

# Highlands and Islands Enterprise Shared Ownership Toolkit

---

## 1. Introduction: The Indicative Shared Ownership Project Finance Model

As outlined in the Shared Ownership Good Practice Principles<sup>1</sup>, the Scottish Government believe that shared ownership of renewable projects should become standard practice for renewable projects. There are a number of challenges to enabling this, one of which is sharing of information between project developers and communities to allow communities to make an informed decision about a potential investment in a shared ownership project.

The **HIE Indicative Shared Ownership Project Finance Model** is an indicative early stage financial model to help communities understand the potential profitability of shared ownership renewable projects. This will enable the Community to decide whether it is worth undertaking further technical and financial due diligence to develop the idea further. At this later stage it will be common for communities to employ their own Financial Conduct Authority (FCA) authorised financial adviser who may assist communities in approaching financiers.

The aim of the **HIE Indicative Shared Ownership Project Finance Model** is therefore to:

- Outline the key information that a Community would need to obtain from a project developer (defined as the '**Other Investor**' throughout this guide) to enable the financial returns from an investment to be determined; and
- Allow communities to run different scenarios and different shared ownership options for a project to help it evaluate the sensitivities in any potential investment.

An additional outcome of filling out the model is that communities will have gathered in a clear format a lot of the necessary financial and project spend information that potential financiers commonly require in their assessments.

### **Disclaimer**

This financial model is copyright Highlands and Islands Enterprise ('HIE Model') and is a bespoke tailored version built using an original model copyright of the Scottish Government ('CARES Model'). The CARES Model has been developed as part of the Scottish Government's CARES programme which is delivered by Local Energy Scotland. With the permission under licence of the Scottish Government, Ricardo Energy & Environment has adapted the CARES Model to produce the HIE Model that gives an indicative early stage financial model to help Community groups understand the potential profitability of shared ownership Community renewable investments. Any information and results derived from the use of the HIE Model are subject to the accuracy of data inputs supplied by the user. All results should be checked and challenged before any reliance, publication or use. The HIE Model has not been subject to any external independent audit. HIE, the Scottish Government, Local Energy Scotland and Ricardo Energy & Environment hold no liability for any subsequent adjustment or amendments made to the HIE Model or any loss or damage arising from any reliance on or use of the information generated by this HIE Model by any Community group, lender, investor or other interested parties.

---

<sup>1</sup> Local Energy Scotland. *Shared Ownership Good Practice Principles*. September 2015. <http://www.localenergyscotland.org/media/79714/Shared-Ownership-Good-Practice-Principles.pdf>

## 2. Model Structure

**\*\* For optimum viewing of the graphs in the EXCEL model please use EXCEL 2013 or higher \*\***

As stated, with the permission of Local Energy Scotland the Highlands and Islands Enterprise Shared Ownership Project Finance Model is built up from Version 12.2 of the CARES model (<http://www.localenergyscotland.org/projectfinance>), with a number of significant changes to (a) accommodate the three different types of shared ownership options, and (b) remove some of functionality that is now in Version 12.2 of the CARES model, e.g. step changes in rentals and maintenance reserve accounts for lifecycle refurbishment in the years ahead. For there is a balance between having a very complex model with many inputs, and a smaller simpler model with fewer inputs.

## 3. Three types of shared ownership options

As explained on page 15 of the Scottish Government's Shared Ownership Good Practice Principles there are three options for who will ultimately own the project:

- i. The **'Split Ownership' (SO)** model where the development is split into two, with some assets owned 100% by the developer (termed the **'Other Investor'**) and other assets 100% by the Community group.
- ii. The **'Joint Venture' (JV)** model where a joint venture vehicle is set up, which will be part owned by the Other Investor and the Community group. The company may be referred to as a **Special Purpose Vehicle (SPV)**. Depending on the negotiation between the Other Investor and the Community on the type of share it purchases, the community group may have a right to vote on the company's activities or sit on the board of the SPV. For example, it could be that the Community only buys non-voting shares which may be called Class B Shares with the Other Investor having all the voting Class A Shares; or even if the shares the Community buys are voting shares if it only owns a few then its ability to change decisions may be very limited.
- iii. The **'Shared Revenue' (SR)** model where the Other Investor owns the development (and may set up a new private company for this purpose), with the Community buying the right to a defined percentage of revenues or net revenues (after operating costs, maintenance costs, and maybe management fees have been paid). The Community does not own any shares, so is not able to vote on the company's activities.

With whichever structure is chosen, communities may be asked to contribute financially at different stages of a project's evolution, for example at project inception, after planning permission is granted, at financial close when all the documents with financiers for the project are signed and construction commences, or even once the project is operational. The terms offered by commercial developers may differ depending on the stage at which money is required and the value of the project as it progresses through the different stages to completion.

**Although the number of inputs that need to be entered in the model may look intimidating, if the project is a Split Ownership model or a Shared Revenue model many inputs are not required (shown in greyed out input areas [  ] ), and with many others default values (explained on page 9) can be used for an initial evaluation.**

### 3.1 Financial considerations with Shared Ownership deals

Shared Ownership deals are different to standalone deals in that there may well be further costs that a standalone deal would not have. These can be summarised as additional monies that are spent in the development phase as the Community is undertaking its own due diligence and maybe raising finance for its contribution to the deal. The model therefore splits the development costs into **non-project related development costs** (the costs referred to above) and **project-related development costs** (costs the Other Investor and maybe the Community will spend on securing planning permission, undertaking wind speed assessments, negotiating with different manufacturers and construction companies, etc). As well as non-project related development costs, there may also be additional Community specific operating costs, e.g. costs for arranging annual meetings, costs for distributing returns to Community shareholders, etc.

In a standalone deal the vast proportion of the costs the Community spends in the development phase (apart from initial feasibility studies) can normally be capitalised, which means the cost can be included in the asset value that will appear on the Community's balance sheet. Also, if the Community raises finance to cover some of these development costs the interest costs incurred are normally capitalised (i.e. added onto the asset value).

However, in Shared Ownership deals it is assumed that the non-project related development costs cannot be capitalised, and neither can any interest on the non-project related development costs. Therefore, from an accounting perspective both these costs have to be expensed through the income statement (also called the profit and loss account). Whilst this does not impact cash flows, it can impact the income statement (also called the profit and loss account) and the timing of when monies can be released to investors.

There are many other financing considerations with each of the three shared ownership routes, including lack of security, challenges with JVs being able to pay financiers and the need to minimise duplicate costs. These are explained below:

#### 3.1.1 Lack of security

In particular, commercial banks may be unprepared to lend to Shared Ownership projects because of issues over the security of assets. This can be most easily shown in Figure 1.

**Figure 1: Security communities can offer for Shared Ownership structures**

Shared Revenue	Joint Venture	Split ownership
No assets, and no voting rights	Community may have voting rights, but may be minority shareholder limiting any security banks may be able to use	Community own assets, but may be security issues over a shared grid connection
Commercial banks very unlikely to lend	Commercial banks unlikely to lend to community as there will be questions about which lender has the first 'call' on the assets, although if both parties use the same bank it may be possible	Commercial banks may lend if can find an acceptable solution for the ownership of shared grid connection

It is normal practice for any lender, commercial or not, to have a clear agreement (an 'intercreditor agreement') setting out the ranking of the debt in the event of default and formally acknowledging the term of each other's agreements. Therefore, if a solution between two banks can be found, the priority over which bank has 'first call' over the assets will be included in their intercreditor agreement.

### **3.1.2 Challenges of sufficient dividends from the JV to pay the financiers for the community investment**

Joint Ventures will only be able to pay returns to the Community and the Other Investor when there are sufficient profits to do so. Whilst this is fine if the Community is using a fully equity financed contribution, if the Community will be using loans to finance part of their contribution this can create challenges for dividend payments from the Joint Venture to the Community may not happen for a number of years, yet there may be obligations to start repaying lenders and Community shareholders shortly after operations commencement.

### **3.1.3 Need to avoid duplicate costs**

As stated by the Shared Ownership Good Practice Principles, flexibility is fundamental to the success of shared ownership projects, and efforts should be taken to ensure that additional costs are minimised. While no single model is preferred by Scottish Government, an open discussion of the various available possibilities, challenges and benefits is strongly encouraged.

## **3.2 Modelling issues for Split Ownership, Shared Revenue and Joint Venture projects**

The following two subsections (Section 3.2.1 and Section 3.2.2) summarise the main modelling issues for Split Ownership, Shared Revenue and Joint Venture projects.

### **3.2.1 Similarities between a Shared Revenue and Split Ownership model**

From a modelling perspective a Shared Revenue model will require very similar inputs to a Split Ownership model, as in both cases the communities' investment is in effect a 'standalone' investment, albeit a standalone investment with additional non-project related development costs and maybe Community specific operating costs. It is assumed that a Shared Revenue option is treated in accounting terms as a licence to receive a defined percentage of net revenues (revenues less operating costs, maintenance costs and maybe management fees) for a period of time.

**For the Shared Revenue and Split Ownership models there is no need for the Community to know exactly how much the project has cost the Other Investor or even whether the Other Investor is making any 'profits' from selling part of the project to the Community. Yes, the Community would be interested in knowing whether the Other Investor is making a profit to maybe help it negotiate a better deal, but the knowledge would go as far as that.**

### **Accounting considerations**

The accounting considerations are complex, which is why the assumptions that have been made have been relegated to the Appendix 1. If the Community is satisfied that the indicative model shows the project to be attractive it is recommended that specific accounting advice is sought, as the accounting issues are involved and open to interpretation.

The two main accounting assumptions are:

- With Split Ownership deals the project related development and construction costs incurred by the Community can be capitalised, but the interest incurred during the development phase and construction phase cannot be capitalised for the asset only officially transfers at the point of commissioning. However, with Shared Revenue the assumption is the licence is treated as an intangible asset that is gradually being 'built up' and contributed to so both the costs incurred and the interest costs incurred can be capitalised.
- Once the assets are commissioned the assumption is that with Split Ownership they are depreciated on a straight line basis over the asset life. With Shared Revenue, the assumption is that the asset is an intangible asset that is amortised<sup>2</sup> on a straight line basis over the length of the licence, much like the depreciation calculation.

### **3.2.2 Joint Venture model**

Where there are differences is with a Joint Venture for here both parties will own different shares of the project, so the Community as a shareholder and owner of the project should have a right to obtain much more clarity on both the total actual costs to build the project, including any capitalised interest in the development and construction phases that can be included. **However, the exact voting rights, rights to sit on the Board of the JV and see the JV's accounts will depend on the agreement the Community and Other Investor come to.**

The SPV's total capitalised costs will be used to determine the depreciation on the assets (which will affect how quickly any profits can be released to the investors) and the total costs will be used to determine any capital allowances that the Joint Venture can utilise to reduce its corporation tax bill.

This also means that the Other Investor should ideally be clear to the Community if it is making any profit on selling some of the shares to the Community.

Further, if the Community has a directorship on the Board of the Joint Venture it may also have other responsibilities, such as to ensure that the annual accounts are prepared and are accurate.

---

<sup>2</sup> Tangible assets are depreciated, whereas the term for depreciation of intangible assets is amortisation.

Therefore, in many cases the Community will need to see two sets of accounts:

- those of the Joint Venture SPV which will then distribute profits as dividends to the Community in proportion to its share ownership; and
- the accounts for the Community's investment which will show the investment into the Joint Venture, any dividends flowing from the Joint Venture and then the various sources of finance that are used to buy the shares in the Joint Venture.

To avoid confusion, the following terms are therefore used:

- The SPV may be able to access a loan in its own name to finance part of its investment, with the remaining finance coming from the Community and the Other Investor. These investments are therefore in effect equity investments into the Joint Venture. These equity investments are termed '**Quasi Equity**';
- The Community and Other Investor may have different ways of financing their 'Quasi Equity' investments, which could be a mix of different loans (e.g. senior loans, junior loans, subordinated loans) and equity. Therefore, the term Community equity refers to the actual equity (cash) invested by the Community into the Community's 'Quasi Equity', acknowledging that the equity amount may be a small proportion of the total Community's 'Quasi Equity' investment;
- To add further confusion communities often undertake share offers, but the monies invested are treated in this model not as community equity, but as tax deductible subordinated debt (as community share offers are typically explained to investors as '*share interest will be paid at a projected annualised rate of 7%*' and are often are treated as debt). For example, page 79 of 'The Community Shared Handbook 11<sup>th</sup> November 2016' states "*The payment of interest on share capital held in a society is regarded as a discretionary operating expense, and not as a distribution of profit. A society should exercise caution in how it determines share interest rates, setting it at the lowest rate sufficient to attract the capital it requires, and making it clear to members that this rate will only be paid if it is affordable to the society.*" Therefore, in the Shared Ownership Financial Model no 'equity' may be recorded, with all surplus profits after payments to community shareholders being distributed for charitable causes.

**As explained in Section 3, therefore the number of inputs the Community needs for a Joint Venture project will be much higher than for a Split Ownership or Joint Venture deal. For this reason many of inputs at the bottom of worksheets 'Non-time based inputs', 'Development costs' and 'Construction costs' ( [ 16E ], [ 16F ], [ 16G ], [ 17B ], [ 37 ], [ 38 ], [ 39 ], [ 40 ], [ 41 ], [ 42 ], [ 43 ], [ 44 ], [ 44 ] and [ 45 ] ) are shaded in light grey [ ■■■■■ ] and do not need to be considered for Shared Revenue and Split Ownership projects.**

### Accounting considerations

How the purchase of shares by the Community into the Joint Venture will be accounted for in the Community's accounts will vary depending on what share of the project the Community is buying. The accounting assumptions are summarised in the Appendix 1.

**The Shared Ownership model assumes that the Community Investor purchases less than 20% of the shares in the Joint Venture/ SPV. If the share of the investment is 20% or more the User should seek professional advice on how the investment should be accounted.**

For an investment less than 20% the investment is treated as a financial asset, and the two main accounting issues are:

- Like the Split Ownership structure, the project related development and construction costs incurred by the Community can be capitalised, but the interest incurred during the development phase and construction phase cannot be capitalised for the asset only transfers at the point of commissioning; and
- Whereas assets with the Split Ownership and Shared Revenue are depreciated/ amortised over time, with financial assets accounting rules typically require that publicly traded shares are valued according to the share price at each period end. However, an investment into this type of Joint Venture will not be publicly traded, and the assumption is that the shares need to be valued at cost with then an annual check for impairments. An impairment happens when the accounting book value of the asset is actually too high. If some shares are repaid, then the total value of the shares will reduce. In undertaking the annual check for impairments there is a need to each year determine the fair value of the Community's investment which will be the future value of 'Quasi equity' dividend payments and repayments to the Community appropriately discounted.

The Shared Ownership model assumes that the discount rate is the same as used for calculating the Net Present Value of the pre-finance pre-tax cash flows (i.e. the project return before financing and taxation costs are incurred that is shown in [ 38 ]). Depending on the discount rate selected and the repayment profile for the 'Quasi equity' invested, commonly the shares will be held at cost for many years, until towards the end of the project when the future value of the 'Quasi equity' repayments and dividend flows may be lower, in which case there may be impairments.

### **Financing implications for Joint Ventures**

As explained in Section 3.1.2, often it will take a number of years before a Joint Venture can pay 'Quasi equity' dividends as there may be insufficient profits to distribute. This will be especially the case if the Joint Venture takes out a loan in its own name. This could create difficulties if the Community is going to finance their share into the 'Quasi equity' with bank loans or a Community share offer as there may not be monies available in the early years to repay liabilities arising.

### **Tax implications for Joint Ventures**

The CARES model, on which this is based, made the simple assumption that 100% of the capitalised asset value attracts capital allowances, and the writing down allowance per year is the same as the straight line depreciation. Many standalone Community legal structures are corporation tax exempt, or are structured so that all taxable profits are gifted to a charity, which means the corporation tax rate can be set to 0%.

However, with Joint Ventures it is much more likely that the SPV will be liable to pay corporation tax, and it is only after corporation tax is paid that 'Quasi equity' dividends will be paid to the Other

Investor and the Community. Therefore, it is essential that the SPV and the Community get tax advice. For example, a tax adviser may be able to provide a proxy 'Effective Tax Rate' as a simplification, and may also be able to advise on tax efficient ways for the Community to reduce taxes incurred by the SPV.

## 4. Inputs required for the three Shared Ownership structures

Section 5.1 includes some sample data that is used to give a first indication of the scale of the costs and returns that can be expected from a hypothetical project. Some inputs require numbers, but with other inputs for early state models the default values can be used at this stage. Throughout the development of the project as better estimates become available they should be updated within the model and comments added within the model to reflect this. It would be very unusual for any of the costs outlined below to be present in a final version of the model that is being used to determine if the project is financially viable.

The financial model is structured into a number of worksheets, notably:

### 4.1 Inputs worksheets (shown in dark green tabs)

In the five input worksheets there are indications whether numbers or information needs to be entered depending on the ownership structure under consideration. These are shown in the following colours.

Split Ownership (SO)	Shared Revenue	Joint Venture (<20% shares)
✓	✓	✓

#### 4.1.1. Input worksheet 1 - Disclaimer

In order to be able to use the model the User must accept the disclaimer in this worksheet by typing in today's date into cells I33, I34 and I35. This will then remove any 'blacked out' worksheets. This is dark green entry [ A ].

#### 4.1.2 Input worksheet 2 – Non-time based inputs

This is the main inputs worksheet. The inputs are split into a number of groupings. More detail is provided in the 'Directions to Use' worksheet.

The model has the option of having up to seven scenarios, with numbers entered into columns K to Q. Against the scenarios there are then 36 cells where numbers or information needs to be entered for Split Ownership or Shared Revenue. These have been coloured in as either dark green (■) where a number or information has to be entered, or dark orange (■) where for the simplest of early stage projects the default values suffice.

As explained, for Joint Ventures there are additional inputs that have light grey shading ( ■■■■ ) around them that bring the total number of inputs up to 45, as input [37] in this worksheet cannot be changed. Input [ 37 ] makes the assumption that with a Joint Venture the Other Investor and the Community finance development costs themselves (i.e. independently pay off any capitalised interest costs on any loans they independently take out), so the only costs that are capitalised into the Joint Venture asset value are any interest costs on loans the Joint Venture SPV takes out in its own name.

### 4.1.3 Input worksheet 3 – Electricity Prices

Historically many standalone Community projects have relied on Government support, e.g. through the Feed in Tariff (FiT), Renewable Heat Incentive (RHI) or the Renewables Obligation Certificates (ROCs). Increasingly Shared Ownership deals are happening without Government support. Therefore, the Power Purchase Agreement (PPA) price, and the projections for PPA prices are key. Because of this worksheet ‘Non time based inputs’ inputs [ 10 ] allows the User to select either (a) a single price, (b) Government projections, or (c) User defined electricity prices. Whichever choice is made inflationary effects are then added. Specifically:

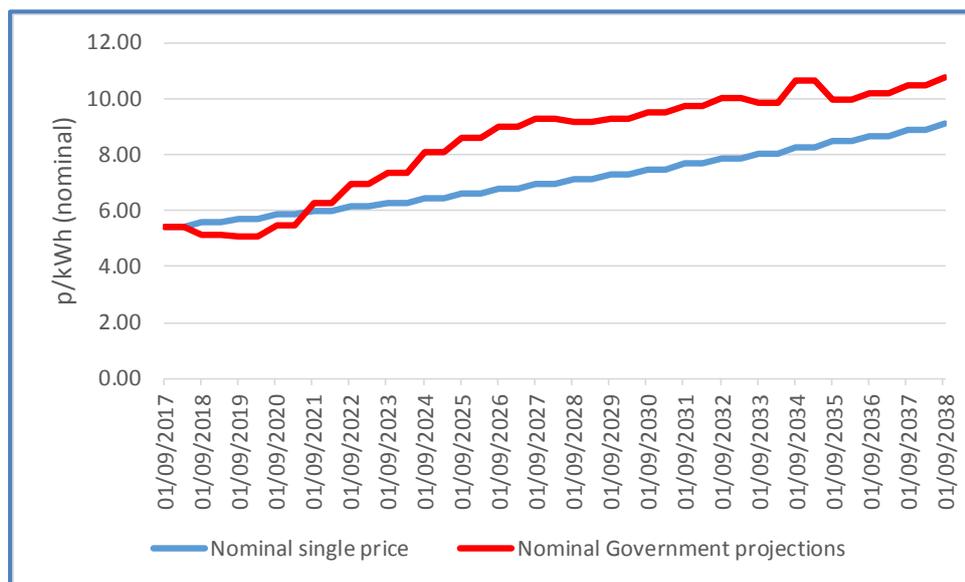
- Input [ 11A ] in worksheet ‘**Non-time based inputs**’ is the single price assumption which can be increased by inflation every year.
- If the user selects ‘Government projections’ in [ 10 ], in worksheet ‘**Non-time based inputs**’ then input [ 11B ] (which cannot be changed) in worksheet ‘**Electricity Prices**’ shows the Department of Energy and Climate Change November 2015 price projections. If selected these are then increased each year by the inflation rate the User selects. Note that DECC’s price assumptions are wholesale price projections in November 2015 based on a number of assumptions. Further their wholesale prices are an average price and the project may find that for some technologies (e.g. solar) PPA prices will be below average as some technologies cannot consistently produce power when it is needed most (in late afternoons and the evenings in winter).
- If the User selects ‘User defined electricity prices’ in [ 10 ], input [ 11C ] in row 27 of worksheet ‘**Electricity Prices**’ allows the User to enter in their own annual electricity price projections, on which inflation is added. Like Input [ 11A ] it is important the User enters the projected PPA price at the start of operation, i.e. adds in any inflationary expectations if commissioning is a number of years away, but does not add inflation onto any tariffs after the first year (April – March) of commissioning.

Figure 2 highlights the difference in nominal (i.e. allowing for inflationary increases) electricity prices if the User were to enter a 5.43p/kWh single electricity price (rising by 2.5%) or select the Government’s projections, again with a 2.5% inflationary assumption.

### 4.1.4 Input worksheet 4 - Development Costs

Whereas in the CARES financial model the User has to just provide the split of development costs between development phase grants and other development phase costs (which are financed with percentages of debt and equity that are entered into the Inputs worksheet), this **HIE Shared Ownership Project Finance Model** requires £ numbers to be entered for the development phase costs covered by loans and the development phase costs covered by equity/ cash reserves. Unlike the CARES model if any Community development costs have been paid with a grant these costs should be included in the equity amounts [ 16B ] or [ 16D ] for development costs (and again in input [ 23 ] ) unless the grants are for feasibility studies (like the CARES Start Up grant of £20k for joint ventures) in which case these costs and grants do not need to be entered for they cannot be capitalised. Even if there are no grants in the development phase input [ 23 ] has the functionality to include grants awarded post financial close, i.e. used for the construction phase.

**Figure 2: The difference between the Single price assumption [ 11A ] and the Government projections [ 11B ]**



As explained in Section 3.1, there is a need to separate out those costs that will be spent directly on the project (e.g. planning applications, grid deposits, feasibility studies) and those non-project related development costs that are particular to the offer being made to (or by) the Community. These costs will include any due diligence undertaken by the Community of the offer being made, legal costs, financial advice and then the costs of securing finance. For example, if a Community share offer will be launched there will be costs for preparing the share prospectus and marketing.

As explained in Section 3.2.2, in the Joint Venture structure there is also a need to enter numbers for development costs specific to the project for the Other Investor ( [ 16E ] and [ 16F ] ), and also the 'upfront' profits/ losses ( [ 16G ] ) being made by the Other Investor in selling part of the project to the Community.

**Please note:** this worksheet automatically updates dates from development phase start to the date of financial close. Please ensure that no numbers appear outside the light green boxes [ ■■■■■ ]. This will mean that if the Development Phase Start Date [ 2 ] or Financial Close Date [ 3 ] changes in a scenario this worksheet will need to be updated.

The model has been designed assuming typical development period and construction periods. This is reflected in the Operating Costs and Construction Costs profile tabs of the spreadsheet. The maximum total development period is 62 months and the maximum construction phase is 37 months. The total construction and development period within the model is 99 months. If the User's inputs exceed these time limits, they should adjust their cost profiles accordingly.

#### 4.1.4 Input worksheet 5 - Construction Costs

Like worksheet 'Development Costs' there is a need to enter in the construction costs paid by the Community [ 17A ] and in the case of a Joint Venture the actual construction costs for the whole

project [ 17 B ]. This means that if the Other Investor is making a profit on the fees it is charging the Community it will be possible to determine the size of the profits.

**Please note:** this worksheet automatically updates dates from financial close to the end of the construction phase. Please ensure that no numbers appear outside the light green boxes [ ■■■ ]. This will mean that if the date of Financial Close Date [ 3 ] changes in a scenario this worksheet will need to be updated.

Box 1 explains what costs need to be entered in [ 17A ] in the case of a Joint Venture where the JV secures some debt in its own name, and Box 2 explains how to fill in costs in a number of cases.

### Box 1: Explanation of what the construction costs paid by community and JV mean

If there is a Joint Venture which is 50% financed by JV debt and 50% financed by 'quasi equity' (described on page 6) then if the total construction + development costs for the JV is £50m, split as £5 million for the development phase and £45 million for the construction), and the community is buying 10% of the shares then the numbers in [ 17A ] will represent the community's contribution of quasi equity.

As 50% of £50 million financed is financed by JV debt and 50% by Quasi Equity then £25 million will be financed by Quasi Equity. Therefore the sum of [ 16A ] + [ 16B ] + [ 17A ] for the community will have to be £2.5 million (10% x £25 million of Quasi Equity).

### Box 2: Solutions to common questions

- ▶ In my project the Community is being offered the opportunity to invest at the point of financial close?

*Enter in the non-project specific development costs in rows [ 16C ] and [ 16D ] and then whatever amounts of money are being asked from financial close until operations commencement in rows [ 17A ]. As the Community is being asked to invest at the point of financial close there is no need to understand what the development costs the Other Investor has paid are, **unless** the option of a Joint Venture is being considered.*

*If a Joint Venture is being offered at the point of financial close then instead of entering in the actual development costs paid by the Other Investor being included in rows [ 16E ] and [ 16F ], these costs can be included in the total project cost in rows [ 17B ]. [ 16G ] is not relevant in this case as any profits the Other Investor will be making will be wrapped up in the proportionate differences between [ 17A ] and [ 17B ] or the share percentages offered.*

- ▶ In my project the Community are being offered the opportunity to invest at the point of commissioning?

*Enter in the non-project specific development costs in rows [ 16C ] and [ 16D ] and then have one construction period (which equates to the last month before commissioning) where the total investment requirement is entered in rows [ 17A ]. As with the above question, if a Joint Venture is being offered then instead of entering in the actual development costs paid by the Other Investor being included in rows [ 16E ] and [ 16F ], these costs can be included in the total project cost in rows [ 17B ].*

## **4.2 Background and calculations worksheets (shown in light brown tabs)**

The first worksheet 'Directions to use' gives more detail on what is required in the various inputs worksheets. At the end of the model there are then four calculations worksheets, namely:

### **4.2.1 Calculations worksheet 1 - Calculations – pre operations**

This worksheet, like the CARES model, works out the total asset value at commissioning that will be entered into the Community's accounts.

### **4.2.2 Calculations worksheet 2 - Debt and equity calculations**

This worksheet, like the CARES model, works out the different interest payments and equity repayments for the Community investor (and the Joint Venture if relevant). It also works out balances on a Debt Service Reserve Account (DSRA) that may be needed. A DSRA is an account many lenders require to allow loans to be paid back at times when the project might not have enough spare cash coming in, because say, it has not been a particularly windy six-month period or even a turbine is being repaired.

### **4.2.3 Calculations worksheet 3 – Community financial calculations**

This worksheet calculates the semi-annual cash flow, income statement (profit and loss account), balance sheet and various report metrics for the Community investor. Also included is the cash flow presented in the new FRS 102 format.

### **4.2.4 Calculations Worksheet 4 – JV financial calculations**

This worksheet calculates the semi-annual cash flow, income statement (profit and loss account), balance sheet and various report metrics for the Joint Venture. Also included is the cash flow presented in the new FRS 102 format.

## **4.3 Outputs worksheet (shown in dark blue tab)**

This worksheet summarises the outputs from the model from the perspective of the Community investor. Further explanation is provided in Section 5.2.

## 5. Examples of how to fill out the Shared Ownership model considering each of the three different ownership structures

The easiest way to explain how to fill out the Shared Ownership model is through a hypothetical example where the proposal is at an early stage. Two models are available for download, one being the totally locked down example. This section refers to the totally locked down model example. In this example with four scenarios, with the exception of the Government Support tariff, the default **orange values** will be used throughout to give an initial steer as to the potential profitability of the project.

### 5.1 Example inputs entered

Table 1 shows the inputs that have been entered into worksheet 'Non-time based inputs'. Scenario 1 is Split Ownership and Scenario 2 Shared Revenue. To show the different impacts of a Joint Venture wholly financed by 'Quasi equity' and the second option where the Joint Venture itself obtains a loan, with the 'Quasi equity' contributions from both the Community and the Other Investor being lower amount, two Scenarios (Scenario 3 and 4) are included. Of particular note:

- Inputs [ 14 ] and [ 15 ] give the User the option of either selecting a defined Community share percentage, or a share that will evolve depending on the respective payments by both parties to the investment.
- The model allows the User to select Debt Service Reserve Accounts in inputs [ 34 ] and [ 44 ].

Where there are different inputs into the four scenarios the differences are highlighted with red bold boxes - **□**. Apart from the different Shared Ownership routes (Split Ownership, Shared Revenue and Joint Venture) the only other differences are that:

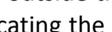
- In all scenarios the total project cost (shown in [ 16A ], [ 16B ], [ 16C ], [ 16D ], [ 16E ], [ 16F ], [ 16G ] and [ 17B ]) is the same. However, in Joint Venture Scenario 4 as the SPV gets a loan for 50% of the project cost, the only way to keep the Community's £ 'Quasi equity' investment ( [ 16A ], [ 16B ] and [ 17A ]) the same is by doubling their share of the project (although note to keep the Community investment below the 20% threshold 19.99% is used);
- Where the Joint Venture gets a loan in its own name the default loan rate of 6% and 15 years is assumed.
- In the Split Ownership and Shared Revenue models the Community is receiving 10% of the assets and 10% of the net revenues respectfully. In the Joint Venture option, the Community can only receive back its 'Quasi equity' contribution and dividends. Therefore, to approximate the cash flows in the Shared Ownership and Shared Revenue models input [ 45 ] has been overridden with the assumption 'Quasi equity' starts to be repaid from operations commencement. Otherwise the JV model would only be releasing 'Quasi equity' dividends to the Community for the first 15 years, before from years 16 -20 the 'Quasi equity' is repaid and further dividends are paid. Spreading the repayment of the 'Quasi equity' in effect smooths the cash flows coming into the Community.

Box 3 explains how some timing issues can be managed with JV solutions.

Table 1: Sample HIE Shared Ownership Model with four scenarios

#	Description	Unit	SO	SR	JV (<20%)	1	2	3	4	Explanation
1	Short description of scenario basis	Free-flow text box	✓	✓	✓	Split Owner example	Shared Revenue example	Joint Venture example no SPV debt	Joint Venture example SPV debt	Explanation of the four scenarios.
<b>Project timings</b>										
2	Development phase start	mm/yyyy	?	?	✓	08/2016	08/2016	08/2016	08/2016	Development phase start is first date the project starts incurring development costs. The model assumes the phase starts on the last day of a month to avoid interest costs in that month. Enter the date in the MM/YYYY format and the actual end month date is automatically calculated. Likewise, financial close is the date when all development costs have been finalised and construction is about to commence. The model assumes Financial Close, the date the project documents all get signed and banks offer loans on the main project, again occurs on the last day of a month to avoid interest costs in that month.  In this model there is an assumption of a five-month and one-day development phase.
3	Financial close	mm/yyyy	?	?	✓	01/2017	01/2017	01/2017	01/2017	
4	Construction end	mm/yyyy	✓	✓	✓	12/2017	12/2017	12/2017	12/2017	
5	Asset lifespan (years from operations start)	Years. <b>Default 20.</b>	✓	✓	✓	20	20	20	20	Default selected.

Energy output for whole combined project										
6	Rated power for all the renewable energy devices (kW)	kW	✓	✓	✓	3,000	3,000	3,000	3,000	Assumption 3MW project.
7	Available electricity output per year after allowing for plant downtime and the electricity demands of the equipment (kWh per year)	kWh per year	✓	✓	✓	7,489,800	7,489,800	7,489,800	7,489,800	This number will usually be found in a Technical Advisers report. Note this number includes estimates for downtime and the electricity the generator and the transformers use ('parasitic load'). 7,489,800kWh equates to a circa 28.5% capacity factor ( 3,000 x 8,760 / 7,489,800).
Energy price assumptions										
8	Support tariff (p/kWh) at date of operations commencement	p/kWh. <b>Default 0.</b>	✓	✓	✓	12.00	12.00	12.00	12.00	Rather than select the default assumption is Government support is 12p/kWh. As operations is projected to start on 1 <sup>st</sup> January 2018, this is the projected April 2017/ March 2018 price.
9	Length of support tariff contract from date of operations start (years)	Years. <b>Default 0.</b>	✓	✓	✓	20	20	20	20	Rather than select the default assumption is Government support lasts for 20 years.
10	Electricity export tariff to grid (p/kWh) at date of operations commencement. Dropdown (Single Number, Government Projections, User Defined)	Drop down choice: i. Single price to which inflation is applied (see [11A] below). ii. Government electricity projections ( [11B]). iii. User defined ( [11C] ) in row 29 of worksheet 'Electricity Prices'. <b>Default 'Single Price'.</b>	✓	✓	✓	Single price	Single price	Single price	Single price	Default selected.
11A	If 'Single price' export tariff number to which inflation is applied' that price (p/kWh) at date of operations commencement.	p/kWh	✓	✓	✓	5.00	5.00	5.00	5.00	Assumption made. Note this is at the date of operations commencement. So if the April 2016 – March 2017 support is 4.91p/kWh it may be 5.00p/kWh in April 2017 – March 2018.

Inflation rate assumptions										
12	Inflation rate (%)	Percent. <b>Default 2.5%.</b>	✓	✓	✓	2.5%	2.5%	2.5%	2.5%	Default selected.
Investment proposition										
13	What is the ownership structure?	Drop down (SO, SR, JV <20% shares)	✓	✓	✓	SO	SR	JV	JV	Covering the four scenarios.
Community ownership percentage										
14	What share is the community buying, or if it is a JV is it based on actual development and construction £s costs spent?		✓	✓	✓	Fixed percent	Fixed percent	Fixed percent	Fixed percent	Fixed percentage chosen. Note this can mean the actual contributions are more or less than the percentages provided (i.e. if the Other Investor makes a profit or loss on charging for the works).
15	If JV and fixed percent, what percentage ownership share/ percentage revenue will community get?		✓	✓	✓	10.0%	10.0%	10.0%	19.99%	As Scenario 4 assumes the JV secures a loan to pay for 50% of the construction and development costs, then it is assumed that the Community is offered 19.99% of the shares in the project (note this is just below the 20% threshold).
Development phase costs										
16A	Project specific development costs for the project paid by Community with CARES loan or other loan - see worksheet ' <b>Development Costs</b> '		✓	✓	✓	Same assumption for all four scenarios that £65,619 of project specific development costs paid by Community split:				The development costs need to be inserted into the light green cells in the 'Development Costs' worksheet, splitting between costs that will be financed with a combination of loans (e.g. a CARES loan) and equity. Some explanations (column B) of worksheet ' <b>Development Costs</b> ' have been put in, but the User is free to amend the headings as they see fit. The User should enter the expected monthly costs for each sub component in respective cells, making sure not to enter in any numbers outside the light green areas (  ) indicating the development period.
16B	Project specific development costs for the project paid by Community with cash reserves/ equity - see worksheet ' <b>Development Costs</b> '		✓	✓	✓	<ul style="list-style-type: none"> <li>£62,338 with loan, and</li> <li>£3,281 with equity</li> </ul>				
16C	Non-project specific development costs paid by Community specific to their involvement in the project (e.g. legal advice, structuring Community share offer) with CARES loan or other loan - see worksheet ' <b>Development Costs</b> '		✓	✓	✓	Same assumption for all four scenarios that £40,000 of non-project specific development costs paid by Community split: <ul style="list-style-type: none"> <li>£38,000 with loan, and</li> <li>£2,000 with equity</li> </ul>				

<b>16D</b>	Non-project specific development costs paid by Community specific to their involvement in the project (e.g. legal advice, structuring Community share offer) with cash reserves/ equity - see worksheet ' <b>Development Costs</b> '	✓	✓	✓	Same assumption for all four scenarios that £40,000 of non-project specific development costs paid by Community split: <ul style="list-style-type: none"> <li>£38,000 with loan, and</li> <li>£2,000 with equity</li> </ul>	As above ↑			
<b>Construction costs</b>									
<b>17A</b>	Construction costs paid by Community as contribution to the project - see worksheet ' <b>Construction Costs</b> '	✓	✓	✓	Same assumption for all four scenarios that £811,112 of construction costs paid by Community.	The construction costs the Community needs to pay (which could be just one cost at commissioning) need to be inserted into the light green ( <span style="background-color: #d9ead3; border: 1px solid black; display: inline-block; width: 10px; height: 10px;"></span> ) cells in the ' <b>Construction Costs</b> ' worksheet. Some explanations (column B) have been put in, but the User is free to amend the headings as they see fit. The User should enter the expected monthly costs for each sub component in the number cells.			
<b>General operating costs (estimated at the start of operations) per year (£) for the total project</b>									
<b>I.</b>	<b>Total project general operating costs excluding maintenance and land rentals (i.e. excluding Community specific operating costs)</b>								
<b>18</b>	Metering and utility costs	✓	✓	✓	£20,000	£20,000	£20,000	£20,000	Constant annual operating costs that only rise by inflation should be inserted. The User is free to adjust the headings.  Here there is the same assumption for all four scenarios. Note this is the <b>total</b> operating costs for the entire project, so if the Community will receive 10% of net revenues for it will in effect pay for 10% of these costs.
	Insurance	✓	✓	✓	£10,000	£10,000	£10,000	£10,000	
	Accounting and book keeping	✓	✓	✓	£50,000	£50,000	£50,000	£50,000	
	Bank management fees	✓	✓	✓	£50,000	£50,000	£50,000	£50,000	
	Legal fees	✓	✓	✓	£5,000	£5,000	£5,000	£5,000	
	Other cost 6	✓	✓	✓	£ -	£ -	£ -	£ -	
	Other cost 7	✓	✓	✓	£ -	£ -	£ -	£ -	
	Other cost 8	✓	✓	✓	£ -	£ -	£ -	£ -	
	Other cost 9	✓	✓	✓	£ -	£ -	£ -	£ -	

II. Maintenance costs (estimated at start of operations) per years (£)										
19	Annual Maintenance cost (which will be for asset life)	£	✓	✓	✓	£60,000	£60,000	£60,000	£60,000	Same assumption for all four scenarios. This is the <b>total</b> annual maintenance cost for both parties.
III. Land rentals (£s or % of revenue)										
20A	If there is a land rental is it linked to revenue or a fixed amount rising by inflation?	Drop down (Revenue, Fixed amount, None). <b>Default Revenue</b>	✓	✓	✓	Revenue	Revenue	Revenue	Revenue	Default selected.
20B	Land rental (fixed amount £s rising by inflation) at start of operations	£. <b>Default £0.</b>	✓	✓	✓	£ -	£ -	£ -	£ -	Default selected.
20C	Land rental (% of revenue)	Percent. <b>Default 5%.</b>	✓	✓	✓	5.0%	5.0%	5.0%	5.0%	Default selected.
IV. Community specific operating costs (e.g. for distributing returns to Community investors, annual meetings, accounting costs, legals, etc)										
21	Community specific accounting and book keeping		✓	✓	✓	£2,000	£2,000	£2,000	£2,000	The user can change the different subheadings. Costs need to be priced at the date of operations commencement.
	Community specific bank management fees		✓	✓	✓	£1,000	£1,000	£1,000	£1,000	
	Community specific legal fees		✓	✓	✓	£1,000	£1,000	£1,000	£1,000	
	Community specific annual meeting costs		✓	✓	✓	£1,000	£1,000	£1,000	£1,000	Same assumption for all four scenarios.
	Community specific other cost 5		✓	✓	✓	£ -	£ -	£ -	£ -	
	Community specific other cost 6		✓	✓	✓	£ -	£ -	£ -	£ -	
	Community specific other cost 7		✓	✓	✓	£ -	£ -	£ -	£ -	
	Community specific other cost 8		✓	✓	✓	£ -	£ -	£ -	£ -	
	Community specific other cost 9		✓	✓	✓	£ -	£ -	£ -	£ -	
Community investing assumptions										
Community investment financing assumptions development phase										
22	Development loan interest rate per year (%)	Percent. <b>Default 10%.</b>	✓	✓	✓	10.0%	10.0%	10.0%	10.0%	Default selected.

Community financing assumptions for construction and operations										
23	Main project grant received (assumed at date of financial close) (£)	£. <b>Default £0.</b>	✓	✓	✓	£ -	£ -	£ -	£ -	Default selected.
24	Percentage of finance after grant that is Senior Loan	Percent. <b>Default 75%.</b>	✓	✓	✓	75.0%	75.0%	75.0%	75.0%	See Appendix 2 for more information on financing sources. Default selected.
25	Percentage of finance after grant that is Junior Loan	Percent. <b>Default 0%.</b>	✓	✓	✓	0.0%	0.0%	0.0%	0.0%	See Appendix 2 for more information on financing sources. Default selected.
26	Percentage of finance after grant that is Subordinated Debt	Percent. <b>Default 0%.</b>	✓	✓	✓	0.0%	0.0%	0.0%	0.0%	See Appendix 2 for more information on financing sources. Default selected.
27	Percentage of finance after grant that is Equity	Percent. <b>Default 25%.</b>	✓	✓	✓	25.0%	25.0%	25.0%	25.0%	See Appendix 2 for more information on financing sources. Default selected.
28	Senior Loan interest rate per year (%)	Percent. <b>Default 6%.</b>	✓	✓	✓	6.00%	6.00%	6.00%	6.00%	See Appendix 2 for more information on financing sources. Default selected.
29	Junior Loan interest rate per year (%)	Percent. <b>Default 8%.</b>	✓	✓	✓	8.00%	8.00%	8.00%	8.00%	See Appendix 2 for more information on financing sources. Default selected.
30	Subordinated interest rate per year (%)	Percent. <b>Default 5%.</b>	✓	✓	✓	5.00%	5.00%	5.00%	5.00%	See Appendix 2 for more information on financing sources. Default selected.
31	Length of Senior Loan from construction end (years)	Years. <b>Default 15 years.</b>	✓	✓	✓	15.0	15.0	15.0	15.0	See Appendix 2 for more information on financing sources. Default selected.
32	Length of Junior Loan from construction end (years)	Years. <b>Default 10 years.</b>	✓	✓	✓	10.0	10.0	10.0	10.0	See Appendix 2 for more information on financing sources. Default selected.
33	Debt Service Cover Ratio required by bank/s	Number. <b>Default 1.30. Does not drive any calculations.</b>	✓	✓	✓	1.30	1.30	1.30	1.30	See Appendix 2 for more information on financing sources. Default selected.
34	Senior lender requires Debt Service Reserve Account	Drop down (Yes,No). <b>Default is Yes.</b>	✓	✓	✓	Yes	Yes	Yes	Yes	See Appendix 2 for more information on financing sources. Default selected.
Discount rate										
35	Discount rate for NPV and also for calculation of impairments with Joint Venture	Percent. <b>Default 6%</b>	✓	✓	✓	6.0%	6.0%	6.0%	6.0%	Default selected. See Appendix 2 for further explanation on impairments.

Taxation assumptions										
36	Corporate tax rate for Community investment	Percent. <b>Default is 0% as assumption is that Community does not pay corporation tax.</b>	✓	✓	✓	0.0%	0.0%	0.0%	0.0%	Default selected.
Only relevant for Joint Ventures - calculations used to work out payments to the Community and Other Investor after any SPV loans have been paid										
Development costs										
16E	Project specific development costs for the project paid by Other Investor with loans - see worksheet 'Development Costs'			✓				Same assumption for scenarios 3 and 4 that £590,571 of project specific development costs paid by Other Investor split:		As explained across.
16F	Project specific development costs for the project paid by Other Investor with cash reserves/ equity - see worksheet 'Development Costs'			✓				<ul style="list-style-type: none"> <li>£561,042 loan,</li> <li>£29,529 equity</li> </ul>		As explained across.
16F	What 'profit/s' is the Other Investor making on any charges to the Community? (needed for book value asset valuation) - see worksheet 'Development Costs'			✓				Same assumption for scenarios 3 and 4 that +£30,000 of profits made by Other Investor.		As explained across.
Construction costs										
17B	Total construction costs (only relevant for Joint Venture) which includes any 'Quasi equity' payments made by the Community and the Other Investor, and those financed by a SPV loan - see worksheet 'Construction Costs'			✓				Assumption total construction costs are £7,300,006.		As explained across.

Development phase finance										
37	Development phase finance	Assumes Other Investor and Community (if relevant) finance development costs themselves (i.e. independently pay off any capitalised interest costs).			✓					The User cannot change this assumption.
Construction phase finance										
38	If Community and developer pay some of the project specific construction costs, then does the JV (which will be a SPV) borrow any money?	Drop down (Yes, No). <b>Default No.</b>			✓	No	No	No	Yes	Scenario 4 is the one with the SPV drawing a loan for 50% of the total project specific development and construction costs.
Split between the different financing sources										
39	Percentage of JV investment that is Senior Loan	Percent.			✓				50.0%	Scenario 4 is the one with the SPV drawing a loan for 50% of the total project specific development and construction costs.
40	'Quasi Equity' (split in proportion of ownership between Community and Other Investor)	Percent.			✓			100.0%	50.0%	Scenario 4 is the one with the SPV drawing a loan for 50% of the total project specific development and construction costs.
JV Senior Loan										
41	JV Senior Loan interest rate per year (%)	Percent. <b>Default 6%</b>			✓	6.00%	6.00%	6.00%	6.00%	Default selected.
42	Length of JV Senior Loan from construction end (years)	Years. <b>Default 15 years</b>			✓	15.0	15.0	15.0	15.0	Default selected.

43	Debt Service Cover Ratio required by bank/s lending to the JV	Default 1.30. Does not drive any calculations.		✓	1.30	1.30	1.30	1.30	Default selected.
44	Senior lender requires Debt Service Reserve Account	Drop down (Yes,No). Default is Yes.		✓	Yes	Yes	Yes	Yes	Default selected.
<b>Quasi equity</b>									
45	Override for year from which 'Quasi equity' starts to be repaid (years)	Years (minimum 1 if starts at commissioning). Default is blank, meaning repaid in last five years.		✓			1	1	To approximate the repayment profiles in the Split Ownership and Shared Revenue solutions it is assumed JV 'Quasi equity' starts to be repaid from operations commencement.
<b>Taxation</b>									
45	Corporate taxation rate for SPV	Default 20% (as assumed limited company)		✓	20.00%	20.00%	20.00%	20.00%	Default selected.

### Box 3: Solutions to JV repayment profiles

- ▶ When the Joint Venture solution is selected depending on the SPV debt [ 39 ] : ‘Quasi equity’ [ 40 ] ratio, and the year the ‘Quasi equity’ starts being repaid [ 45 ] I can get years where there are overdrafts in the Joint Venture model?

*Depending on the Cash Flow Available for Debt Service (CFADS) amount (i.e. revenues less operating cash flows and taxation), there is a limit to how much money can be used in each period for servicing interest payments, loan repayments and ‘Quasi equity’ repayments (but not dividends as dividends are only released when there are sufficient cash reserves and profits).*

*Typically, challenges arise in the first few years of operations, and fall away in later years as CFADS rises by inflation on electricity generation and any Government support. Ways to try to solve problems include (a) increasing the debt: ‘Quasi equity’ amount, (b) if possible increasing the length of the SPV loan, (c) if possible negotiating a lower interest rate, and (d) pushing back ‘Quasi equity’ repayments.*

## 5.2 Outputs resulting from the four scenarios

The **HIE Indicative Shared Ownership Project Finance Model** provides a number of outputs in the ‘Outputs’ worksheet that can be useful to understand the scale of the costs and returns that can be expected from the proposed project.

For information, some Users may find that when they change input numbers there are no visible changes in ‘Outputs’ worksheet. This is probably because different computers have different default settings for whether Excel will automatically calculate numbers. If the numbers do not change pressing the [F9] function key should calculate the numbers in the ‘Outputs’ worksheet and other worksheets.

### 5.2.1 Summary of metrics shown in the ‘Outputs’ worksheet

Table 2 is a screenshot of the ‘Outputs’ worksheet for Scenario 1 (the Split Ownership example). The four most important areas are highlighted in red boxes - □ . The Joint Venture ‘Quasi equity’ dividends, overdrafts, Debt Service Cover Ratios (explained two pages over) and whether there is a DSRA is shown at the bottom of the ‘Outputs’ worksheet.



These four are:

- i. **Overdraft needed?** In the 'Model Check' section of the '**Outputs**' worksheet there are checks to see whether there is ever a need for an overdraft, and if so the highest overdraft value required and whether the overdraft remains outstanding at the end of the project. If an overdraft is required cell G58 of the '**Outputs**' worksheet will show 'Problem.'

An overdraft will arise if there are periods where cash inflows from power generation are not enough to cover all cash outflows (e.g. interest and principal repayments, operating costs and tax payments) and there is not enough spare cash held in the project bank account<sup>3</sup>. Having an overdraft in a project is problematical for two reasons, firstly will the Community be able to secure an overdraft facility, and secondly how will financing commitments (especially to Senior and Junior loan financiers) be met? For financiers tend to get concerned if the model shows an overdraft is needed in any period. This is not to say if the project does not do as well as anticipated banks may then be prepared to offer an overdraft for a short period of time or 're-sculpt' (i.e. re-profile) the debt repayments, but financiers are unlikely to be comfortable with overdrafts being modelled at the outset of a project.

- ii. **Debt Service Cover Ratios.** Bank loan agreements normally stipulate a number of covenants, which are requirements that need to be met for loans to be offered. A very common covenant is to pass defined Debt Service Cover Ratio (DSCR) tests. The DSCR is the ratio of cash available for debt service divided by the interest and principal repayments in that period.

If the ratio is ever less than one this means that the project would not have enough money in a period to pay a bank the money it owes, and would default on its loan unless there is spare money in the Community's bank account or a Debt Service Reserve Account (see Appendix 2 for more information). To give banks comfort that projects will have enough cash to service the loan banks will typically require DSCRs between 1.30 and 1.50 in every loan period. Whilst Users can enter in the required number in Input number [ 33 ], the default value is 1.30.

---

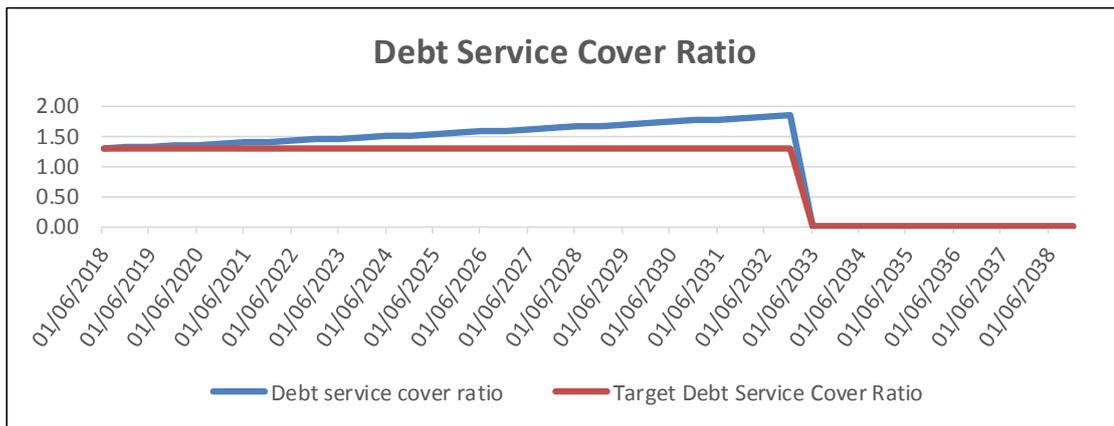
<sup>3</sup> The **HIE Indicative Shared Ownership Project Finance Model** has been set up so that any spare cash in the model is automatically released to shareholders, unless the project is still reporting cumulative accounting losses. As a gross simplification the main differences between a cash flow statement and an income statement are the cash flow statement:

- only includes actual cash inflows and outflows, whereas the income statement includes the costs and revenues that have been accrued in that period even if cash has not passed hands, e.g. companies may be given 30 days to pay for goods received; and
- includes all payments to banks (whether interest or principal repayments), whereas the income statement excludes principal repayments but includes expenses for depreciation of the assets.

It is not uncommon for renewable energy projects to report accounting losses in the early years of operations as typically depreciation expenses will be larger than the principal repayments to banks, and therefore the company will not be able to release cash reserves it may be holding. This is because if banks require a loan to be paid off over a period of time with equal repayments in each period (like many mortgages for houses) in the early periods most of the payments to banks will cover interest costs and only a small amount of principal repayments.

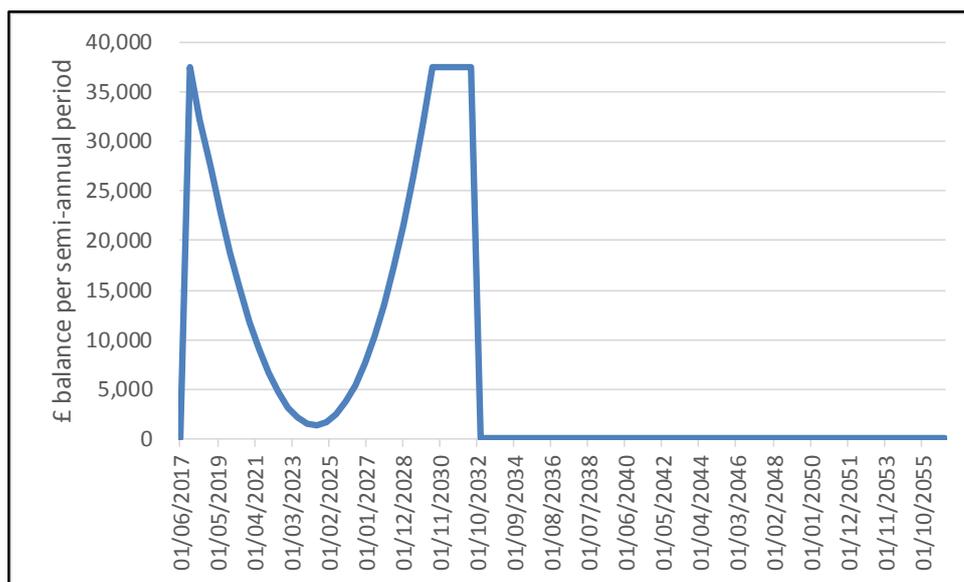
With a defined value Users should look at the DSCR graph to see if the DSCR is above the target DSCR value. If it is not above the target value in all periods it is still possible that a bank may be prepared to lend to a project so long as the average DSCR is above the target value and the DSCR is only below the target value in a few periods. To accept this, banks may agree when signing the loan agreement to ‘sculpt’ the repayment profile so less money is paid in earlier years and more in later years. Alternatively, the bank may offer a smaller loan. The DSCR in Scenario 1 has a minimum of 1.30, and the average DSCR is 1.56. It is shown graphically in Figure 3.

**Figure 3: Graphical output of DSCR from the baseline example project**



As explained above, a DSRA can help the Community needing to access an overdraft. For example, in Scenario 1 a DSRA is selected in input [34]. If the number of 7.4p/kWh is entered in cell K27 instead of 12p/kWh a DSCR of only 0.86 results, but because the project does not have any junior loans or subordinated debt the DSRA is drawn down but does not reach zero. This is shown graphically in Figure 4.

**Figure 4: Graphical representation of DSRA avoiding the need for an overdraft when the Scenario 1 export price drops to 7.4p/kWh**



- iii. **Equity payments.** There are different structures communities may have for paying dividends, which for convenience are called ‘**Distributions to equity**’. However, normally Community projects will donate these ‘Distributions to equity’ for charitable causes, so communities will be interested to understand the equity return over the life of the project. This is commonly done with an Equity Return/ IRR calculation. Figure 5 shows the Scenario 1 HIE **Shared Ownership Project Finance Model** is 14.16%, but this model is based on the community having £239,990 of spare cash to invest in the project.

**Figure 5: Equity return from the baseline example project**

Equity returns*		Project returns (pre-finance pre-tax)	
Equity IRR	14.16%	Project IRR	11.07%
Distributions to equity	£1,184,538	Net Present Value at 6%	£448,666
Payback from operations	10.0 years	Payback from operations	9.0 years

An IRR is a formula that works out the Net Present Value of all equity injections and receipts (‘Distributions to equity’ and the repayment of shares at the end of the project) from a project to equal zero. It means if the Community group invests its own cash reserves (maybe from profits from another community venture) at the start of the project the equivalent annual return will be the Equity IRR percentage number shown.

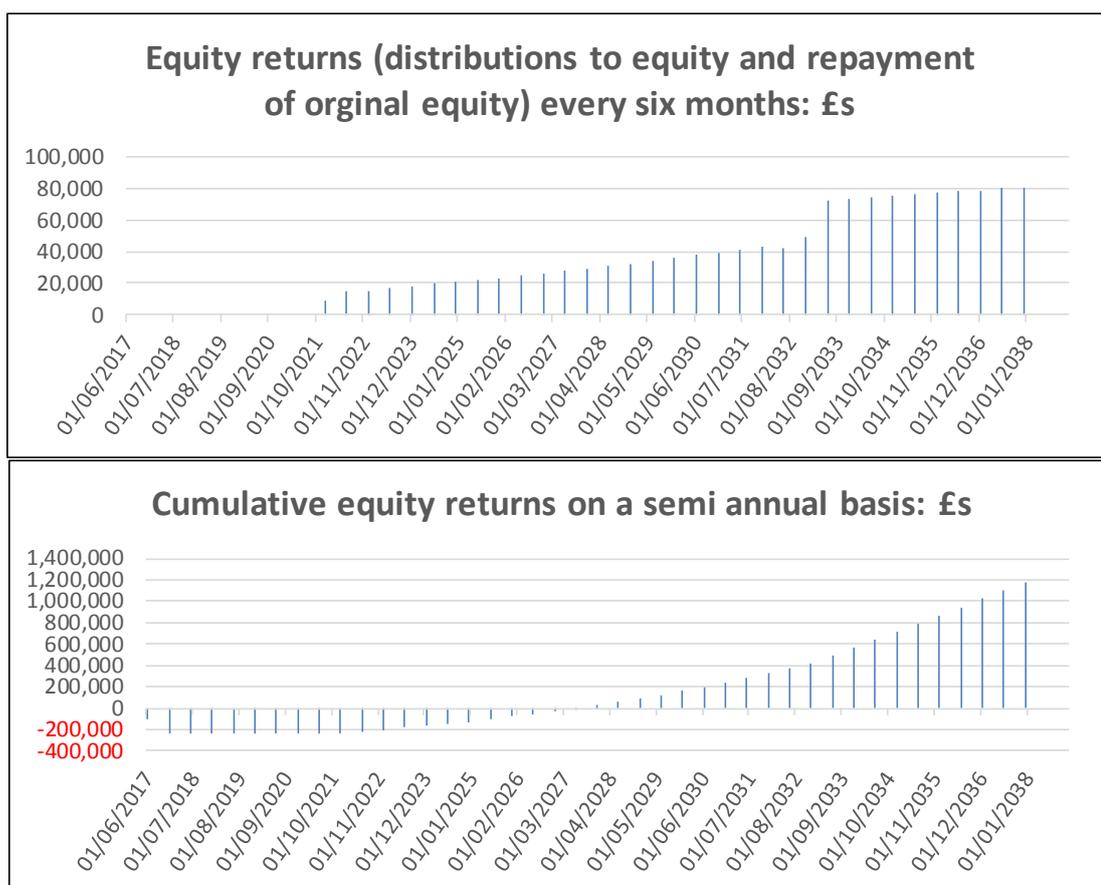
The Project IRR is the annual return on the project before any finance costs (e.g. capitalised interest, interest repayments and ‘Distributions to equity’) are considered, taking account of project costs and revenues. The Project IRR calculated in the model is pre-tax. The equity IRR will nearly always be higher than Project IRR.

As the Community’s investment and the Other Investor’s investments are considered separately the financial returns the Community could expect to see from their investment over the length of a project are shown as the total ‘Distributions to equity’ in cell D80 of worksheet ‘**Output**’ and in rows 159, 228, 275 of worksheet ‘**Community financial calcs**’. These are the indicative ‘Distributions to equity’ a Community could expect to receive dependent on what percentage of equity has been invested and whether the project goes to plan. If costs (capital, project specific operating costs or Community specific operating costs) are higher than anticipated, or the Government support, electricity prices or the kWh of electricity generated is lower than expected the returns will be lower.

Figure 6 summarises the cumulative equity returns (‘Distributions to equity’ and repayment of original equity) over the project period, that is, the financial returns the Community can expect.

For many projects that are funded with a combination of debt and equity, the Distributions to equity will tend to be quite low in the early years and increase significantly in the latter years as debt normally needs to be repaid after 10-15 years (Inputs [31] and [32]). This is why the Equity Return IRR needs to be treated with caution. In the example given, the project will not pay back 14.16% in each year, but rather the returns in the initial years will be much lower than 14.16% and the returns for the last few years much higher than 14.16%. It is also important to understand that having a greater amount of investment from cheaper sources

Figure 6: Profile of equity returns in Scenario 1



(e.g. a bank), means the equity injection is less, the dividends will be less but the IRR will be higher.

If the Community is considering investing in a renewable project using its own cash reserves, this should be compared to alternative investments that the Community might make. If the alternative investment was in a long term savings account, then returns could be in the range of 2-3% (obviously dependent on the Bank of England base rate and market sentiment). If the alternative investment is placed in some form of investment fund over 5-10 years, this is higher risk and the Community may receive a higher return. The average annual return from the FTSE-100 over the last 8 years has been 6%.

- iv. Uses of cash.** The easiest way to understand what is happening on the project is to look at the Uses of cash graph. Figure 7 shows the uses of cash for Scenario 1. Although the model does not show Figure 8 shows the opposite – where the cash comes from. As can be seen the shape of each chart is identical. What is happening is that in the earlier years there is insufficient accounting profit so the cash that could have been distributed is in effect ‘trapped’ in the project (the orange area in the inflows chart). Then this cash is slowly released in later periods (the green area in the sources chart). There is also a cash release when the Debt Service Reserve Account is no longer needed.

Figure 7: Scenario 1 uses of cash in each semi-annual operating period

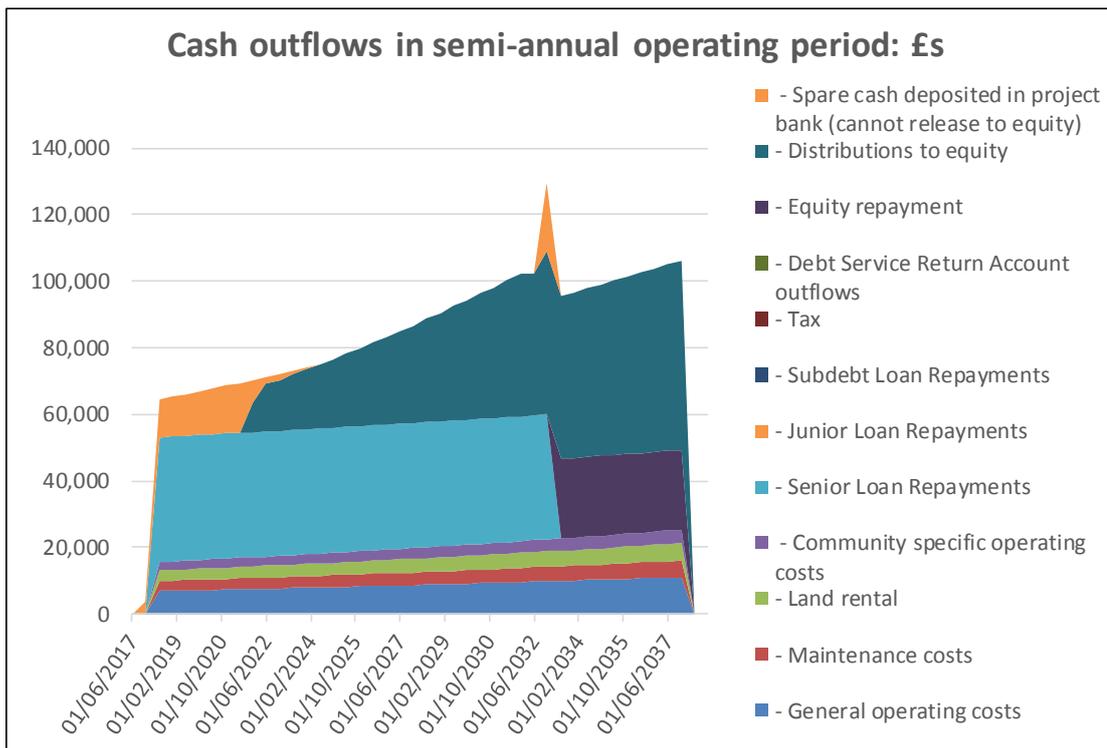


Figure 8: Scenario 1 sources of cash in each semi-annual operating period

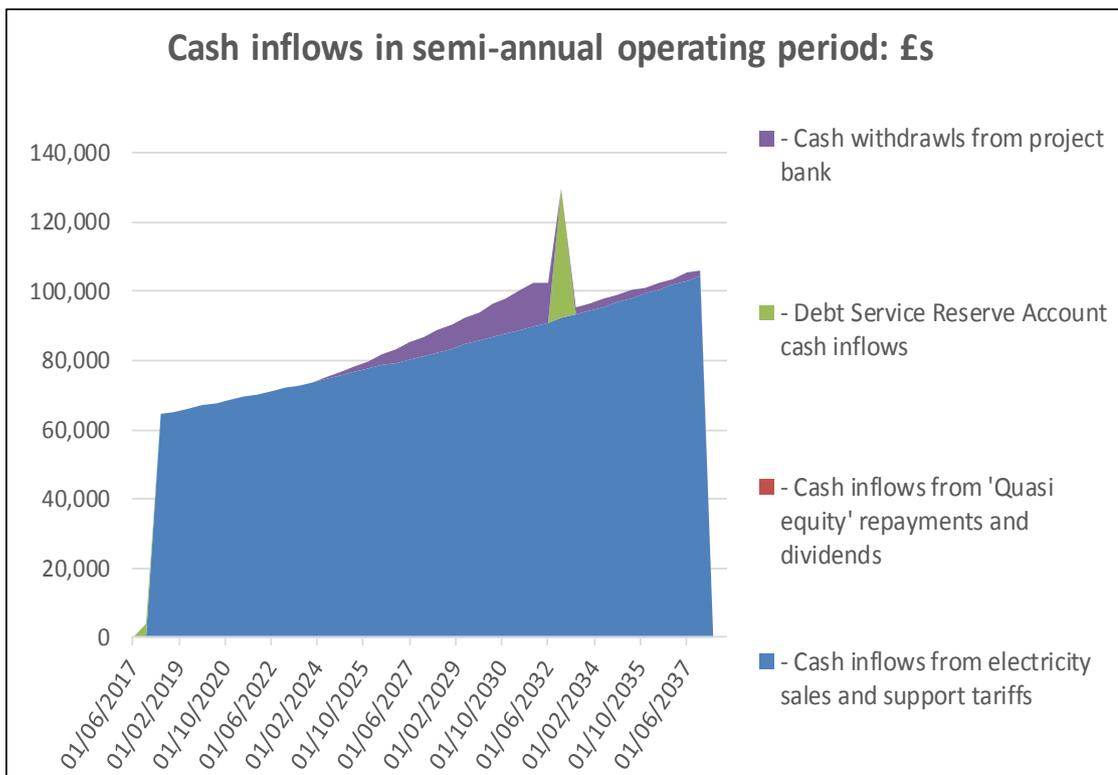


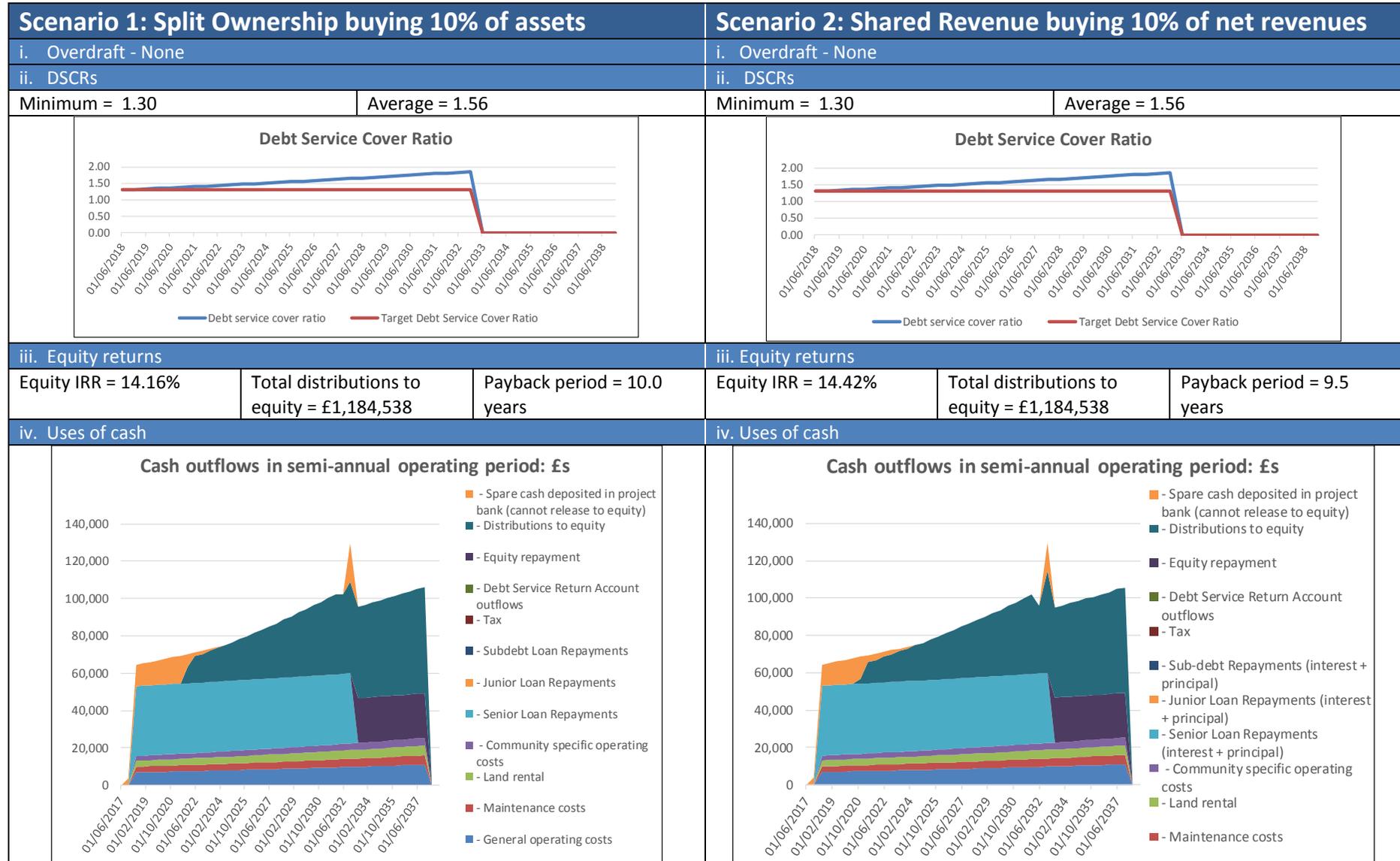
Figure 7 shows that there is sufficient headway between the cash receipts and the outflows for operating costs and loan repayments that an overdraft is not required. The 'Distributions to equity' later in the project match those show in Figure 6 above.

### 5.2.2 *Summary of results from the four scenarios*

The headline messages from the results shown in Figure 9 is that the Split Ownership and Shared Revenue results are nearly identical, the only difference being the timing of the payment of Distributions to Equity. The reason is because the asset value for the Split Ownership deal excludes capitalised interest on the project-specific development costs and construction costs, whilst the Shared Revenue asset value includes capitalised interest. The reasons for this have been covered in Section 3.2.1 and Appendix 1. Therefore, the annual amortisation profile will be greater than the annual depreciation profile for the split ownership deal enabling Distributions to equity to occur sooner.

The headline message for Scenario 3 (the Joint Venture funded by 90% 'Quasi equity' from the Other Investor and 10% from the Community) is that the cash flows are less, as the Community is only receiving in their share of 'Quasi equity' repayments and dividends which have been taxed at a corporation tax rate of 20%. The tax results in a c.14% reduction in the net project cash flows for the community. This is shown in Figure 10.

Figure 9: Key metrics for the four scenarios



Scenario 3: 10% share in joint venture			Scenario 4: 19.99% share in Joint Venture 50% SPV debt		
i. Overdraft = None			i. Overdraft		
ii. DSCRs			ii. DSCRs		
Minimum = 1.13		Average = 1.34	Minimum = 1.28		Average = 1.75
<p><b>Debt Service Cover Ratio</b></p>			<p><b>Debt Service Cover Ratio</b></p>		
iii. Equity returns			iii. Equity returns		
Equity IRR = 10.70%	Total distributions to equity = £815,578	Payback period = 12.0 years	Equity IRR = 18.09%	Total distributions to equity = £1,943,475	Payback period = 8.5 years
iv. Uses of cash			iv. Uses of cash		
<p><b>Cash outflows in semi-annual operating period: £s</b></p>			<p><b>Cash outflows in semi-annual operating period: £s</b></p>		

**Figure 10: Project specific cash flows (Split Ownership/ Shared Revenue) v. Joint Venture Scenario 3 (i.e. excluding community specific operating costs)**

	Split Ownership / Shared Revenue	Joint Venture scenario 3
<b>Operational cash inflows</b>	<b>£3,313,578</b>	<b>£ -</b>
<b>Project specific operating cash outflows</b>		
• General operations costs (ex. maintenance & land rental costs)	-£351,331	£ -
• Maintenance costs	-£156,147	£ -
• Land rental costs	-£165,679	£ -
<b>Total project specific operating costs</b>	<b>-£673,157</b>	<b>£ -</b>
<b>Investing cash inflows</b>		
Investment dividends from Joint Venture	£ -	£1,475,842
'Quasi equity' repayment from JV	£ -	£795,620
<b>Total investing cash inflows</b>	<b>£ -</b>	<b>£2,271,461</b>
<b>Net project specific cash flow</b>	<b>£2,640,422</b>	<b>£2,271,461</b>

The conclusion for Scenario 4 is that as the SPV secures a loan for 50% of the project costs the total corporation tax paid by the SPV will be less than Scenario 3. Then because the 'Quasi equity' contributions by the community are the same (£876,731 for the project related development costs and construction costs) the contribution is actually equal to a 20% shareholding, which has been reduced to 19.99% so the investment is still treated as a financial asset. Appendix 2 explains the different accounting rules that need to be applied if there is a 20% or greater share.

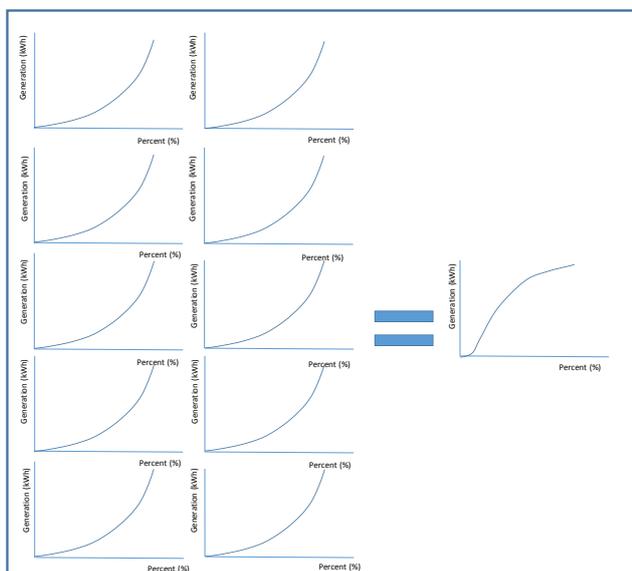
## 6. Scenario Modelling – what it is and why is it used?

This Section introduces scenario modelling in the **HIE Indicative Shared Ownership Project Finance Model**. Scenario modelling is an assessment of what could potentially happen or change in the future as projects may not proceed as planned. It helps determine the impact of particular variables on the financial performance of the renewable energy project. Scenario modelling is not a prediction of what will happen, but an assessment of potential variations in project variables. Another term financiers use is sensitivity testing. Sensitivity testing and scenario modelling are essentially similar, except sensitivity tests normally just show the impact on a project's financial performance of changing one variable, whereas scenario analysis could combine together two or more sensitivities, e.g. operating costs are higher than anticipated and wind speeds are lower than anticipated.

Financiers are likely to ask communities to present a number of sensitivities or scenarios to get comfortable that even in these downside sensitivities or scenarios financiers can still get paid.

The **HIE Indicative Shared Ownership Project Finance Model** can be run on any of seven scenarios to be input by the User. As already shown in the four scenarios in Section 5 above to be able to run the model using one of the alternative scenarios, the User is required to select the radio button corresponding to each scenario in row 2 of worksheet '**Non-time based inputs**' or in row 4 of worksheet '**Outputs**' (selecting the scenario in either sheet automatically updates the other sheet). Once the desired scenario is chosen, the model will calculate the results and provide these in the 'Outputs' tab, unless the version of the Excel on the User's computer has been configured to not automatically update calculations, in which case the User is reminded to press the **[F9]** function key.

Typical scenarios to run will include the P50 model (the average energy yield predicted for a site), the P90 model (the lower energy projection that will only be missed in the long run every one in ten years). Lenders will commonly want to know what the DSCR is with a P90 energy yield, i.e. once every 10 years what level or lower would the DSCR be. Financiers are also keen to see the ten year P90 value. A 10-year P90 is the prediction that the total electricity generation from a project over 10 years would be greater than that number in one out of ten decades. Therefore, there will be a difference between a one year P90 and a 10-year P90, as shown.



Therefore, having robust technical assessments of energy resource is key.

Other scenarios will commonly include different inflation rates, different operating costs and potentially different development and construction costs.

## APPENDIXES

Appendix 1: Accounting assumptions for the different Shared Ownership structures

Appendix 2: Finance sources available to communities

## APPENDIX 1: Accounting assumptions for the different Shared Ownership structures

The following table summarises the accounting assumptions that have been made. As explained in the Disclaimer, the Shared Ownership model is an indicative early stage financial model to help Community groups understand the potential profitability of shared ownership Community renewable investments. If the results from the model are positive the User is recommended to seek their own financial advice from a FCA authorised adviser, especially around the accounting assumptions and tax assumptions, for HIE, the Scottish Government, Local Energy Scotland and Ricardo Energy & Environment hold no liability for any loss or damage arising from any reliance on or use of the information generated by this HIE Model by any Community group, lender, investor or other interested parties.

Figure 11 summarises the accounting assumptions used, with more detail in the subsequent sub-sections.

**Figure 11: Summarised accounting assumptions used**

	SO	JV(<20% share)	SR
Initial asset value for non-project related development costs	No asset created and expense all costs and expense all interest incurred		
Initial asset value for project-related development costs and construction costs	Capitalise costs, but expense interest incurred		Capitalise costs and capitalise interest incurred.
How then value over time	Straight line depreciation over the asset life	Lower of initial asset value and discounted future 'Quasi Equity' dividend and repayment streams	Straight line amortisation over the asset life

### Initial asset valuation

The asset value that will be included in the accounts for the Community Investor at the date of construction completion/ operations start for all three Shared Ownership solutions assume that none of the non-project related development costs the Community will incur (e.g. for due diligence into the proposal from the Other Investor, or for finance raising) can be included in the asset value. Therefore, all these costs will be expensed (both the actual cost and then any rolled up interest) in the income statement. If the community will not pay corporation tax, then the difference between expensing or capitalising costs will only affect the cash flow statements through the timing of dividends.

If the Community Investor contributes to project specific development costs (e.g. for planning permission, wind assessments, project related due diligence, negotiating deals with a preferred construction company, etc.) and then construction phase costs then these costs can be capitalised (i.e.

included in the initial valuation), but there are different approaches as to the interest costs that may be incurred to finance these two stages:

- With a Shared Revenue (SR) solution it is assumed that the Community is buying a licence to receive a share of the net pre-finance pre-tax project cash flows (also called EBITDA – Earnings before Interest Tax Depreciation and Amortisation<sup>4</sup>), and interest costs can also be capitalised.
- With the Split Ownership (SO) and Joint Venture (JV) solutions it is assumed that the asset / right to a share of profits only transfers at commissioning, so any interest costs incurred have to be expensed.

### Subsequent asset valuation

With both the Split Ownership and the Shared Revenue structures the assumption is that the assets will be depreciated (in the case of Split Ownership) or amortised (in the case of Shared Revenue) on a straight line basis each year over the asset life. FRS 102 also requires in each period that there is a test for impairment to see whether the value of the asset is in actual fact lower than the depreciated/ amortised asset value at that point in time.

With the Joint Venture the accounting implications will vary depending on the control the Community Investor has over the Joint Venture. There are different accounting rules summarised in Figure 12.

**Figure 12: Accounting rules for different Joint Venture arrangements**

Share ownership (%)	Accounting rules	
<20%	<b>Financial asset</b>	At current share price. If no liquid market at initial cost and repayments of shares less any impairments
20%-49.99%	<b>Associate</b>	Equity method of accounting where asset held at the respective percentage share of the company's net assets (assets less liabilities) plus goodwill which is amortised over time.
>50%	<b>Subsidiary</b>	Consolidate into the accounts of the Community Investor.

**The Shared Ownership model assumes that the Community Investor purchases less than 20% of the shares in the Joint Venture/ SPV. If the share of the investment is 20% or more the User should seek professional advice on how the community's investment should be accounted, for this will impact the timing of distributions to equity, although other cash payments will be the same.**

As explained in Figure 11, for Joint Ventures the assumption is that the asset value for the Community is calculated as the lower of:

Original purchase price less 'Quasi equity' repayments of shares

**OR**

The future present value of the 'Quasi equity' repayments and 'Quasi equity' dividend payments to the Community discounted by the rate in [ 36 ].

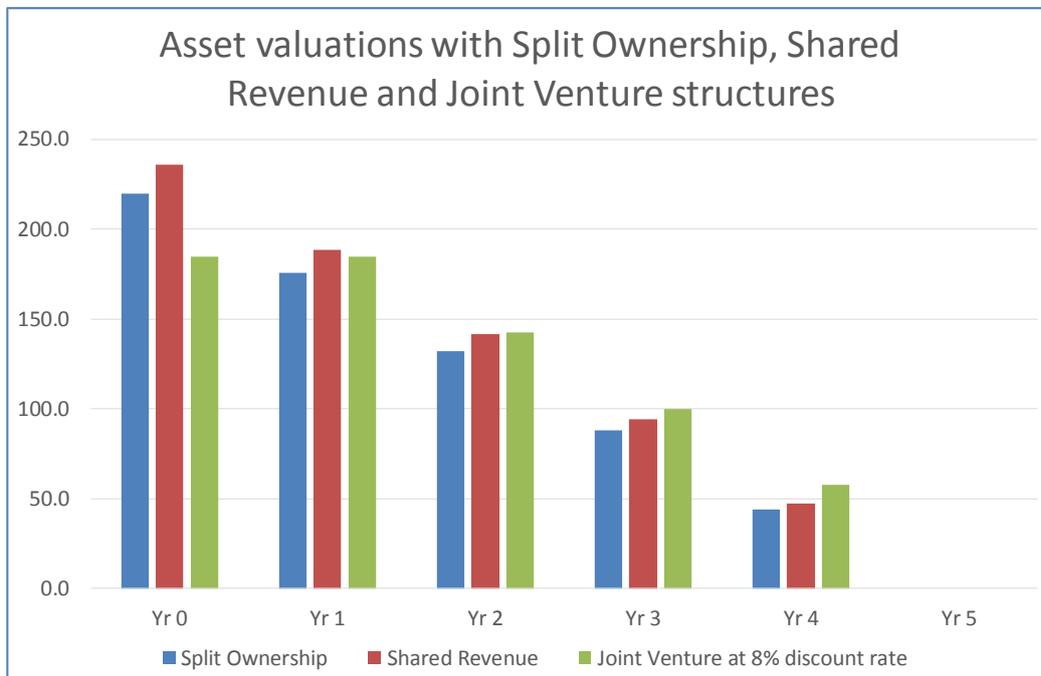
<sup>4</sup> As explained in footnote 2, whereas tangible assets (e.g. property or wind turbines) are depreciated, with intangible assets (e.g. licences and patents) the term used is amortisation.

Summary of implications

Figure 13 is another hypothetical example showing how even though even though the total Community outlay for a Split Ownership, Shared Revenue and Joint Venture projects are the same the assets would be valued quite differently.

Figure 13: Hypothetical asset valuations for the three different shared ownership options even though the initial project expenditure is identical

		TOTAL									
		SO	SR	JV							
A.	Non project related development costs	10.0	X	X	X						
	Interest incurred during development phase for non-project related development costs	2.0	X	X	X						
	Project related development costs	20.0	✓	✓	✓						
	Interest incurred during development phase for project related development costs	6.0	X	✓	X						
	Project related construction costs	200.0	✓	✓	✓						
	Interest incurred during development phase for project related development costs	10.0	X	✓	X						
	<b>Asset value at end of construction/ start of operations</b>		<b>220.0</b>	<b>236.0</b>	<b>220.0</b>						
					Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	
B.	JV 'Quasi Equity' repayment to Community	170.0	✓		0.0	42.5	42.5	42.5	42.5	42.5	
	JV 'Quasi Equity' dividends to Community	90.0	✓		5.0	10.0	15.0	20.0	20.0	40.0	
	<b>Total 'Quasi Equity' payments per year to Community</b>	<b>260.0</b>			<b>5.0</b>	<b>52.5</b>	<b>57.5</b>	<b>62.5</b>	<b>62.5</b>	<b>82.5</b>	
	Discounted value of future 'Quasi Equity' repayments and dividends @ 8%		✓		185.0	198.6	165.9	125.0	75.0		
	<b>Opening balance for JV valuations</b>										
	Additions				220.0	185.0	185.0	142.5	100.0	57.5	
	Repayment of 'Quasi Equity' from Joint Venture	-170.0	✓		0.0	-42.5	-42.5	-42.5	-42.5	-42.5	
	Impairment if value is less than discounted Quasi Equity dividends and repayments	-50.0	✓		-35.0	0.0	0.0	0.0	0.0	-15.0	
	<b>Closing balance valuation</b>				<b>185.0</b>	<b>185.0</b>	<b>142.5</b>	<b>100.0</b>	<b>57.5</b>	<b>0.0</b>	
C.	<b>Overall asset values</b>										
	Split Ownership		✓		220.0	176.0	132.0	88.0	44.0	0.0	
	Shared Revenue			✓	236.0	188.8	141.6	94.4	47.2	0.0	
	Joint Venture at 8% discount rate			✓	185.0	185.0	142.5	100.0	57.5	0.0	



What this shows is that with Shared Revenue (in red) because the interest costs on the intangible asset acquisition can be capitalised the initial asset valuation is highest. Because the discount rate is 8% the future 'Quasi equity' dividends and 'Quasi equity' repayments (in dark green) need to be initially impaired, but then are held at cost until some 'Quasi equity' is released.

## APPENDIX 2: Finance sources available to communities

In Community projects there are generally five different potential sources of finance:

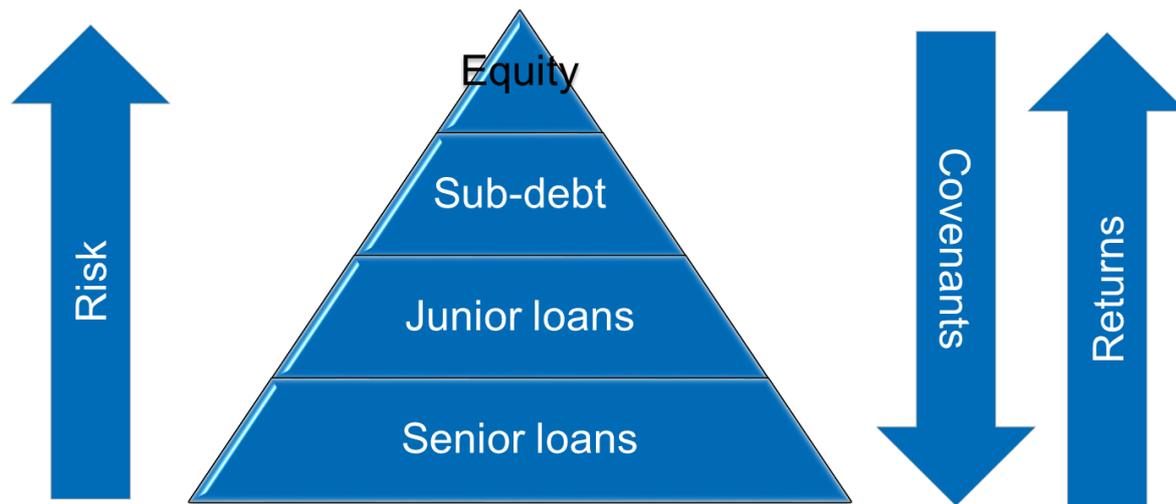
- (a) Grants, e.g. CARES, Big Lottery, Robert Owen Institute, etc.
- (b) Senior loans e.g. Assetz Finance, Barclays Bank, Charity Bank, Close Brothers, Clydesdale, CO<sub>2</sub> Sense, Leapfrog Finance, RBS, Santander, Triodos and Unity Bank,
- (c) Junior loans e.g. Abundance, Big Invest, CO<sub>2</sub> Sense, Leapfrog Finance, Local Energy Scotland and Renewable Energy Investment Fund (REIF),
- (d) Subordinated debt (Sub debt), e.g. many Community share offers are structured as sub debt in that they will pay a capped return per year (e.g. 5% per year) even though the Community shareholders may have some voting rights
- (e) Equity from the Community organisation, that may often be a very small amount of money (e.g. £10 to set up the organisation). The 'profits' on the equity injection will normally be used for charitable causes – a 'Community dividend'. If a commercial investor was investing in a project, this would be the equity from the investors.

When the Community group are looking to finance their project, it can be made up of a blend of different proportions of these different sources of finance, which are entered in the model through inputs [ 24 ] to [ 27 ]. Debt finance (senior loans, junior loans, sub debt) is repaid to the lender at a set interest rate over an agreed time period (the terms of the loan). For senior loans and junior loans, the interest rates are set in inputs [ 28 ] to [ 29 ] and the length of the loan (the 'tenor') is set in inputs [ 31 ] and [ 32 ]. For sub debt, the assumption is that the loan is repaid at the set interest rate over the life of the project. The interest rate for this loan is set in input [ 30 ]. All these loans are assumed to be repaid on an annuity basis, i.e. in every period the repayments to the lender (interest + principal repayment) are the same. This is the same as a mortgage. This means that if there is a Community share offer for £500,000, an asset that will last for 20 years and the maximum return is 5% per year then in each year the financial model determines that the repayment is £40,121. In the first year the interest component will be £25,000 and the principal repayment £15,121.

**Financiers often use the terms junior debt, sub debt and mezzanine ('in between') finance interchangeably. The important point is to understand the order different lenders have to reclaim monies in the event of a project default.**

There is an increasing risk to each lender of these different sources of finance as outlined in the following diagram. Normally this is reflected in the level of interest repayments that are made on the loan (the returns as shown in the diagram). Senior lenders have the lowest level of risk, as they are the lenders that are paid back first and if the project was to fail and would take ownership of the asset. Their interest rates are therefore generally the lowest.

Senior lenders also require the greatest level of covenants associated with the loan. For example, senior lenders will normally require a Debt Service Cover Ratio (DSCR) to be calculated (see below for information). Lenders may also require money to be set aside in a separate account (called a Debt Service Reserve Account - DSRA) to pay back the loan at times when the project might not have enough spare cash coming in, because say, it has not been a particularly windy six-month period.



**As advanced functionality, the HIE Shared Ownership Project Finance Model allows the User to have or not have a DSRA by toggling the Yes/ No drop down in input [ 33 ]. There is also this functionality for the JV as well ( [ 43 ] ).**

At the other end of the scale, those investing equity in the project are at greatest risk as they stand to lose everything should the project fail.

However, with Community projects often the returns senior lenders may require may actually be higher than the returns the Community share owners may receive. This is different to commercial deals where the subdebt interest rate will be higher than the senior rate.

Commissioned by Highlands and Islands Enterprise

Produced by Ricardo Energy & Environment Ltd

*This document was last updated December 2016*