

Element	Description	Element	Description
Title	<i>SLES Investor Panel Feedback on the financing of SLES projects</i>	Identifier	
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Description	<p><i>Assessing the key challenges in financing for SLES projects and the role that is required of a Master Developer.</i></p> <p><i>Includes: SLES summary, Master Developer role, financing considerations, level of the Master Developer</i></p>	Relation	
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Zero Carbon Rugeley (ZCR) Smart Local Energy System (SLES) design demonstrator is funded by the government's Department for Business, Energy and Industrial Strategy (BEIS) as part of the Industrial Strategy Challenge Fund (ISCF) ([link](#)).

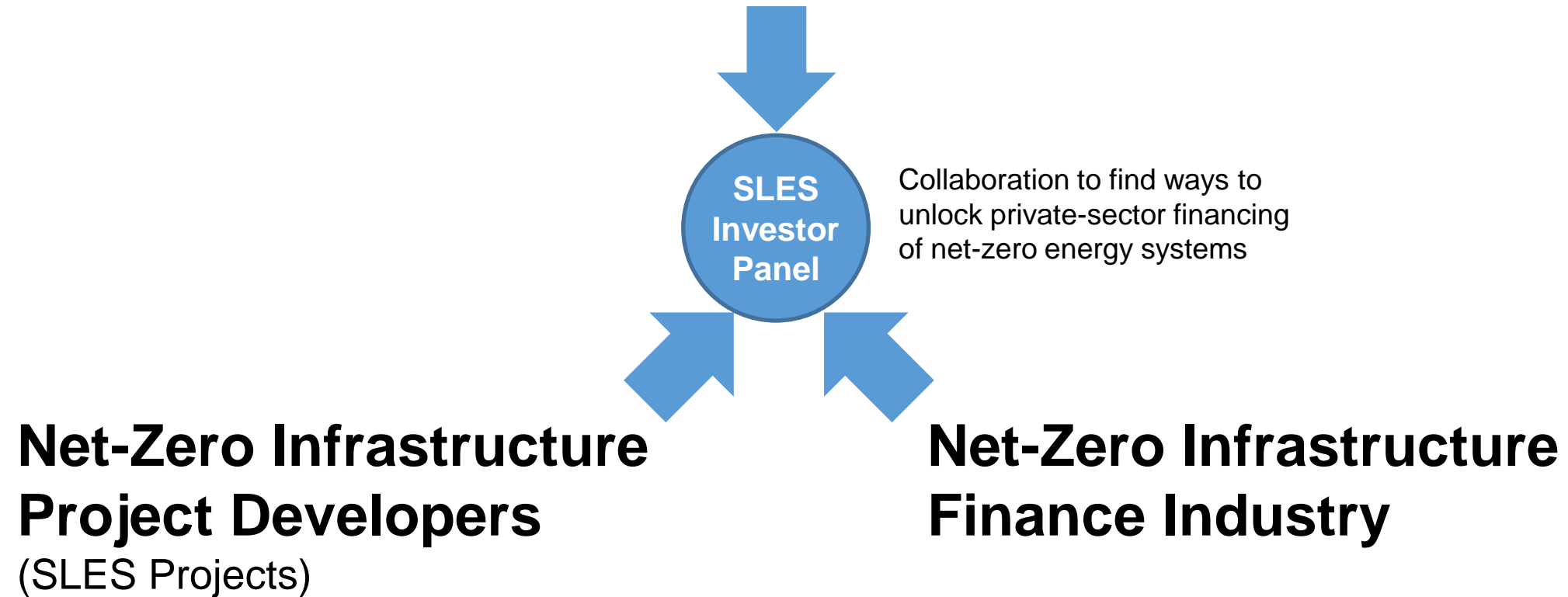


SLES Investor Panel feedback on the financing of SLES projects

Energy Capital, West Midlands Combined Authority

The SLES Investor Panel

Green Finance Policy



The SLES Investor Panel

Purpose

1. Act as a 'critical friend' to advise the project on the development and finalisation of the Financing Framework.
2. Bring investor perspectives to the technical design and business model elements of the projects, assisting the project to incorporate financing into the overall design to support deliverable solutions.
3. Take learning from SLES Investor Panel discussion to the wider investment community and to policymakers.

Rules

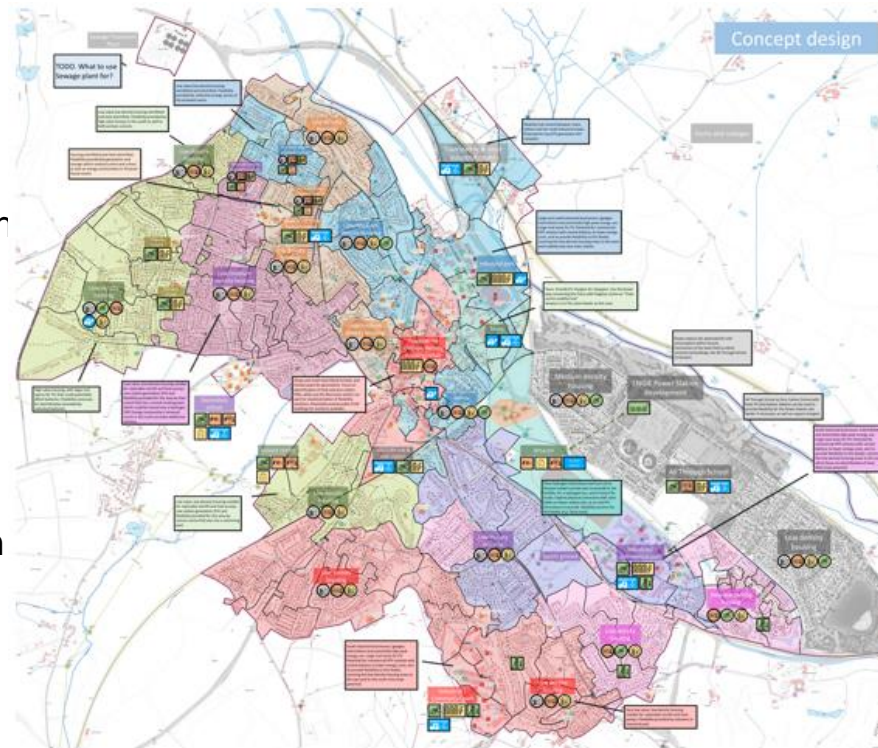
- Chatham House Rule
- No reliance

The Grand Challenge

Financing of city-scale net-zero energy systems

Composed of many smaller projects in a unique combination matching local situation

Where synergy between projects is important



Generally low technology risk, but higher business model and revenue risk

Paybacks are long

The Grand Challenge

What do we want from the Investor Panel?

- Help us **discover and articulate the barriers to private sector investment into SLES**
 - We have some ideas to start with
- Help us **innovate and develop solutions to overcome the barriers**
 - We have some possible solutions to discuss
- Help us express ourselves in terms investor understand
- Can we create something we all think will work?
- Think outside the box: we can shape the future

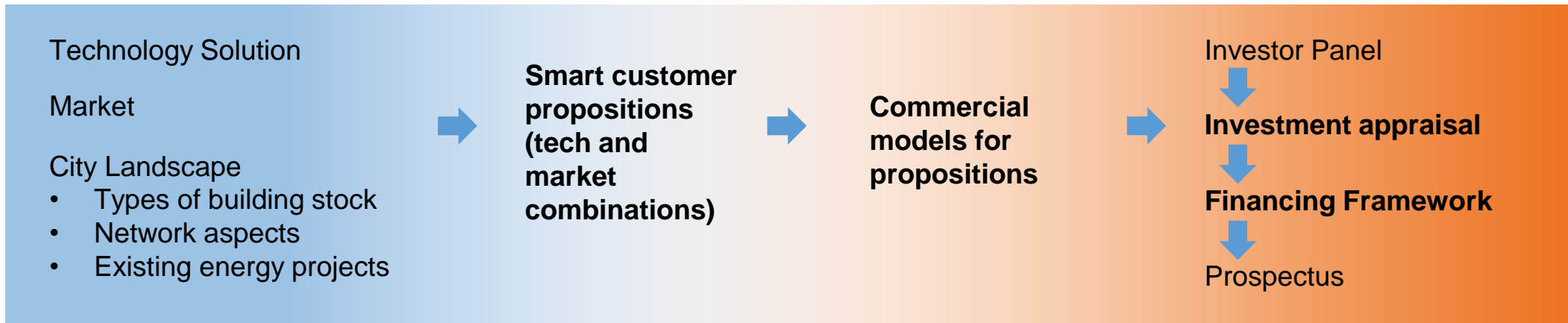


Finance & Investment thinking from ZCR / RESO

Structure of F&I work

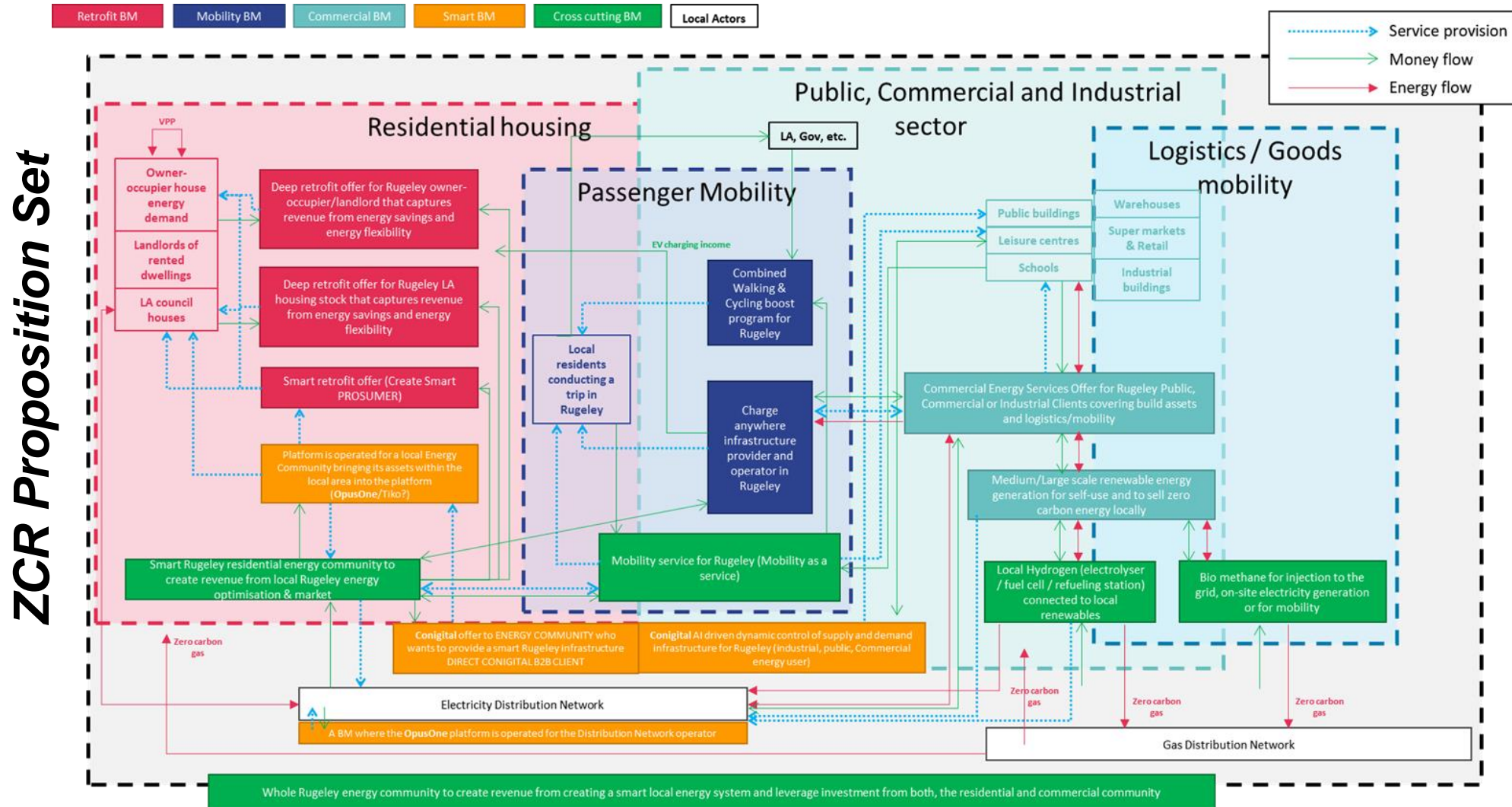
Other work packages

Finance and Investment

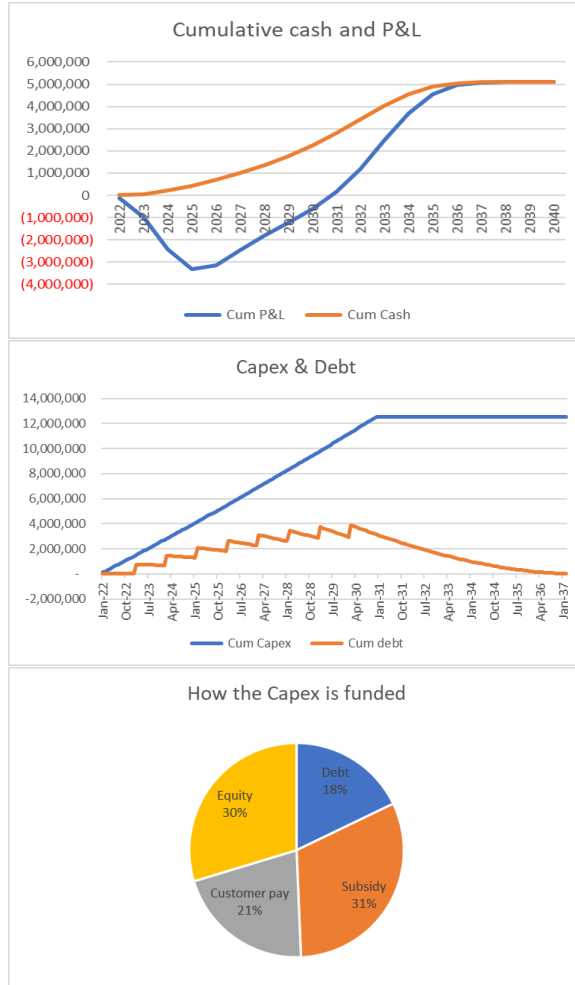


- The investment appraisal articulates the financing requirement
- The financing framework is the mechanism to fund the SLES with all its different requirements

Smart Customer Propositions



Commercial Modelling / Investment Appraisal



- Models a 'business' doing a number of interventions across different types of customers with different upgrade costs
 - Whole fabric retrofit of a domestic property (no generation)
 - PV + Battery
 - ASHP
 - EV chargers (only for Cohorts 1 and 4)
- Targets all properties achieving an EPC-C by 2032
- Able to drill down to 'cohort' (a group with the same risk profile)
- Can allocate risk, grant, and debt per cohort
- Debt uses a Debt Service Coverage Ratio (DSCR) method to calculate max debt
- Debt can be allocated to cohorts in 3 ways: overdraft, mortgage and bond
- Grant can be run in 2 modes:
 - actual available today, and
 - required to achieve target equity IRR

Real grant

ALL DOMESTIC															
				Customers	Gross Capex	Subsidy	Customer payment	Net Capex	Debt	Equity	Project NPV	Project IRR	Equity NPV	Equity IRR	Customer Savings
1	EPC-DMonthly/One-offOwner			6279	237,083,781	2,179,110	1,489,141	233,415,531	0	233,415,531	13,983,759	#NUM!	18,402,977	0.00%	0
2	EPC-DMonthly/One-offPrivate landlord			698	20,692,995	242,123	165,460	20,285,411	0	20,285,411	1,545,449	#NUM!	1,545,449	0.00%	0
3	EPC-DMonthly/One-offSocial Landlord			0	0	0	0	0	0	0	0	#NUM!	0	0.00%	0
4	EPC-DCaaSOwner			41860	1,440,890,189	48,926,579	61,911,356	1,330,052,253	62,859,185	1,267,193,069	(1,014,872,194)	#NUM!	(1,028,276,744)	0.00%	84,290,691
5	EPC-DCaaSPrivate landlord			7849	245,746,858	363,185	248,190	245,135,483	5,615,578	239,519,904	(190,326,015)	0.00%	(192,011,185)	0.00%	14,427,303
6	EPC-DCaaSSocial Landlord			2616	77,081,807	121,062	82,730	76,878,015	280,779	76,597,237	(63,469,518)	0.00%	(63,553,777)	0.00%	3,247,573
7	EPC-DFuel povertyOwner			1047	33,673,184	242,123	165,460	33,265,600	935,852	32,329,749	(25,383,939)	0.00%	(25,664,777)	0.00%	2,111,750
8	EPC-DFuel povertyPrivate landlord			3140	93,329,284	726,370	496,380	92,106,534	280,755	91,825,779	(76,184,090)	0.00%	(76,268,342)	0.00%	3,854,845
9	EPC-DFuel povertySocial Landlord			6279	185,437,763	1,452,740	992,761	182,992,263	168,453	182,823,810	(152,352,711)	0.00%	(152,403,262)	0.00%	7,322,886
10	EPC-EMonthly/One-offOwner			3463	114,819,648	2,179,110	1,489,141	111,151,397	0	111,151,397	9,565,925	0.00%	9,565,925	0.00%	0
11	EPC-EMonthly/One-offPrivate landlord			385	12,764,871	242,123	165,460	12,357,288	0	12,357,288	1,060,308	0.00%	1,060,308	0.00%	0
12	EPC-EMonthly/One-offSocial Landlord			0	0	0	0	0	0	0	0	0.00%	0	0.00%	0
13	EPC-ECaaSOwner			23088	782,919,544	1,936,986	1,323,681	779,658,877	16,291,256	763,367,621	(575,148,368)	0.00%	(580,037,183)	0.00%	61,262,581
14	EPC-ECaaSPrivate landlord			4329	145,349,661	363,185	248,190	144,738,286	2,443,688	142,294,597	(108,128,455)	0.00%	(108,861,777)	0.00%	10,907,774
15	EPC-ECaaSSocial Landlord			1443	46,809,099	121,062	82,730	46,605,308	122,184	46,483,123	(36,369,372)	0.00%	(36,406,038)	0.00%	2,958,843
16	EPC-EFuel povertyOwner			577	19,892,883	6,012,123	165,460	13,715,299	918,490	12,796,810	(9,123,143)	0.00%	(9,297,028)	0.00%	1,533,735
17	EPC-EFuel povertyPrivate landlord			1732	57,104,122	9,386,370	496,380	47,221,372	1,660,215	45,561,157	(35,784,603)	0.00%	(35,976,268)	0.00%	3,527,933
18	EPC-EFuel povertySocial Landlord			3463	113,770,673	18,767,740	992,761	94,010,172	3,148,440	90,861,732	(71,629,210)	0.00%	(71,961,105)	0.00%	6,886,015
				108248	3,627,366,362	93,261,990	70,515,282	3,463,589,090	94,724,875	3,368,864,215	(2,332,616,177)	0.00%	(2,354,553,436)	0.00%	202,331,929

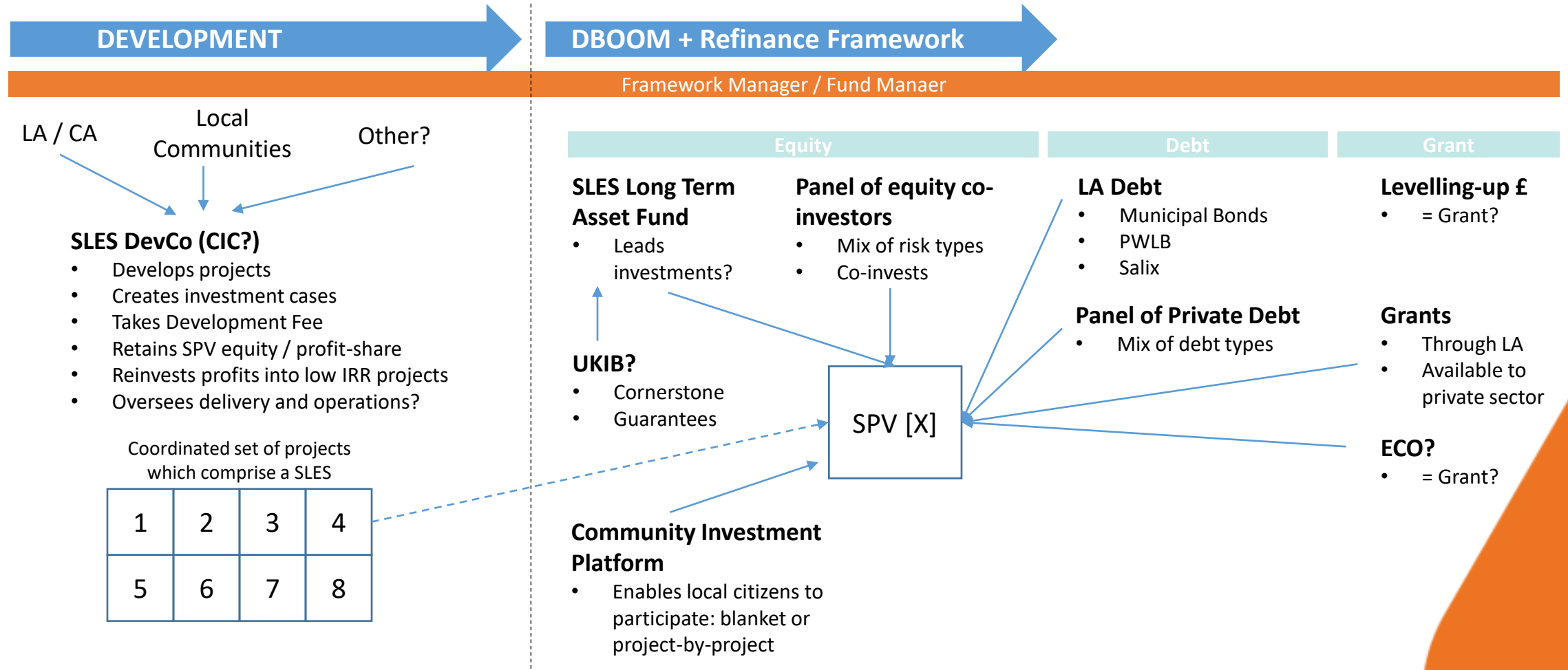
- Building retrofit, which has a very long payback, makes the whole SLES look unattractive to finance as payback > modelled term (40 yrs)
- Other elements of the SLES have positive NPV

Ideal grant

ALL DOMESTIC															
				Customers	Gross Capex	Subsidy	Customer payment	Net Capex	Debt	Equity	Project NPV	Project IRR	Equity NPV	Equity IRR	Customer Savings
1	EPC-DMonthly/One-offOwner			6279	237,083,781	2,570,505	1,097,745	233,415,531	0	233,415,531	13,983,759	#NUM!	18,402,977	0.00%	0
2	EPC-DMonthly/One-offPrivate landlord			698	20,692,995	285,612	121,972	20,285,411	0	20,285,411	1,545,449	#NUM!	1,545,449	0.00%	0
3	EPC-DMonthly/One-offSocial Landlord			0	0	0	0	0	0	0	0	#NUM!	0	0.00%	0
4	EPC-DCaaSOwner			41860	1,415,203,508	1,221,149,251	53,123,518	140,930,739	52,442,874	88,487,865	65,799,931	#NUM!	54,416,160	11.67%	84,290,691
5	EPC-DCaaSPrivate landlord			7849	241,893,856	218,579,397	182,958	23,131,501	7,893,903	15,237,598	11,481,586	0.00%	9,692,629	11.34%	14,427,303
6	EPC-DCaaSsocial Landlord			2616	76,889,157	72,850,535	60,986	3,977,637	1,330,059	2,647,578	2,856,541	0.00%	2,651,821	10.20%	3,247,573
7	EPC-DFuel povertyOwner			1047	33,031,070	29,385,379	121,972	3,523,719	1,205,724	2,317,996	1,645,464	0.00%	1,360,863	11.67%	2,111,750
8	EPC-DFuel povertyPrivate landlord			3140	93,136,650	88,128,344	365,915	4,642,391	1,550,467	3,091,924	3,394,410	0.00%	3,162,530	10.16%	3,854,845
9	EPC-DFuel povertySocial Landlord			6279	185,322,183	176,228,895	731,830	8,361,457	2,779,091	5,582,366	6,548,089	0.00%	6,181,118	10.05%	7,322,886
10	EPC-EMonthly/One-offOwner			3463	114,819,648	2,570,505	1,097,745	111,151,397	0	111,151,397	9,565,925	0.00%	9,565,925	0.00%	0
11	EPC-EMonthly/One-offPrivate landlord			385	12,764,871	285,612	121,972	12,357,288	0	12,357,288	1,060,308	0.00%	1,060,308	0.00%	0
12	EPC-EMonthly/One-offSocial Landlord			0	0	0	0	0	0	0	0	0.00%	0	0.00%	0
13	EPC-ECaaSOwner			23088	782,919,544	687,695,734	975,773	94,248,036	34,725,421	59,522,616	48,547,942	0.00%	41,593,075	9.91%	61,262,581
14	EPC-ECaaSPrivate landlord			4329	145,349,661	128,942,950	182,958	16,223,753	5,900,094	10,323,659	8,814,603	0.00%	7,693,896	9.92%	10,907,774
15	EPC-ECaaSsocial Landlord			1443	46,809,099	42,980,983	60,986	3,767,130	1,274,320	2,492,810	2,611,647	0.00%	2,445,853	9.97%	2,958,843
16	EPC-EFuel povertyOwner			577	19,892,883	17,414,945	121,972	2,355,966	868,080	1,487,886	1,213,394	0.00%	1,039,509	9.91%	1,533,735
17	EPC-EFuel povertyPrivate landlord			1732	57,104,122	52,274,523	365,915	4,463,684	1,505,097	2,958,587	3,123,174	0.00%	2,931,509	9.98%	3,527,933
18	EPC-EFuel povertySocial Landlord			3463	113,770,673	104,519,359	731,830	8,519,484	2,838,294	5,681,189	6,163,879	0.00%	5,831,984	9.98%	6,886,015
				108248	3,596,683,701	2,845,862,532	59,466,045	691,355,124	114,313,424	577,041,701	188,356,101	11.30%	165,164,997	13.19%	202,331,929

- If we are to create an attractive investment appraisal within modelled term (40yrs), a very large amount of additional grant is required
- Grant = investment that doesn't require repayment, i.e. doesn't need to come from central Govt

Example Financing Framework for discussion



Other activity in the field of financing energy infrastructure

Community Municipal Investments (CMI)

- Alternate source of debt for LAs
- For private individual investors

UK Infrastructure Bank (UKIB)

- £40bn of investment for local infrastructure projects
- £4bn allocated to local authority lending
- But investment strategy not yet clear
- SLES sit outside LAs

OfGEM Strategic Innovation Fund

- £450m 2021-2026
- “transform the UK into the ‘Silicon Valley’ of energy”
- Collaboration with Innovate UK

Long Term Asset Fund (LTAF)

- Incentivising pension funds to invest in riskier / earlier stage investments
- “To encourage UK pension funds to direct more of their **half a trillion pounds** of capital towards [the UK's] economic recovery" and "to enable investors, particularly Defined Contribution (DC) pension schemes, to more confidently invest in illiquid assets (such as venture capital and infrastructure) than they can using existing fund structures".

£10b Green Gilt

- + NS&I Green Savings Bond



Investor Panel Feedback

It looks too complex

- Investors expressed the opinion that a network of interlinked projects appeared very difficult to understand and to due-diligence (DD): the more interfaces the higher the risk in their eyes
- There appeared to be too many different types of elements / sub-investments
- Would the return from these projects warrant the cost of the DD?
- Is it that if they did manage to understand one, would they be able to re-use this DD learning on others more easily, or would each SLES opportunity require the same level of DD cost?
- There also appear to be a lot of risks buried into the structure:
 - Business model risk
 - Regulatory risk
 - Technology risk
 - Revenue risk

No pipeline of SLES opportunities

- Investors noted that they hadn't seen a pipeline of SLES opportunities coming forward, and thus it appeared that they would not be able to re-use the DD
- The panel + SLES attendees discussed that there was expected to be a pipeline coming forward as SLES projects mature
- The discussion also turned to how the opportunities from a SLES get presented to investors: who makes them 'investment ready' and how (Developer role)
 - Development of a network of interlinked projects has not been done before: this is a significant part of the learning to be developed (how to develop a network of projects to investment ready)
 - How are projects to be presented for investment?
 - Grouped by tech?
 - Grouped by area?
 - Grouped by proposition?
 - All at once (big bang model)

Mixing project types together increases cost of capital (CoC)

- Mixing mature project types (e.g. rooftop PV) with less well-known project types (e.g. ASHP) is likely to lead to:
 - Investors allocating a risk weighting (discount rate) to the whole project equal to the risk of the highest risk sub-element
 - This would increase the cost of capital for the project
- This ties back to the previous point about how projects are presented for investment
- *This also leads us in the SLES projects to think about how much we have to split apart projects / lose the synergy in order to make projects acceptable to investors – this seems to be a major point.*
- *Also worth challenging how much the synergy is worth? Is a standalone set of projects 95% or 50% of the value of a network of interlinked projects? How much do they work together financially?*

Relying on users to uptake projects will significantly reduce roll-out rates

- The panel asked whether the propositions were for 'user uptake', i.e. they relied on users voluntarily buying the proposition.
- *On the whole the propositions crafted by ZCR and RESO are for voluntary user uptake, however:*
 - *One customer set is social landlords, who are able to buy for a fleet of homes all at once*
 - *One customer set is private landlords who may buy for more than one property*
 - *The remainder, and the largest set are owner-occupiers who under current thinking do need to be convinced to buy the proposition*
- *In the commercial modelling of the propositions it has been necessary to allocate all of the financial benefit to the investor in order for their return to reach levels that induce investment, leaving no financial incentive for users to take up the propositions. This obviously has to be changed, but very many of the low carbon solutions have a very marginal payback.*

‘Ticket size’

- Ticket size is the quantum of the investment. Investors usually prefer large investment over small investment as:
 - The quantum of the return is higher
 - It reduces the impact of the transaction cost
 - They have a requirement to deploy capital quickly
- Different types of investors have different ‘minimum’ sized investments
- *This also ties back to the point about how projects are grouped for presentation to investors*
- *It also makes us think about how to order the different types of investors along the project life-cycle – i.e. the role of the financing framework*

The role of the Developer

- The role of the 'Developer' is:
 - To move projects to the point where they secure investment
 - Usually implement the project on the ground, usually through subcontracting
 - Possibly play a role in operating the projects
- To do this Developers sometimes have to implement projects to demonstrate
 - That the projects are deliverable
 - To remove the perceived risk through demonstration of stability of cashflows
- Development of a network of interlinked synergistic projects has not been done before, and learning needs to be developed in combination with investors (i.e. this role would be impossible if the requirement was to produce investment opportunities that looked like what investors invest in today)
- An outcome of this thinking is that investors would be required to change the way they invest to be able to work with a set of interlinked synergistic projects
 - Net zero projects are higher risk but not higher return thus total return is likely to be lower than other investment classes
 - New mandates, new investors, new investment criteria, new Investment Committees, new investment evaluation criteria...
 - Also leads us to conclude that either more grant funding is required for net-zero projects, or there needs to be a party who is willing to bear higher risk to lower the risk of the private sector investors. Is this the UKIB?

Maximise debt to reduce cost to customers

- Different types of capital have different costs, with debt being lower cost than equity
- A proposition which maximises the use of debt would have a lower cost of capital and reduce the cost of the proposition to customers
- *A complication with this approach is that the free cash flow of projects is low and thus does not support a large amount of debt (i.e. can't afford the repayments)*

Local Authorities as developers have an different challenges and benefits

Challenges

- Local Authorities are required to run procurements to buy goods, works or services. This introduces a time delay and a higher cost to any interaction between a LA and a private sector partner. This would impact the development of projects
- LAs have very stretched resources (capacity an capability)
- LAs are under significantly increased financial pressure post COVID

Benefits

- Local Authorities can access grant funding to develop and pilot propositions
- Local Authorities could possibly fund development of propositions from revenue and capital budgets, or HRA

What role can regulation play to assist with the enablement of private sector financing of net zero energy systems?

- The discussion asked questions around whether a different regulatory structure could reduce the risk in SLES projects. For example
 - A Regulated Asset Base (RAB) model where investor recover investment through charges levied on the users of the system. This model is currently used for power and gas and water networks.
 - Could CfDs be applied to SLES projects? This is a levy which provides a security of revenue to low-carbon projects. All levies are controlled through the Levy Control Framework.
 - Can we learn anything from the Green Deal model?
- All of the above have had a very significant impact on the amount of private sector finance flowing into the decarbonisation of electricity
- There is a significant argument that these levies should now be directed at other aspects of the energy system besides electricity
- Example from the heat industry
 - BEIS is planning to introduce heat zones, within which buildings would be required to connect to a heat network.
 - This reduces the 'demand risk' element of a heat network project
 - Which in turn drives down the cost of capital
 - And also makes these projects more attractive to investors (lower risk)

Who is optimising the financial solution?

- On one hand there is the developer who is working up the project which requires financing
- On the other there are a number of different types of funding which needs to be combined together to fund the projects (the simplest example being equity + debt + grant)
- Is it the Developer who will optimise the financial solution? (probably not)
- There is probably a role for an 'intermediary' to assemble the different types of capital for each project that comes from developers; each will require a different financing solution.
 - The intermediary is likely to be an investor
 - The Developers would like this intermediary to develop solutions for each project as it emerges, leading to an ongoing role for the intermediary
 - It would be advantageous to the intermediary to have a number of relationships that can be re-used over again, leading to the core reason for a 'financing framework'

Who is funding Development?

- There is a requirement to fund the development stage, for example
 - People with the right skills to develop business model, create financial models, take actions to de-risk projects such as commercial structuring
 - Piloting / Testing in the field
 - Equipment
 - Entering contracts
- In the traditional developer model, development is funded by the developers in the hope of recouping their investment from a 'development fee' charged to a project at the financing transaction
- *We in SLES projects do not think that developers funding themselves is feasible for the development of SLES projects into investable projects*
 - *Its not been done before so there will be an additional cost of learning*
 - *Will slow down the development*
 - *Will limit the number of projects developed*
 - *Will fragment the SLES amongst developers, losing synergies*
- Thus, Development funding is required to support the learning of how to develop SLES propositions into investable projects.
- In the district heating field, BEIS, through HNDU has funded the feasibility stage of very many district heating projects, and HNIP / GHNF has funded the further development of these projects to be investment-ready.

What can we learn from other project types?

- What can we learn from the battery market? What was it that moved them from risky investment to now almost becoming mainstream?
 - Aggregators making it simple for batteries to access multiple revenue streams at once
 - The reform of the flexibility services markets to enable better revenue stacking of different revenue sources
 - More flexibility markets being developed, for example the entry of batteries into the Balancing Mechanism, and DNOs creating flexibility procurement markets in 'Constraint Management Zones'
- What can we learn from batteries and other similarly initially risky propositions for SLES projects?

The role of Community Development and Funding

- The investor panel considered the role of community developers and funding
- It appears there are many virtues to the development being undertaken by a community developer providing they are sufficiently resourced with funding and capability
 - The community developers are both the customers for their work and influential on other customers locally, leading to aggregation of demand
 - That community investors are more likely to invest into a project of which they are a customer
 - That the community developer has only the local environment as their focus, and are thus more focussed on producing a local result
 - Community funders are very patient equity
- This should be a focus for future work on the Developer model:
 - How to use Community development and funding as the foundation, and to layer together with additional help if it is not able to develop the full scope / bring the full amount of investment required
 - Development of some form of hybrid community / larger developer / investment intermediary / institutional funding
 - The relationship between development and funding, for example, there are very many platforms for community investment that are not developers (i.e. Abundance)

The use of the SPV model

- Special Purpose Vehicles (SPVs) are used very regularly in the energy industry to package projects for investment
- The Investor Panel suggested that SPVs should be used to pull together the required contracts for revenue and costs and funding and investor return into a single structure
- Perhaps there could be a link between the SPV model and de-risking investor return, for example
 - investments into a new type of SPV could receive beneficial treatment for tax
 - The SPVs could be enabled to run a RAB model