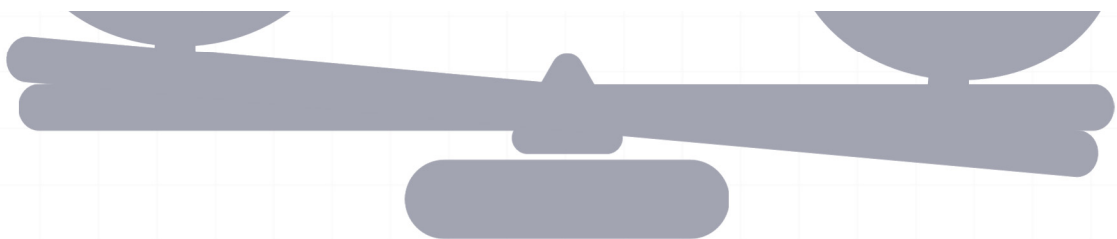




Financing and Loans

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Equity & Debt Financing

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Funding Gap

FINANCIALEDGE⁷

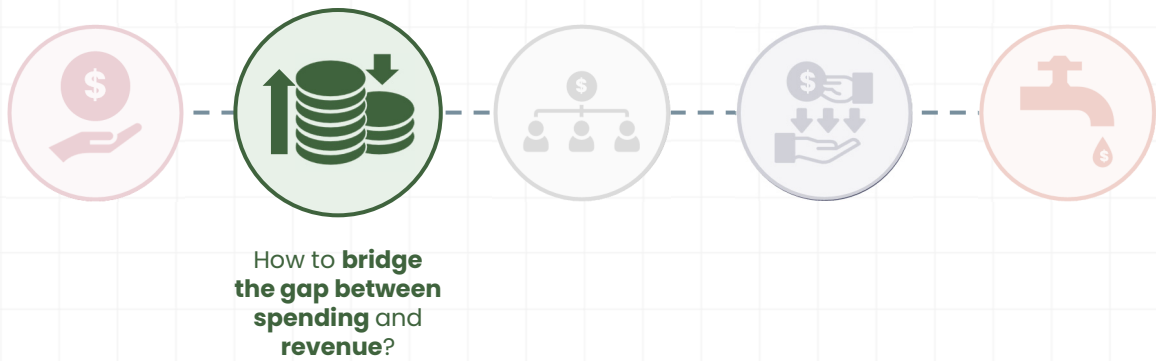
Funding Gap



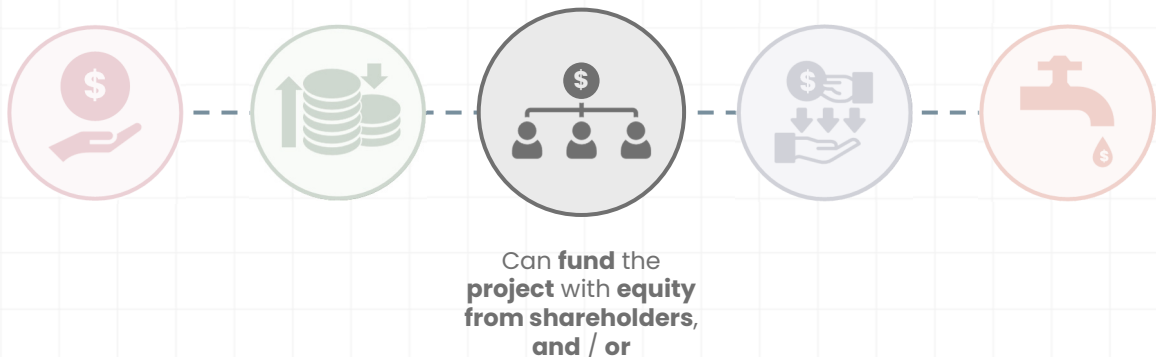
**Money is spent
on capital assets
before those
assets earn any
revenue**

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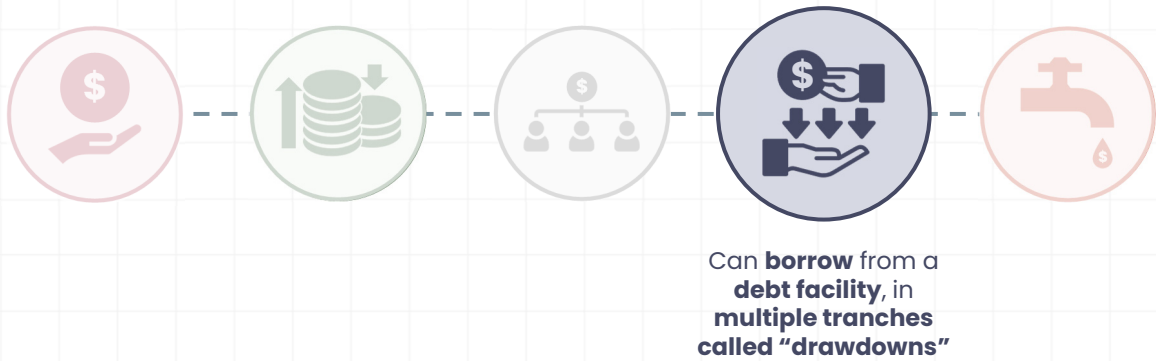
Funding Gap

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Funding Gap

FINANCIALEDGE⁷

Funding Gap

FINANCIALEDGE⁷

Funding Gap



The **order in which funding is drawn**, and then **repaid**, is known as a **"cash waterfall"**

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Equity Finance

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Normally, **equity funding** is used first, up to an **agreed limit**

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That **protects the lenders** from being **over-exposed to the project**

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Then, when the **equity funding reaches its limit**, we start to **use debt**

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They would be the **sole funders** of the **project** and would have **100% exposure** to them

Equity Finance



Sometimes, **equity & debt are drawn together** in a **set proportion**

(e.g. 50/50 – each time funding is needed, the amount is split half-equity and half-debt)



This is called “**pari-passu**”, meaning “**moving together**”: a **constant equity/debt ratio**

FORMULA

Equity used = MIN (funding needed, equity not yet used)

Equity not yet used = Total limit – amount already used

Loan or Debt Finance

Need to know or estimate when and how much debt will be drawn

Debt draw

=

IF (Funding needed > equity used, funding needed – equity used, 0)

Also need to estimate:



Interest rate



Any fees



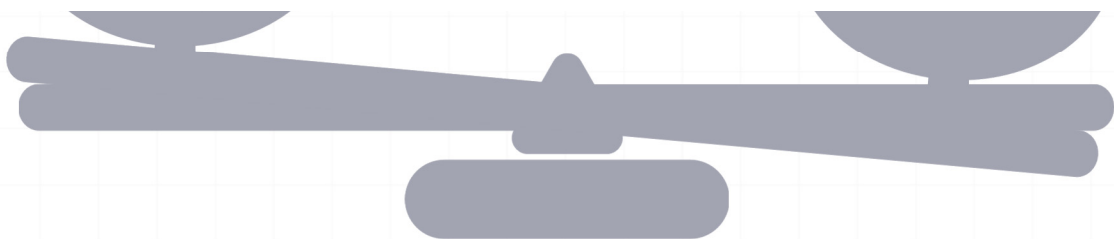
Repayment terms



The hierarchy of which debt gets repaid, in which order

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Interest



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Interest is simply **the price paid**
for **borrowing money**

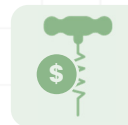
Interest rate

X

Balance of debt



From
assumptions

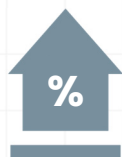


From debt
corkscrew

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During the
investment
(capex) phase of
the project, no
revenue out of
which to pay
interest



So, may have to
"capitalize" the
interest during
construction
(IDC):
i.e. add it to the
debt balance



Simply add IDC
into the
corkscrew of the
debt balance
until operations
start; interest
costs will
compound as
interest on
interest is paid



Use a flag for the
timing of when
IDC occurs

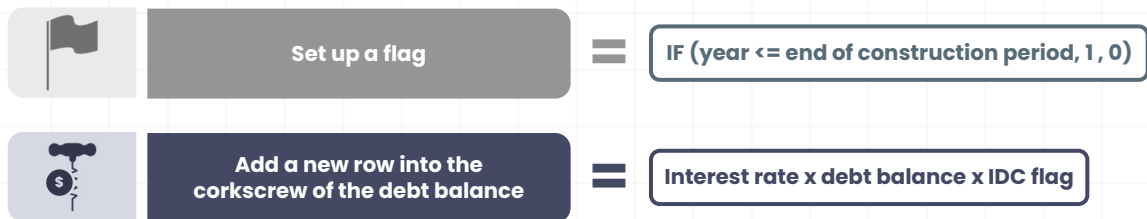


When
repayments
start, use the
balance including
IDC to calculate
repayments

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Interest During Construction

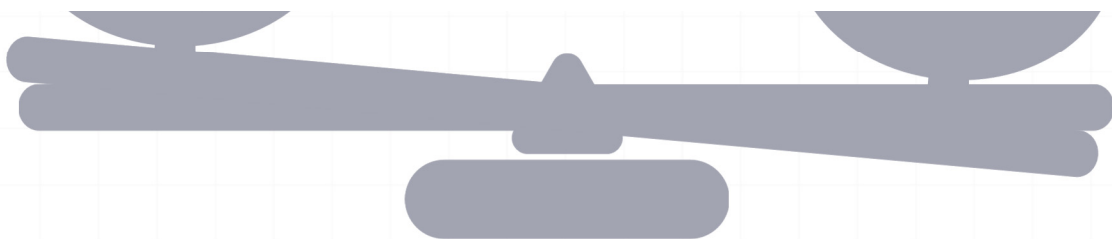
Interest during construction (IDC) will usually **occur until the end of the construction period** – because there is **no cash available to pay the interest**

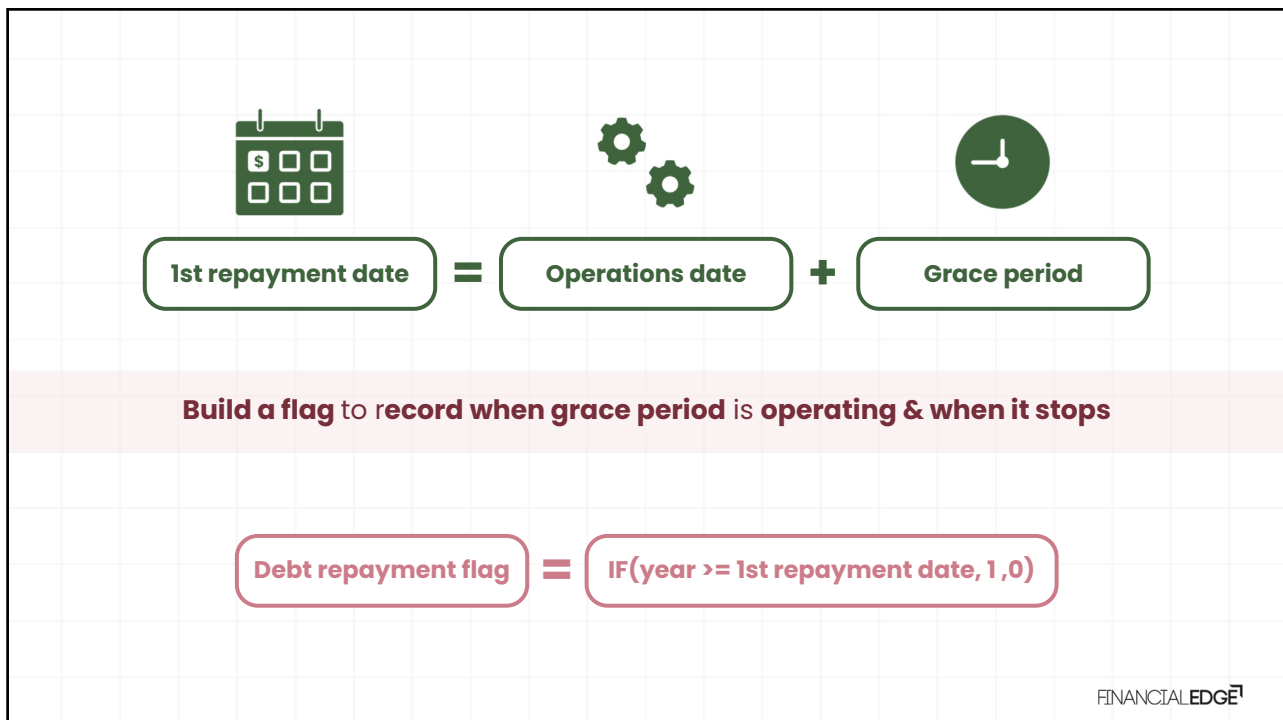
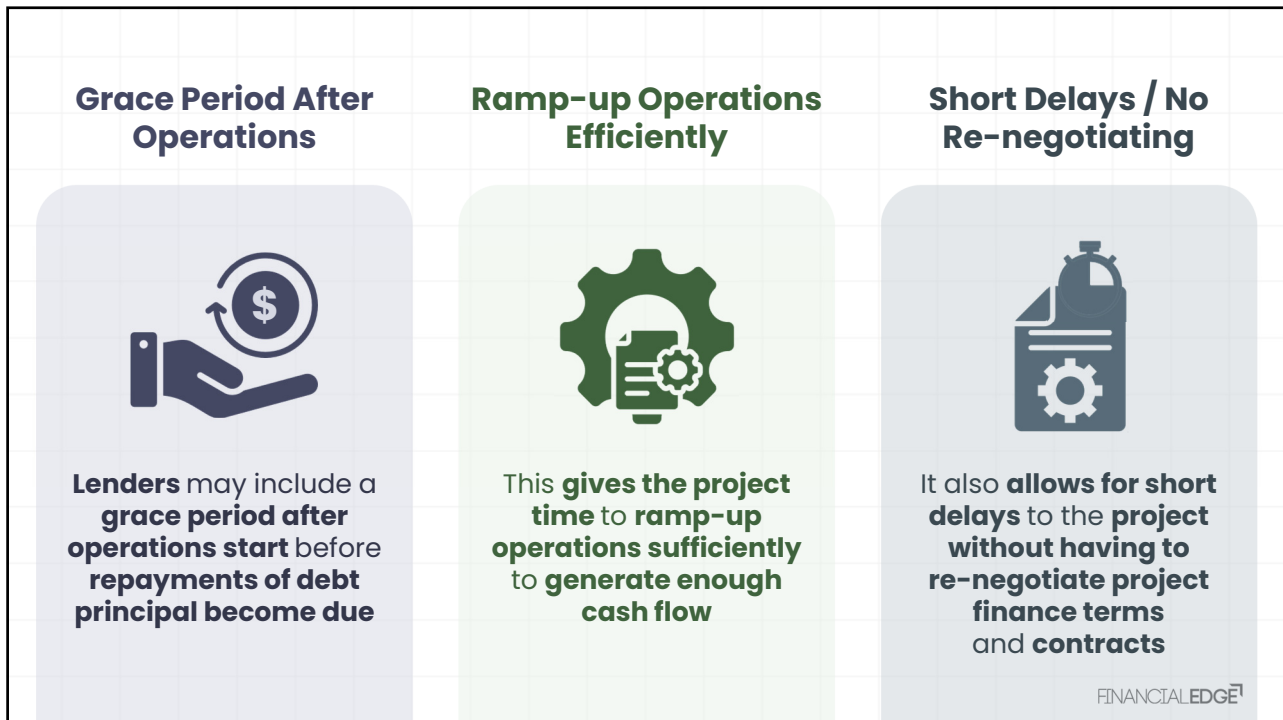


Interest costs will **automatically compound** as we **pay interest on interest**
(the **debt balance** used includes **previous years' IDC**)

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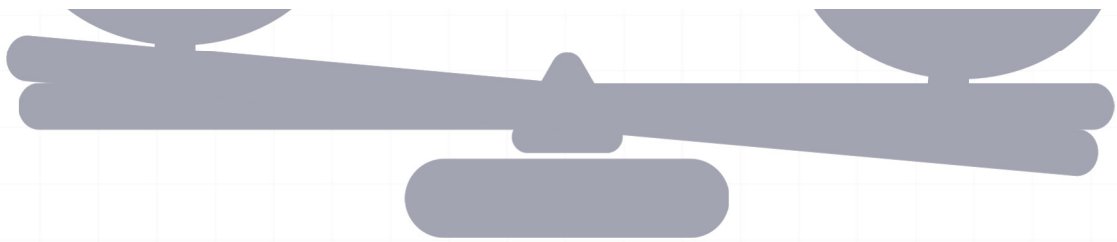
Grace Period

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Interest Rate Ratchets

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Project Lenders

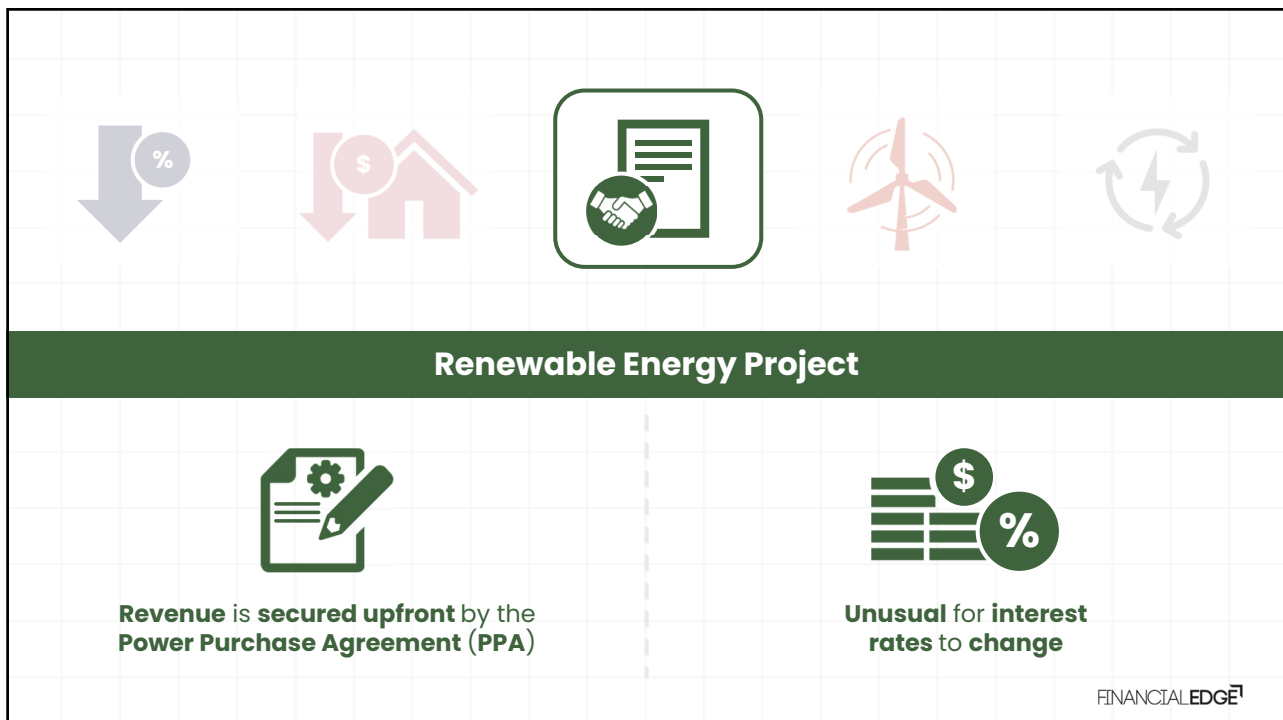
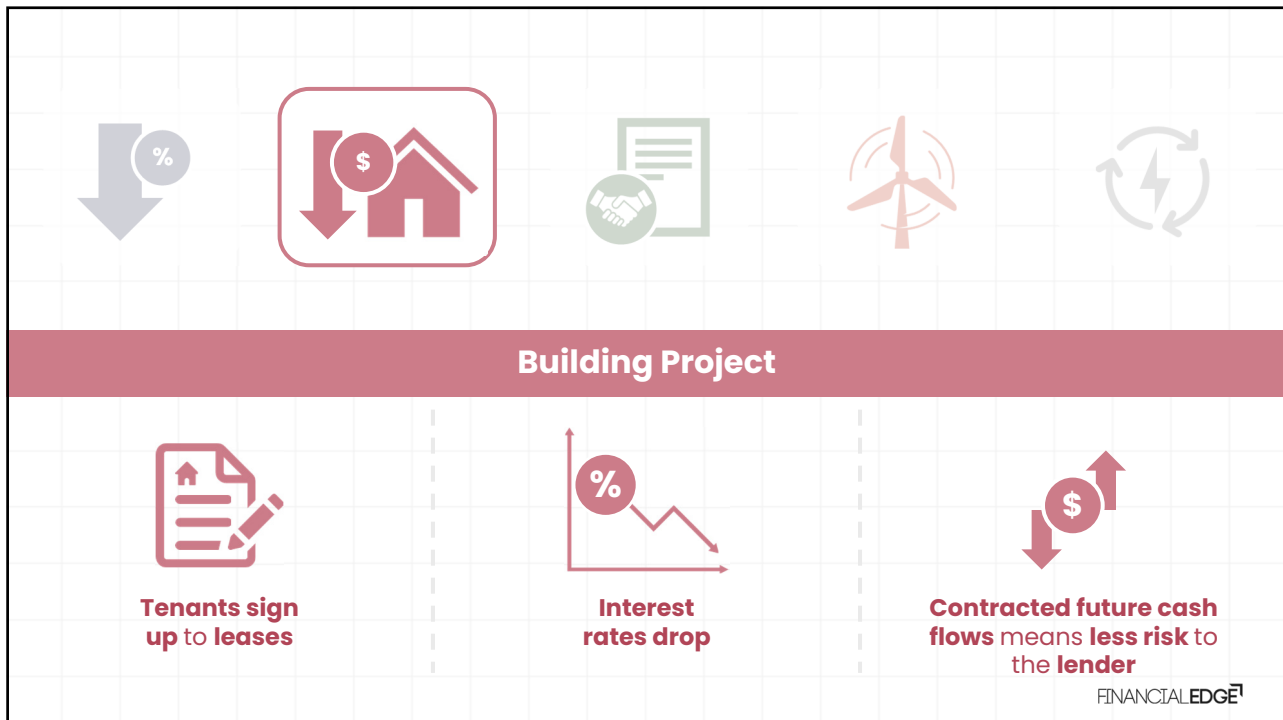


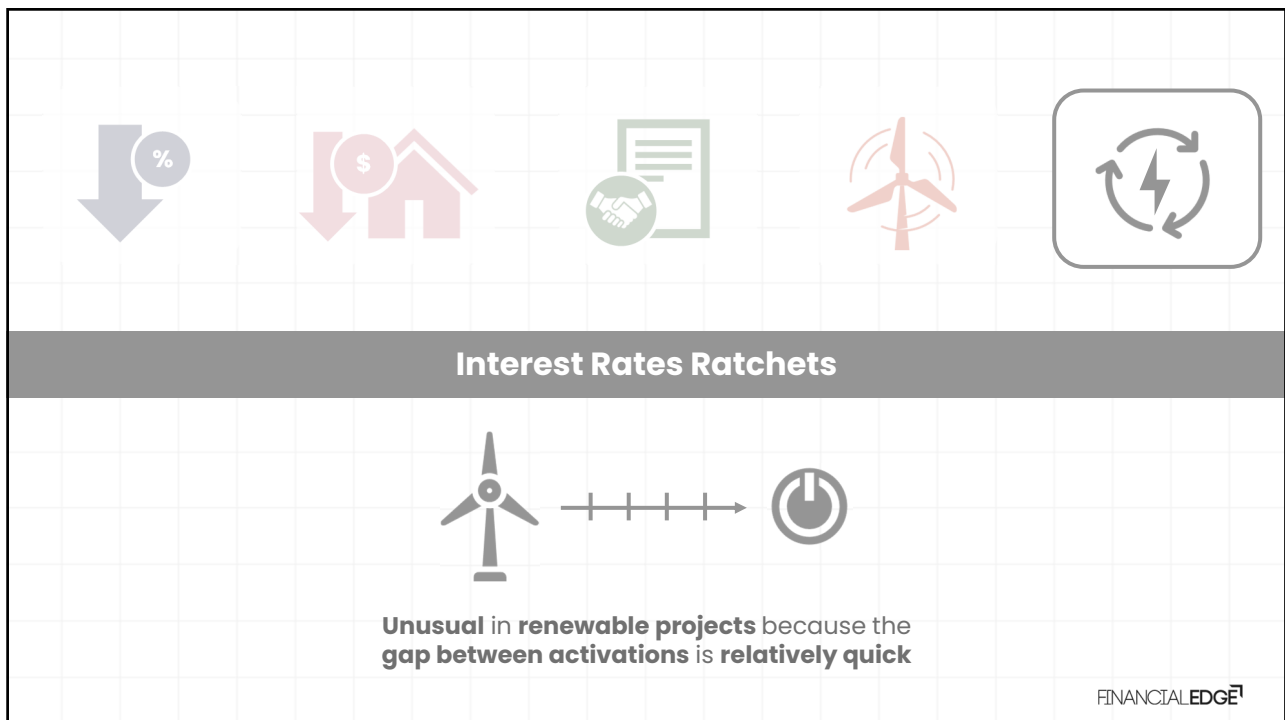
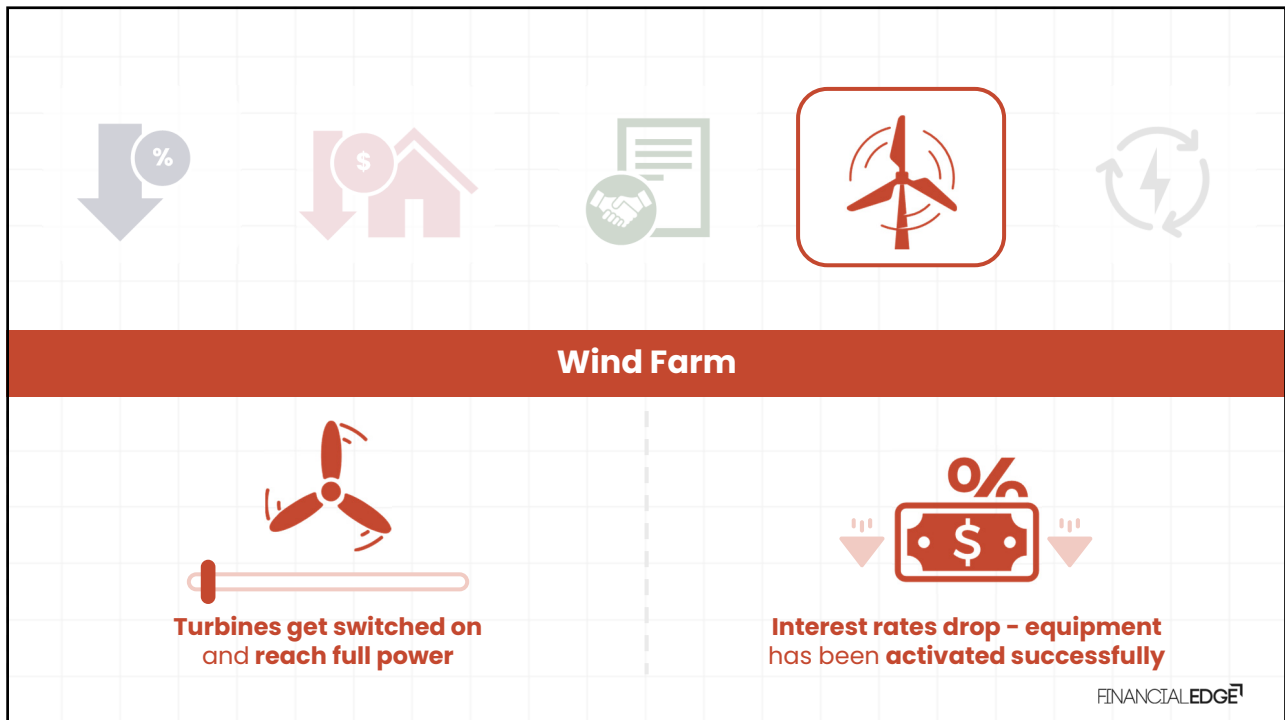
Agree to lowering
interest rates



Project earns
more revenue

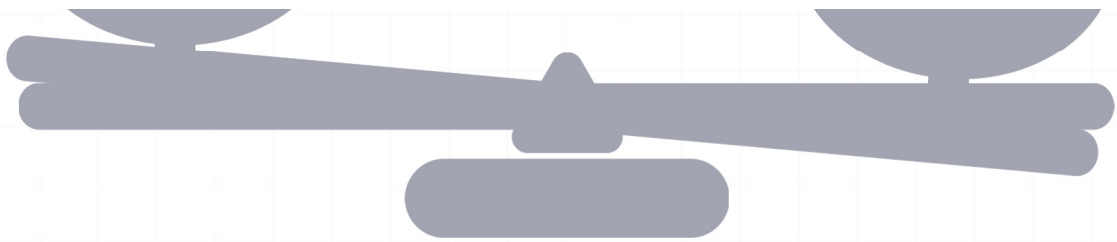
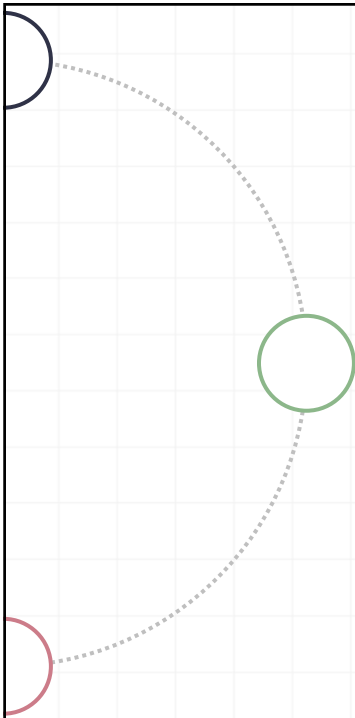
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Circular References

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Borrow to Pay Interest

If you have to **borrow to pay interest**, may end up with a **circular reference** in Excel



More Interest, More Debt

The **more interest** we have **to pay**, the **more debt** we need to **draw**



Incorrect Results

This is **dangerous**, because Excel stops working properly and could give **incorrect calculation results**

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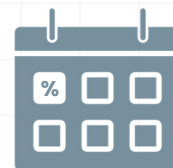
Solutions to a Circular Reference



Using iterations can help – but use a circuit breaker



Or use a **copy** and **paste** to **break the circularity**

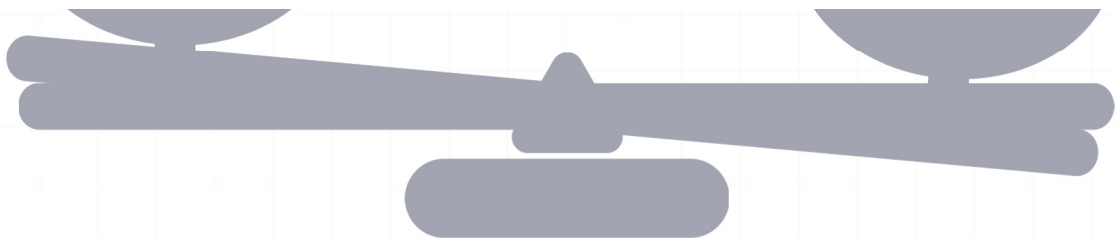


Or **work out interest** on debt at the beginning of year – not 100% accurate, but a good way to avoid a circular reference

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Debt Amortization

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A **Schedule** of Future Debt Payments

If such a **schedule is not available** from the bank, you will have to **make assumptions** to **create your own**:



If **cash flows are low**, then the **amount of payment will be set low**

Assumed % of cash flow each period

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A **Schedule** of Future Debt Payments

If such a **schedule is not available** from the bank, you will have to **make assumptions** to **create your own**:



If **cash flows** are **low**, then the **amount of payment** will be **set low**

Assumed % of **cash flow** each period

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A **Schedule** of Future Debt Payments

If such a **schedule is not available** from the bank, you will have to **make assumptions** to **create your own**:



Fixed, **straight-line** payment each period until **debt is repaid**

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A Schedule of Future Debt Payments

If such a **schedule is not available** from the bank, you will have to **make assumptions** to **create your own**:



Use PMT
function in **Excel**

An **amortising payment**: amount including interest that **reduces debt to zero** (or a residual amount) over an assumed time period (**home mortgage** or **car loan** or **personal loan**)

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A Schedule of Future Debt Payments

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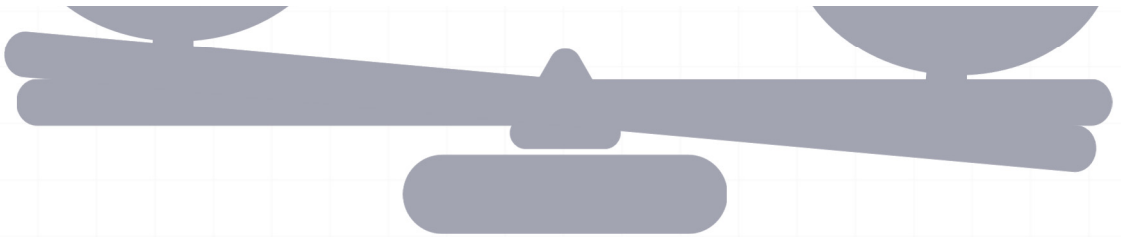
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Assumed % of cash flow each period (Cash sweep)	Fixed, straight-line payment each period until debt is repaid	An amortizing payment: amount including interest that will reduce to debt to zero (or a residual amount) over an assumed time period
% Cash flow x cash flow available	Total debt* / no of payments. Use MIN to stop payments after balance reaches 0	Use PMT function in Excel. Use MIN to stop payments after balance reaches 0
* To work out repayments, use the amount of debt in the corkscrew in the year when you start repayments (using HLOOKUP or INDEX/MATCH)		
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Refinancing



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The **project's highest risk phase** is **during the construction period**



After the **project** has been **operating a few years**, the **high-risk periods** (construction and **early operating**) have passed



It also **allows for short delays to the project without having to re-negotiate project finance terms and contracts**



We call this "**refinancing**" = replace the old debt with new debt



There are **likely** to be **penalties payable** for **early repayment** of the **old debt** & **fees** for the **new debt**: **both need to be modelled**

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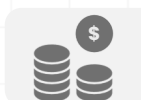
Formula



Debt refinancing flag = IF(year >= 1st repayment date, 1,0)



Old debt repayment = Remaining balance of debt x flag

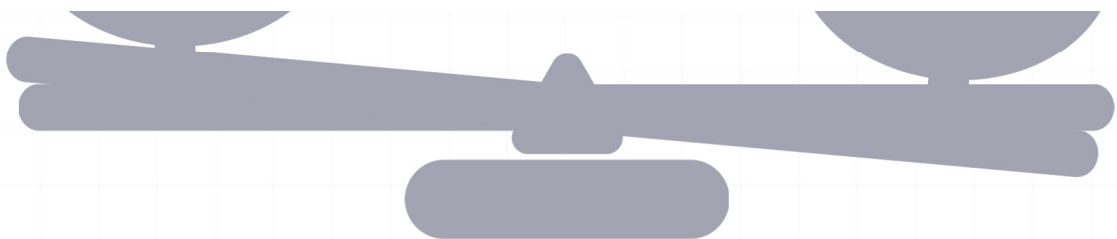


New debt drawdown = Old debt repayment x flag

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Example – Screen shot of refinancing in year 4:

	A	B	C	D	E	F	G
1	Years	1	2	3	4	5	
2	Refinancing Flag	0	0	0	1	0	
3							
4	Senior Debt at start of year	0	900	800	700	0	
5	Senior debt drawdown	1000	0	0	0	0	
6		1000	900	800	700	0	=-E6*E2
7	Repayments	(100)	(100)	(100)	(700)	0	
8	Senior Debt at end of year	900	800	700	0	0	
9							
10	Interest at 6%	60	54	48	42	0	
11	Early repayment penalty 1%	0	0	0	7	0	
12							
13	Refinanced debt at start of year	0	0	0	0	700	
14	Refinanced debt drawdown	0	0	0	700	0	=-E7*E2
15		0	0	0	700	700	
16	Repayments	0	0	0	0	(100)	
17	Refinanced debt at end of year	0	0	0	700	600	
18							
19	Interest at 5%	0	0	0	35	35	
20	Upfront fee 1%	0	0	0	7	0	
21							

**DSRA**

Debt service reserve account



Borrower is required to **set aside an amount of cash in advance**



Debt repayment coming up in **six months time**



We **set aside** the **cash** now **six months ahead of time**

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Getting **security** and **extra assurance** for the land



Expensive for the **borrower**



Cash flow could be used to **repay the borrowing**



We **might** have to **borrow extra money**

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