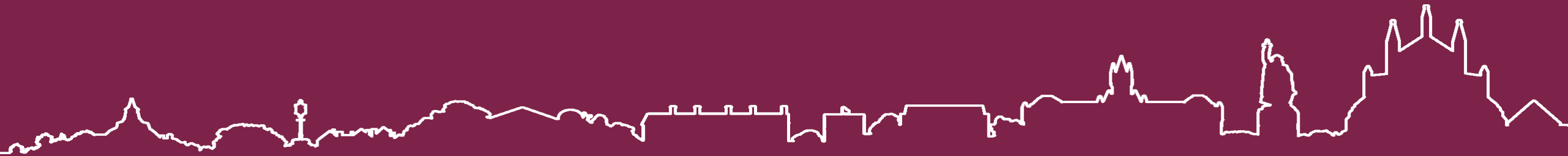


# ASPE Presentation Third Party Solar Panels; A Winchester City Council Perspective

Dr Naomi Wise  
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# Tackling the climate crisis in our sector

“We are looking to meet the challenge of ensuring generations to come have a positive future and that means taking positive action now. This means we have declared a Climate Emergency and are working with residents, businesses, stakeholders and specialist agencies to ensure we put all we need into making local life more environmentally sustainable.

We will be closely monitoring our progress towards two ambitious goals; to see the activities of the council carbon neutral by 2024; and the whole district by 2030. Transparency is important to us so we will be measuring our progress and sharing it publicly as we work towards these targets.”



**Lucille Thompson**

Cllr Lucille Thompson, Leader of Winchester City Council



# Carbon Neutral Action Plan

PRIORITY	COUNCIL 2024	DISTRICT 2030	CARBON EFFECT	LEAD
<b>ENERGY COUNCIL</b> 1,780 tonnes CO <sub>2</sub> e	Source 100% of all electricity purchased by the Council from renewable sources by 2021.	Undertake research into suitable alternatives to natural gas especially in relation to local generation potential.	Elimination	Estates Sustainability
<b>DISTRICT</b> 172,000 tonnes CO <sub>2</sub> e	Install additional solar panels on council owned sites and identify sites for renewable energy generation in the Local Plan.	Build or invest in large scale renewable generation project(s), e.g. solar farms, heat pumps, solar-battery car ports, anaerobic digester, wind farm, hydropower.	Elimination	Estates Sustainability

<b>ENERGY CONTINUED</b>	Through the procurement strategy purchase/ lease only highly energy efficient/low carbon technologies/materials.	Explore the feasibility of developing a hydrogen generating plant as a source of renewable fuel and to divert waste from land fill.		Estates Sustainability
	As leases and contracts expire renew with purchase/lease of energy efficient electrical equipment and appliances.	Engage with the district's largest businesses to work jointly on initiatives that reduce energy use or generate renewable energy, e.g. roof-top solar PV on commercial buildings.	Elimination	Procurement Economy Sustainability

# THIRD PARTY SOLAR

Working on two models:

1. Installing solar panels on Council-owned properties and selling power to tenants
2. Renting space on businesses' roofs, installing solar panels and selling power from panels to business below

Aims:

- a. Help businesses reduce carbon footprints
- b. Enable and showcase renewable energy generation in District
- c. Cover Council costs and make a small profit to reinvest in energy efficiency schemes in the District

# PROJECT PROCESS

1. Identify suitable sites
  - a. Large roof space
  - b. High energy usage
  - c. Carbon neutral ambition
2. Solar PV modelling
3. Financial modelling
4. Power Purchase Agreement
5. Executive approvals
6.
  - a. Roof Lease where applicable
  - b. Council/Tenant Lease must allow for solar panel additions/access to install & maintain



150kWp at WCC New Leisure Centre

## STEP 2. PV MODELLING – HOW MANY PANELS?



Software to model panels and output:

- HOMER Pro
- PV Syst
- PV Planner
- Or contact your local Energy Hub

Consider:

- Roof structure
- Shading?
- Irradiance (use Solar GIS)
- Roof access

# STEP 3. PARAMETERS FOR FINANCIAL MODEL

			COMMENTS
Existing Electricity cost/annum			
Array size (total kw)		100	
Initial Cost		£ 100,000	This is the upfront investment WCC will be making.
Client Contribution		£0	This is the upfront investment the Client will be making
Panel Output (sun hrs)		904.3	Total Radiation (kwh/kwp) x performance % (95%) (HPr)
Day Cost	Night Cost	Gross Cost	
Climate Change Levy (CCL)		0.00583	
Client Charge (CCL) %		100.00%	WCC charge for CCL
Inflation		2.00%	
Electricity price increase		4.00%	Assumed includes inflation so really +2% above inflation
Initial Fit		£ 0.0378	<b>No longer available (not providing any benefit in this model)</b>
Initial Export		£ 0.0491	<b>No longer available (not providing any benefit in this model)</b>
Initial Elec. Price		£ 0.1400	
Yearly degration of panels		0.9920	
Lease length (borrowing)		20 years	
Discount on kWh offered		10%	
Borrowing Cost		3.00%	
Rent	annum (£'s)	1	
Depreciation - Based on U.E.L		0.05%	
Residual value		0	
Useful Economic Life (U.E.L)	years	20	
Inverter life	years	20	
Inverter replacement cost		0% £0.00	Inverter replacement is estimated to be 8% of Initial Outlay
Annual Maintenance cost (per/kw)		£10 £1,000.00	
Inverter replacement (client %)		0%	Inverter replacement cost split with client
Annual Maintenance (client %)		0%	Annual maintenance cost split with client
Staggered Savings			
Stepped Discount on kwh	Annually	0.02	
Capped at	Maximum %	0.2	

[PV Calculator](#)

Tip:

Match capacity to demand;  
avoid selling to grid

1. Poor £/kWh paid
2. Additional complications regarding export and establishing contract to sell

# STEP 4. POWER PURCHASE AGREEMENT

## What is a PPA?

A Power Purchase Agreement (PPA) is a long-term contract under which a business agrees to purchase electricity directly from a renewable energy generator. Power Purchase Agreements provide financial certainty to you and the project developer, which removes a significant roadblock to building new renewable facilities. PPAs therefore help to deliver more renewable energy, saving CO<sub>2</sub>. Your company can make the difference and shape the renewable future. Contact us and we will offer you the best, tailored solution for your company – for a sustainable long-term partnership!

## Physical PPA

- RWE delivers power directly to the customer and receives the PPA price
- RWE builds a plant especially for this purpose and covers not only the new asset but the entire supply chain
- RWE sells surplus power to grid and receives the spot price
- The customer buys additional power from the grid/utility and pays the spot price
- The customer receives guarantees of origin (where available)

[https://www.group.rwe/en/our-portfolio/our-products/power-purchase-agreement/?dateFrom=14.09.2020&dateTo=14.10.2021&list1=\\*](https://www.group.rwe/en/our-portfolio/our-products/power-purchase-agreement/?dateFrom=14.09.2020&dateTo=14.10.2021&list1=*)



# STEP 4. POWER PURCHASE AGREEMENT

1. Term of contract
2. Maintenance liability
3. Necessary Consents
4. Payment
5. Officers
6. Performance Monitoring
7. Health & Safety
8. Premises
9. Rights Of Access
10. Termination
11. Contract pricing



50kWp at Civic Offices

## STEP 5: BUSINESS JUSTIFICATION CASE FOR APPROVALS

- Calculate annual generation kWh
- Calculate saving to business and revenue to Council
- Calculate the carbon emissions saving using electricity grid factor from BEIS
- Support local economy - identify local suppliers that can conduct the work
- How does the project fit with Council/Local and National Policy?
- Is there scope for scalability - YES

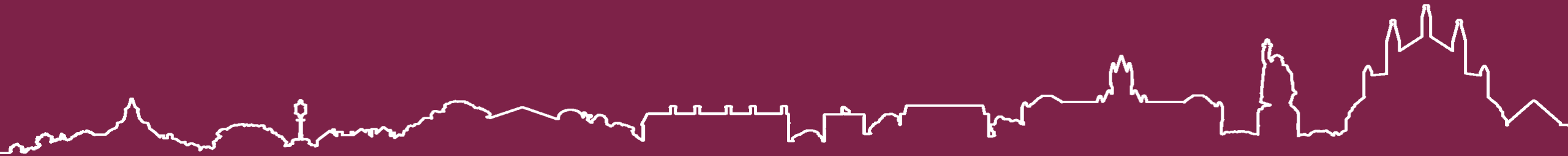
## STEP 6A: ROOF LEASES – BUSINESS CUSTOMERS

- To simplify, ensure business owns roof
- Rent roof at peppercorn rent
- Work out precisely where on the site panels to be connected, any inverters, lay cables – include plans
- Where will the panels connect to the grid
- What rights will WCC need to inspect, clean, replace, renew the kit etc;
- Don't reinvent the wheel – lots of roof lease templates available online

## STEP 6B: LEASES - COUNCIL TENANTS

- Present Tenant with full details of the proposed structural work to the roof
- Work out precisely where on the site, it wants to install the panels, any converters, lay cables, how it connects to the grid etc and agree this with Tenant
- What rights will WCC need to inspect, clean, replace, renew the kit etc
- Expect Tenant to request compensation if there is any chance that they cannot use the building
- Expect Tenant to insist that WCC picks up cost of any subsequent damage to the roof and loss of time using the building

Where is WCC in this process?

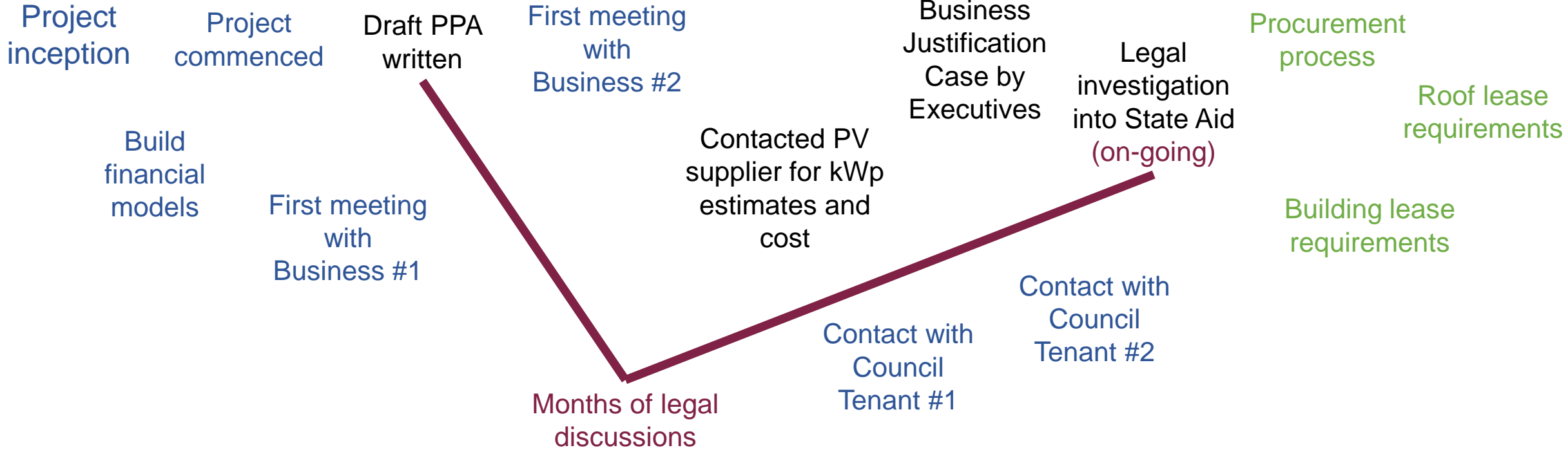


## THIRD PARTY SOLAR – WHERE WE ARE

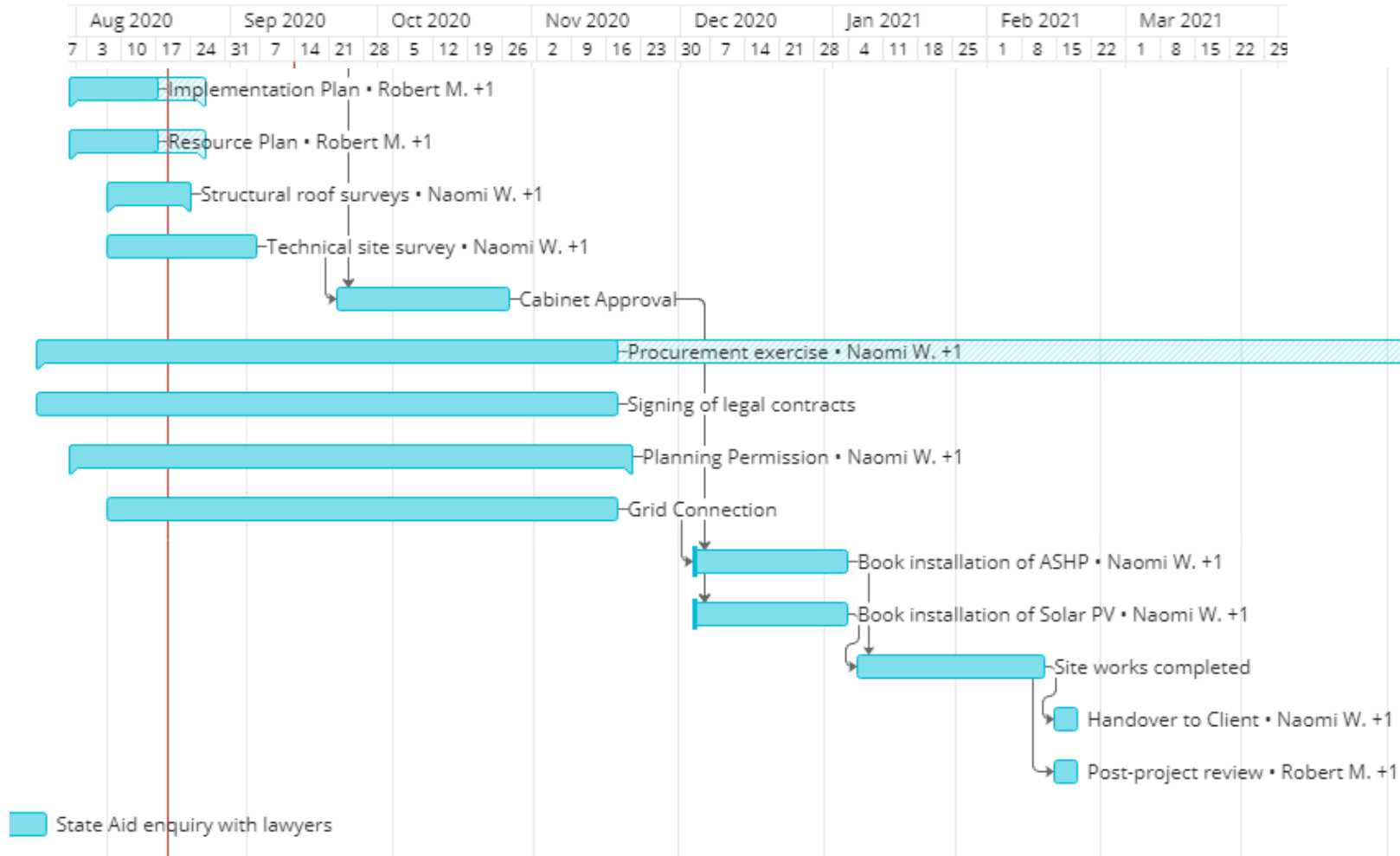
- Currently two businesses and two Council properties being considered
- Have received additional interest from a number of businesses and community groups
- If pilot schemes successful, will develop a strategy to roll out to additional businesses and Council sites
- Still in the preparation and planning phase

# TIMELINE TO NOW

July 2018      July 2019      Nov. 2019      Feb. 2020      Mar. 2020      July 2020      Aug. 2020      Sept. 2020      Oct. 2020



# GANTT CHART FOR DELIVERY OF BUSINESS #1





# HURDLES TO OVERCOME FOR WCC

- Conduct a market evaluation to establish what commercial PPA rates are being offered (any help greatly appreciated)
- Provide evidence that WCC will not distort the market with PPA offered
- Council leases – access to install, strengthen roofs

Thank you

[Sustainability@Winchester.gov.uk](mailto:Sustainability@Winchester.gov.uk)

