband/Telephony Device*

For support of Smart Metering applications, it is proposed that one of the fixed network ports be dedicated to the service. Each port can be secured individually to ensure that service will only be delivered to devices whose MAC addresses are pre-configured. Similarly,



one of 4 wireless SSIDs can be configured such that access is limited to pre-designated MAC addresses.

The Shimmy device can therefore be connected to the network without affecting the home owner's broadband service and traffic from that device can be transported securely over the network via a dedicated VLAN. This VLAN can either be terminated on a Smart Metering server located in the Energy Centre or alternatively directed to a specific remote IP address. It can be arranged such that any rogue device connected to this dedicated port would not receive an IP address and would not be allowed to connect to the Internet.

While cross-site connection between each individual property and the MMR would be provided free of charge, any off-site connections to remote servers would be charged at standard commercial rates. For a basic service this would incur a standard residential charge but should additional services such as Virtual Private Network, low contention, Quality of Service etc. be required, higher rates would apply.



### 3. Commercial Proposal

A fibre optic network such as that proposed obviously offers the opportunity to generate long term revenues. Fibre Options are able to operate networks efficiently in order to provide maximum revenue possibilities while still maintaining a premium service offering to subscribers.

Broadband revenues generally comprise a fixed line rental and variable service charge. Whereas many competitive pressures exist within the market that affect service charge income levels, line rental income is generally highly stable. We are therefore able to offer guaranteed revenues based on line rental income.

We therefore propose the following:

#### **A2Dominion**

- Provide accommodation and power within the Energy Centre for a Meet-Me Room (MMR) to which Fibre Options will have 24/7 access
- Install a telecommunications duct infrastructure to BT standards connecting each property to the MMR
- Install underground chambers with each chamber serving no more than 7 properties
- Provide a secure, powered location within the home in which to mount the ONT.
- Grant Fibre Options a 10 year operating licence

#### **Fibre Options**

- Arrange and maintain a high speed Internet backhaul connection into the development
- Install a single fibre network to deliver high speed Internet, telephone and Smart Metering services to each property.
- Provide all the equipment in the MMR required to deliver these services
- Install the customer premise Optical Network Terminal (ONT) within each home to deliver services.
- Configure the network and ONT to deliver secure Smart Metering services from each property
- Operate and maintain the network for the 10 year contract term
- Provide all billing and customer care services



On the connection of each property, A2Dominion would pay Fibre Options a fixed fee of £300 in order to secure ownership of the fibre optic infrastructure. Fibre Options would provide all the active hardware to “light” the fibre to enable the services to be delivered. Under these arrangements, the following revenue share model could be implemented:

- At 31<sup>st</sup> December of each year, the total number of residential properties that have been completed and connected to the fibre network during the preceding year is recorded and agreed
- At 1<sup>st</sup> July in the subsequent year, Fibre Options pay A2Dominion a lump sum equivalent to £60 for each residential property connected as of the previous year end (i.e. 12 months @ £5 per month)
- Payments continue throughout the term of a 10 year contract and a total of 10 annual payments would be made.
- At the end of the 10 year term, A2Dominion would be free to:
  - a) terminate Fibre Options’ contract and appoint another operator
  - b) re-negotiate the contract with Fibre Options
  - c) seek a purchaser for the network



## 4. Financials

While the creation of an FTTH network requires considerable investment, the potential revenue streams are significant. The model proposed provides for the repayment of the initial investment over the 10 year term and results in A2Dominion owning a sustainable network asset of true value to any telecommunications operator. At the end of the term, that asset will be generating a considerable annual income for A2Dominion who would then have the choice of retaining the asset for income growth or realising the capital investment by the sale of the network.

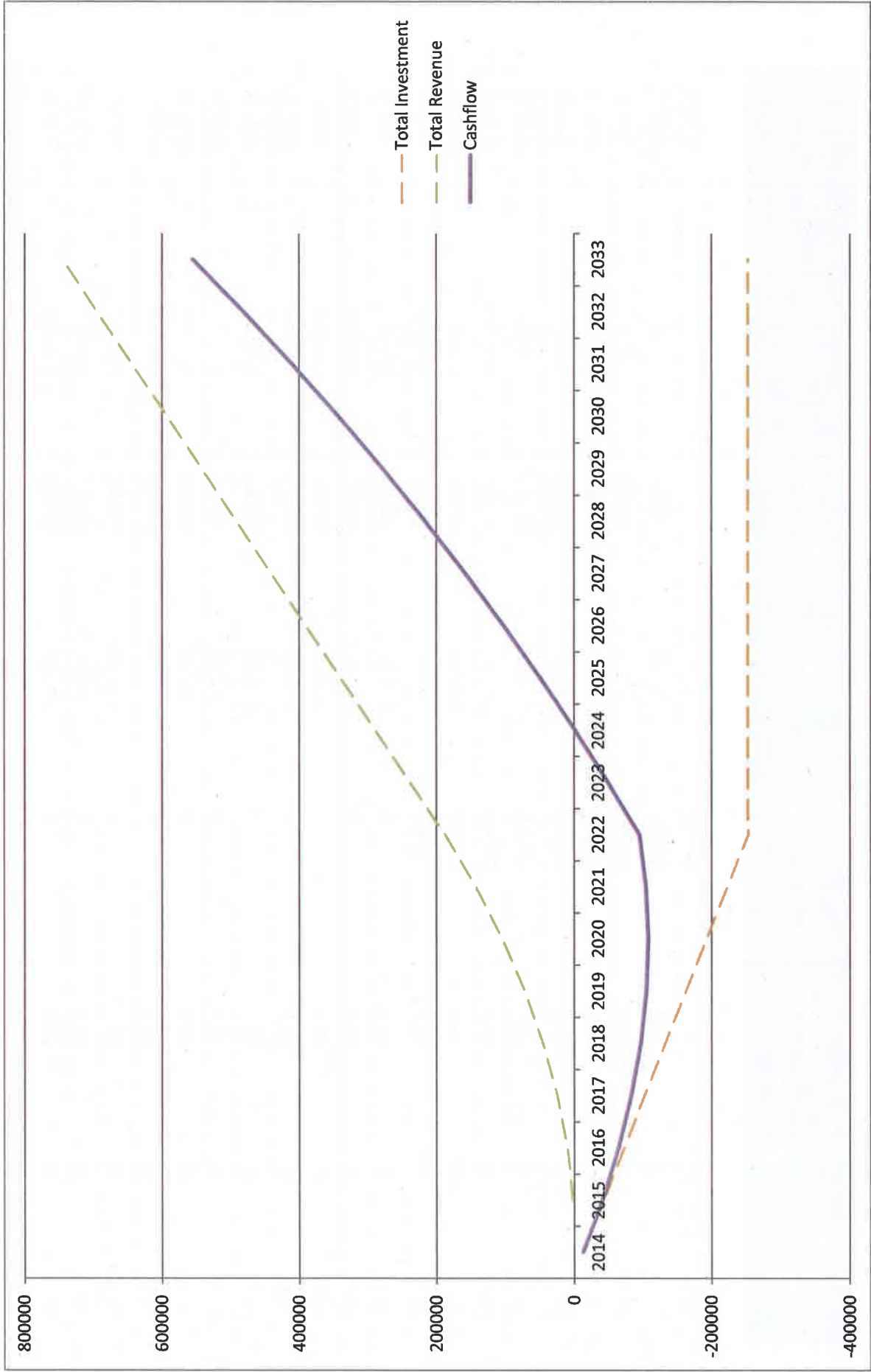
As evidenced by the figures in the following table, an initial investment in the network of around £108,000 will generate the possibility of annual earnings of £50,000 from line rental income. The chart following gives a visual indication of potential earnings growth.





Year	Properties Completed		Total Completions	Investment @ £300/Property	Total Investment	Revenue @ £60/Property	Total Revenue	Cashflow inc. Interest @ 5% p.a.
	43	100	43	-12900	-12900	2580	2580	-12900
2014	43	100	43	-12900	-12900	2580	2580	-12900
2015	100	100	143	-30000	-42900	2580	2580	-40965
2016	100	100	243	-30000	-72900	8580	11160	-64433
2017	100	100	343	-30000	-102900	14580	25740	-83075
2018	100	100	443	-30000	-132900	20580	46320	-96649
2019	100	100	543	-30000	-162900	26580	72900	-104901
2020	100	100	643	-30000	-192900	32580	105480	-107566
2021	100	100	743	-30000	-222900	38580	144060	-104364
2022	100	100	843	-30000	-252900	44580	188640	-95003
2023	0	0	843	0	-252900	50580	239220	-49173
2024	0	0	843	0	-252900	50580	289800	-1051
2025	0	0	843	0	-252900	50580	340380	49476
2026	0	0	843	0	-252900	50580	390960	102530
2027	0	0	843	0	-252900	50580	441540	158236
2028	0	0	843	0	-252900	50580	492120	216728
2029	0	0	843	0	-252900	50580	542700	278144
2030	0	0	843	0	-252900	50580	593280	342632
2031	0	0	843	0	-252900	50580	643860	410343
2032	0	0	843	0	-252900	50580	694440	481440
2033	0	0	843	0	-252900	50580	745020	556092

\*beyond 2024, income projections based on continuation of contract or assumed arrangements with new operating partner



## 5. Services

Our service offering is based on the premise that services delivered over a fibre network should be competitively priced against those delivered over conventional broadband networks. Typical charges for our service are detailed below although we regularly monitor competitive pricing and are happy to benchmark our price structure against the industry.

Light browsing and e-mail	Superfast general surfing	Ultrafast gaming & tv	Lightspeed the ultimate Internet
<ul style="list-style-type: none"> <li>✓ 5Mbps Download</li> <li>✓ 5Mbps Upload</li> <li>✓ No Download Limits*</li> <li>✓ 50:1 Contention</li> <li>✓ Line Rental included</li> </ul>	<ul style="list-style-type: none"> <li>✓ 20Mbps Download</li> <li>✓ 20Mbps Upload</li> <li>✓ No Download Limits*</li> <li>✓ 50:1 Contention</li> <li>✓ Line Rental included</li> </ul>	<ul style="list-style-type: none"> <li>✓ 50Mbps Download</li> <li>✓ 50Mbps Upload</li> <li>✓ No Download Limits*</li> <li>✓ 50:1 Contention</li> <li>✓ Line Rental included</li> </ul>	<ul style="list-style-type: none"> <li>✓ 100Mbps Download</li> <li>✓ 100Mbps Upload</li> <li>✓ No Download Limits*</li> <li>✓ 50:1 Contention</li> <li>✓ Line Rental included</li> </ul>
*subject to Fair Use Policy	*subject to Fair Use Policy	*subject to Fair Use Policy	*subject to Fair Use Policy
<b>£15.60</b>	<b>£21.60</b>	<b>£30.00</b>	<b>£42.00</b>
per Month	per Month	per Month	per Month

Telephone call charges on our Voice over IP (VoIP) network are also competitive. We offer an Evening and Week-end package of free calls to 01, 02 and 03 numbers for £3.60 a month (inc. VAT) and free Anytime calls to these numbers for £6.00 (inc. VAT). We charge no Line Rental as such as these calls are carried over the subscriber’s broadband service.

Representative call charges are detailed in the table below. International calls are similarly competitive as is typically the case on VoIP networks.

Typical Call Charges (pence per minute)	Peak*	Off-peak	Weekend
Geographic (01, 02, 03)	<b>1.25</b>	<b>1.00</b>	<b>1.00</b>
Mobile**	<b>9.00</b>	<b>8.00</b>	<b>6.00</b>
Local rate (0845)	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>
National rate (0870)**	<b>1.25</b>	<b>1.00</b>	<b>1.00</b>
National rate (0871)**	<b>12.00</b>	<b>12.00</b>	<b>12.00</b>
Directory Enquiries	<b>dependent on service provider</b>		

\*Peak: 7am-7pm UK London time.

\*\*Calls to numbers in this range start at the specified prices. Charges to some numbers will vary.

It should be noted that all members of the Community that take advantage of the service would benefit from free calls to any other subscriber on the network as VoIP to VoIP calls are free.

A one-off installation charge of £60 (inc. VAT) is levied to activate the service.

One primary advantage of an FTTH network is that all services can be made available to new residents on the day that they move in. Historically residents moving into new housing developments have experienced delays in services being connected due to delays in assignment of post codes and the standard lead time of conventional communications providers.

With the FTTH network proposed, if the resident advises of their service requirements before they move in, the service can be up and running in advance of their arrival. With increasing reliance upon the Internet, the instant availability of broadband to arrange deliveries and provide change of address notifications significantly enhances the moving process.

It is our intention to offer as fair and transparent a service as possible with no contract ties or hidden charges and to allow subscribers to adjust their service to meet changing needs. Contracted bandwidth can be modified within a day's notice to accommodate higher speed requirements in the instance of children returning home during university vacations or lower usage if the subscriber is away travelling for an appreciable period.

We have no charging structure for excessive usage and impose no download caps. However, in order to ensure that the broadband experience is as agreeable as possible for all subscribers and to ensure that individual subscribers do not affect the experience of others, we do operate a Fair Use Policy as follows.



## Fair Use Policy

As the broadband service we offer is delivered on a contended basis, a number of customers could be sharing the bandwidth at the same time.

Consequently the sending or downloading very large files or the use of 'peer to peer' and file sharing software (which itself may result in the transfer of very large files) is likely to have an adverse impact on the service quality for all users sharing that bandwidth. This results in a slower response for everyone accessing the Internet or sending and receiving emails, especially at peak times.

Although the vast majority of subscribers use their service considerately and their usage levels during peak hours do not disproportionately affect the shared network capacity, a very small number of subscribers using the service inappropriately can greatly affect the service. We therefore ask all subscribers to refrain from inappropriate use to ensure that the service can be used fairly by everyone.

If you regularly use the service inappropriately during peak hours, and we believe this is unfairly affecting other customers' use of the service, we reserve the right to manage your bandwidth during peak times, which could result in reduced service speeds.

If you continue to use your service inappropriately we reserve the right to end your agreement with us and will give you notice before doing so.

While this policy applies to all our domestic and small business customers, it will only actually affect you if you're one of the very few customers who make inappropriate use of the service. If you don't use peer to peer, file sharing or other inappropriate software and you are not, for example, constantly downloading or uploading videos or very large files, you are unlikely to be affected by this policy.



## 6. Television Services

The installation of an FTTH network opens up the possibility of providing an Integrated Reception Scheme (IRS) for the delivery of digital television and radio services underground. The installation of a central communal dish and aerial array enables the provision of all Sky, Freesat and Freeview television services as well as DAB digital radio services to every property on the development. A set-top box or service-enabled television is required to receive the services and it is the responsibility of the resident to arrange suitable equipment for the services that they require.

Such a deployment reduces dish and aerial “clutter” on individual properties and provides a more attractive vista for the development. It also ensures that TV services are available immediately the resident moves in, providing a welcome distraction to the stresses of moving.

Delivery of an IRS solution is most cost-effectively delivered into the home over a second fibre which virtually doubles the cost of the fibre passive infrastructure. Dishes and aerials supporting up to 256 subscribers need to be mounted centrally, typically on the roof above the MMR and fibre optic receivers need to be installed in each property to receive the services.

However, since Freesat and Freeview services are “free to air” and Sky contract directly with the resident, there is no opportunity for the IRS provider to generate revenue from the delivery of these services. Furthermore, since the communal dish and aerial arrays support large numbers of residences, it is important to ensure that they are maintained and service is restored rapidly in the event of an outage.

Consequently, to include a second fibre within the passive infrastructure, construct an IRS delivery system and maintain the installation, we would impose an additional £300 charge per property should such a system be required. This could possibly be recovered by A2Dominion as part of an annual maintenance or management fee.





## 7. Home Cabling

Most modern homes feature some degree of structured cabling network to support television, telephony and in some cases broadband services. The in-home cabling forms an integral part of the service delivery network and as such is a key component to ensuring that the customer experience is as problem-free as possible.

In our experience, home cabling can be of variable quality depending upon the skill levels of those employed by the builder to install and terminate it. The quality of the cabling and in particular the quality of the connector terminations can have a significant impact on the quality of the services enjoyed by the resident. Inexpensive coaxial cabling and poorly terminated connectors can introduce noise and channel drops on television services and poorly terminated RJ-45 connectors can similarly result in reduced broadband speeds.

Fibre Options are particularly keen to offer the supply and termination of in-home cabling to the builder in order to ensure the quality of the overall installation. Appreciative of the competitive rates quoted by electricians and other on-site contractors, Fibre Options are happy to match rates on offer in order to assure the integrity of the in-home infrastructure.

Typically we would look to free-issue all cabling for installation by the builder's contractors during first fix which would be run to back-boxes at suitable positions. Once plastering and painting was complete, we would supply the sockets and terminate the cables, providing full test documentation. This reduces the number of test phases and puts the onus on us to ensure that the installation is flawless, eliminating snags when the service goes live.

For a standard installation delivering television, broadband and telephone services to the lounge and a couple of other rooms, the cost is typically £150 per home for the supply and termination of all cables and sockets. Should additional sockets be required in other rooms, the cost can increase significantly should devices such as multi-switches be required to provide television services to more points. Some of this cost may be able to be deferred by allowing the home-owner to patch the available services to particular rooms themselves.



## 8. Support

Our preferred approach of taking responsibility for the entire network installation as well as the in-home cabling generally results in us having a presence on site during the entire build phase. This allows us to offer exceptional support and customer service, assisting residents with their initial connections and offering hands-on assistance.

We typically visit most properties when the home-owners move in to ensure that they are able to access the services and take advantage of the enhanced facilities. We not only assist with configurations of wireless access codes and network connections but generally are on hand to help tune in TVs, set up e-mail accounts and even connect games consoles.

Engineering resource is generally available on-site most days meaning that we are able to react rapidly to any problems that occur. Service outages are categorised as one of two fault conditions for which we offer the following levels of service restitution:

### *Network Affecting Fault*

For faults that affect more than one subscriber on the network, we endeavour to:

- Respond to the phone call or e-mail reporting the fault within 1 hour (24/7/365)
- If necessary, despatch an engineer to arrive on site within 4 hours of that response
- Resolve the fault within 4 hours of arriving on site

Typically faults will be able to be resolved remotely without the need for attendance on-site and in these circumstances, the fault will be corrected within 4 hours of the initial response.

### *Subscriber Affecting Fault*

For faults that affect a single subscriber on the network, we endeavour to:

- Respond to the phone call or e-mail reporting the fault within 1 hour (9am to 5pm)
- Resolve fault within 24 hours of the initial response
- If necessary, despatch an engineer to arrive on site with all necessary equipment within 72 hours of the initial response

Contractual Service Level Agreements would be included in the overall supply contract, a sample of which is appended.





## 9. Open Access

The proposal as it stands assumes that Fibre Options would be the sole service provider on the site. The nature of the Industry at present is that competitive service providers are reluctant to participate in the delivery of services over FTTH networks as it does not currently fit into their business model of re-selling BT services over a BT infrastructure.

As time goes on, we are confident that this situation will change and moves are already afoot to by some major players to deliver a raft of alternative service providers to next generation networks.

While we firmly believe that the bench-marked nature of our pricing and the localised service that we are able to offer provides the subscribers with a uniquely personal and competitive service, there is no doubt that the public, in general, value the opportunity to access services from their choice of service provider.

Fibre Options will always need to be the service provider “of last resort” to ensure that anyone moving to the development has access to services but we are committed to developing the open access service model and encouraging other service providers to deliver services across our FTTH networks.

While we cannot guarantee that this will be possible within the timescale of first connections, we would be prepared to make the commitment to being able to offer a competitive open access service to all properties once 200 homes have been completed. At this point we would envisage that 3 or 4 other service providers would be available from which each subscriber could choose to have services delivered. However, it is unlikely that some of the major market players such as BT, Sky or Talk Talk would be among these providers offering services. We believe that it could be at least 5 years before this becomes a possibility.



## 10. Alternative Ownership Model

Having been asked to investigate the possibility of a network being developed to support Smart Metering applications, Fibre Options would consider a situation where they were totally responsible for the supply, installation and operation of the network while delivering Smart Metering services over the network as previously described.

In this scenario we would be able to offer the same competitive services and deliver connections to the Shimmy unit in each property as detailed previously but in this instance would retain ownership of the network. We would similarly require a 10 year operational contract to deliver Smart Metering services to A2Dominion and would be able to offer the services at a cost of £5 per property per month equating to an annual charge of £50,580 once all 843 properties had been connected. This rate would be open to re-negotiation at the expiry of the 10 year term.

If Fibre Options were required to install and maintain an IRS television service in this instance, an investment of £300 per property would still be required from A2Dominion in order to cover the cost of installation and support. As detailed previously, although potentially an attractive proposition to prospective purchasers, such a system presents no opportunity to recoup the investment required to deliver it.



## 11. Summary

The preceding proposal offers the following features:

- A2Dominion grant Fibre Options a 10 year operating contract for an FTTH network
- A2Dominion pay Fibre Options £300 for each home connected
- Fibre Options install, operate and maintain the network
- Fibre Options deliver competitive services to residents against industry benchmarks
- Fibre Options pay A2Dominion £60 per year per property connected
- Payment covers cost of investment during contract term for initial outlay of £108,000
- A2Dominion inherit a viable network asset at the end of the contract term
- At contract end, network generates £50,000 of revenue per year
- Optional connection charge of £5 per property per month with no investment
- £300 investment per property commitment for an underground IRS television service

