



# ACCELERATING GREEN SKILLS IN LOCAL LONDON THROUGH EFFECTIVE INDUSTRY ENGAGEMENT - **A SUMMARY REPORT**

PRODUCED BY:



Crystal Associates  
*Sustainable. Smarter.*

PRODUCED ON BEHALF OF:



Foreword: .....3

1. Executive summary.....4

2. Background – London context and the project brief.....6

    2.1 The context .....6

    2.2 The project.....9

3. Overview of our methodology and approach .....10

4. Key findings .....11

    4.1 College facilities .....11

        4.1.1 Barking & Dagenham College .....11

        4.1.2 Barnet and Southgate College.....12

        4.1.3 Capel Manor College .....12

        4.1.4 London South East Colleges (LSEC) .....12

        4.1.5 New City College .....12

        4.1.6 Newham College.....13

            4.1.6.1 Stratford campus.....13

            4.1.6.2 London City Institute of Technology .....13

        4.1.7 Newham Sixth Form College (NewVIc) .....13

        4.1.8 Shooters Hill Sixth Form College .....13

        4.1.9 Waltham Forest College .....14

    4.2 Curriculum.....14

        4.2.1 Computer Aided Design (CAD) and Building Information Modelling (BIM) .....16

        4.2.2 Electric vehicle charging .....17

        4.2.3 Heat Pumps.....18

        4.2.4 Internal/external insulation technologies.....19

        4.2.5 Photovoltaics .....20

        4.2.6 Restoring and sustaining London’s green spaces.....21

        4.2.7 Retrofitting.....22

        4.2.8 Smart/sustainable infrastructure.....23

    4.3 Staff skills and training.....24

        4.3.1 Staff confidence and competence .....24

        4.3.2 Continuing Professional Development and training options.....26

    4.4 Industry engagement.....26

        4.4.1 Stakeholder and industry engagement.....26

        4.4.2 The Local London market.....28

        4.4.3 Industry feedback – the challenges .....29

        4.4.4 Industry feedback - driving industry engagement.....30

5. Recommendations for the future of the Partnership .....32

    5.1 Recommendations.....32

    5.2 Developing centres of excellence.....34

        5.2.1 Key steps.....34

        5.2.2 A framework for collaboration .....35

6. Conclusion and key next steps .....36

ANNEX 1 – Green curriculum overview.....37

ANNEX 2 – CPD and training options.....38



With the green industries growing at an exponential rate, never has there been a more important time for employers, educators and local authorities to come together and meet the skills challenges we are all facing.

With the race very much on to meet the government's 2050 net zero targets, every business in every sector is having to consider its carbon footprint and invest in ways to reduce it. Many specialist green jobs are opening up to support this transition – so securing a pipeline of high-quality skills and talent is crucial.

We are playing our part here at London South East Colleges by leading the Local London Green Skills and Jobs Partnership – a collaboration of 13 FE colleges, over 30 employers and 11 Local Authorities in the northeast and southeast of London.

Supported by the government's Strategic Development Fund, this partnership is working to respond to the expanding green economy through skills delivery and sustainability. With so many job opportunities emerging, we are committed to working with employers and local authorities to ensure people of all ages can get the training they need to access these exciting careers.

A key part of this project has been the evaluation of college facilities and their existing and future green skills provision, including staff training and industry engagement. Crystal Associates have undertaken this work, helping us to define scope and priorities as we plan our collective response to the needs of the green economy.

This summary report provides insight into the context, size and scope of the green opportunities awaiting us in the Local London region. Industry experts have shared their views and insights on the future of low carbon skills in key sectors, which is set to dominate the direction of skills for many years to come.

This is a time of great opportunity for the region and I am delighted with the progress being made.

I would like to thank all our partners for their ongoing support. I look forward to continuing this work together and seeing the positive impact it will undoubtedly have both now and in the future.

With kind regards,

**Dr Sam Parrett CBE, Group Principal and CEO, London & South East Education Group**

A SUMMARY OF THE FINDINGS FROM THE GREEN ACADEMIES PARTNERSHIP INDUSTRY CONSULTATION (PROVIDED BY CRYSTAL ASSOCIATES, MARCH 2023)

# 1. EXECUTIVE SUMMARY



The impact of climate change has become a reality, even in London, as evidenced by more frequent heat waves, flooding and increasing levels of air pollution. As outlined by the most recent IPCC synthesis report published in March 2023, the viability of humanity living within planetary boundaries rests on the actions we take in the next seven years.

However, climate change also presents an opportunity to lower energy bills, create new jobs and improve quality-of-life. The market for green jobs is growing fast, with growth scenarios for Local London alone indicating a projected rise to 61,000 to 91,000 jobs by 2030. And while there will be sectors and jobs that will be heavily impacted by the transition towards a net zero economy and even disappear altogether, there is expected to be a net increase in the Local London area.

This presents a dual opportunity for the further and higher education sector, who will be required not only to provide new entrants to the labour market but also to upskill/reskill those already in work to be able to meet the demand for new green skills.

So the focus, ambition and work of the Local London Green Jobs and Skills Partnership will become ever more important and will be critical in enabling Local London to become a centre of excellence for green skills across several key areas, such as retrofit/built environment technologies, digital green skills, electric vehicle charging and green space provision.

Crystal Associates was appointed in January 2023 to lead on the industry consultation project, as part of the wider Strategic Development Fund (SDF) bid, supporting nine colleges<sup>1</sup> in the Partnership with green skills provision. The main objective of our work has been to ensure the colleges and the Partnership are well placed to provide the skills and tools for local people to access the green jobs of the future.



The scope of work has focused on the following career pathways:

- Building Information Modelling
- Computer Aided Design
- Electric Vehicle Charging Installation
- Ground source heat pumps
- Internal/external insulation technologies
- Photovoltaics
- Restoring and sustaining London's Green Spaces
- Retrofitting
- Smart/sustainable infrastructure

Given the timing of the SDF funding, colleges had mostly already settled on their respective pathways. Our consultation work has focused on assessing college facilities, the current and planned curriculum, staff skills and training, and industry engagement. This report is the conclusion of the work we have undertaken and provides a core set of recommendations for the Partnership moving forward.

## FACILITIES

Over the course of January and February the team conducted site visits to all nine colleges, to get an on-the-ground understanding of existing facilities and planned infrastructure upgrades. Due to the timings of the project, a lot of the equipment had yet to be installed when we visited so our assessment has been mainly based on design drawings and floor plans.

Four of the colleges received SDF funding for capital works expenditure: Barnet and Southgate, London South East, Newham and Shooters Hill Sixth Form colleges, which has been primarily focused on the refurbishment of existing space to provide dedicated workshops.

Eight of the colleges received capital equipment funding, of which six are working with Quantum Group to deliver and install the physical equipment required to deliver the new green skills-oriented curriculum, primarily acquiring new hardware (e.g. 3D printers, laptops), solar panels, heat pumps, EV charging points, demonstration vehicles and software licenses (for computer aided design and building information modelling).

Several of the colleges are facing challenges in areas such as space, health and safety implications and the high costs for certain items (in particular software licenses).

## CURRICULUM

As mentioned above, the consultation has focused on nine career pathways, with the colleges having mostly already decided which pathways they were focusing on prior to the start of our work.

The decisions on pathway choices have been primarily driven by alignment with existing curriculum provision - allowing for quick deployment through bolt-on courses, and decisions on capital funding, along with varying levels of insights on market trends, industry needs, understanding of new technologies, and the policy and regulatory landscape. However, the colleges and local communities would benefit from a strategic, coordinated approach to curriculum planning and decision making at a Partnership level to ensure a holistic offer across the Local London region. The current approach has resulted in many colleges focusing on the same pathways, e.g. seven for EV charging and six for photovoltaics, while at the same time leaving noticeable gaps in areas such as retrofit and insulation technologies.

## STAFF SKILLS AND TRAINING

We carried out in-depth engagement with 70% of staff identified as being involved with green career pathways (across seven of the nine colleges), using a combination of 1:1 meetings, focus groups and an anonymous online survey to identify what staff require to gain the confidence and competence to deliver the new green careers pathways.

In addition to the well-known challenges around recruitment and retention, we observed that while many of the staff are keen to upskill and may have indeed already started doing so, there are issues around capacity, experience in new green technologies, and a lack of confidence and awareness of the bigger picture around the green agenda and industry's needs. We also noted stark differences between the different pathways and colleges, with those in EV charging having much higher levels of confidence than those in heat pump technology.

Overall 74% of lecturers felt they needed more support to build wider subject knowledge to be able to deliver the necessary qualifications.

We have therefore undertaken quite an extensive review of Continuing Professional Development (CPD) and wider training provision, providing a set of recommendations for the colleges and Partnership to take forward.

## INDUSTRY ENGAGEMENT

Industry engagement was a key component of our consultation work and we engaged with over 100 stakeholders through a mix of in-depth-interviews, more general discussions and participation in a number of roundtables and workshops.

Engagement between industry and education has been growing over the last ten years, with increasing initiatives and collaborations to engage the next generation into industry. When looking across the colleges in the Partnership, we observed that industry engagement is good but patchy, with larger, more established colleges generally having the dedicated resources to drive industry engagement.

While this has created examples of good practice, such as Employer Advisory Boards, civil engineering forums and digital construction programmes, they do not currently achieve the reach and benefits a regional joined-up approach could have.

## CONCLUSION

In conclusion, colleges in Local London and the Partnership as a whole have already made great strides around green skills provision, however it is imperative the momentum continues and more is done to leverage the power of the collective to increase benefits across the region.

We have provided a set of recommendations in the report, for consideration at the Partnership level, and have also set out a proposed framework to develop regional centres of excellence. In order for many of these recommendations to be successfully implemented, we believe it is essential for the Partnership to have a centrally resourced hub that has responsibility for industry engagement, future funding opportunities, professional training and development, and communications for the colleges as a collective.

## SUMMARY OF KEY RECOMMENDATIONS:

In total we identified 16 recommendations. The following nine recommendations are fundamental to the success of the Partnership moving forward:

- Create a dedicated plan of action to develop the Local London region as a centre of excellence for 2-3 key areas, such as built environment/retrofit, digital green skills or EV charging.
- Explore the opportunity to combine the installation of green labs and the greening of the curriculum with the wider decarbonisation of the college estate.
- Leverage the Partnership's green focus and new course provision to identify new sources of funding, to be used for further capital upgrades as well as revenue funding for the central hub and specific joint initiatives.
- Coordinate green career pathway delivery across the Partnership, ensuring both a holistic regional provision as well as each college delivering the most appropriate curriculum aligned with local and learner needs, college facilities and staff expertise.
- Develop collaborative, cross-college relationships to create a Partnership wide teaching, training and CPD plan.
- Develop a Partnership-level industry engagement and communications strategy (including CIAG), led by a central team that consolidates and further develops region-wide employer relationships and collaborative partnerships.
- Put in place a regular, structured review process to future proof the green skills curriculum.
- Develop an internal and external communications strategy.
- Create a central planner for key industry events and explore the benefits of having a joined-up Partnership presence at some of these.

<sup>1</sup> Barking & Dagenham College, Barnet and Southgate College, Capel Manor College, London South East Colleges, New City College, Newham College, Newham Sixth Form College, Shooters Hill Sixth Form College and Waltham Forest College.

# 2. BACKGROUND – LONDON CONTEXT AND THE PROJECT BRIEF



## 2.1 The context

As outlined by the most recent IPCC synthesis report published in March 2023, the viability of humanity living within planetary boundaries rests on the actions we take in the next seven years.

To keep within the 1.5°C limit, beyond which climate impacts will be exponentially worse, emissions need to be reduced by at least 43% by 2030 compared to 2019 levels, and at least 60% by 2035 <sup>2</sup>.

The UK government has committed to net zero by 2050 under the Climate Change Act.

In 2021, the Mayor of London was re-elected with a Net Zero by 2030 commitment, bringing forward his target by 20 years. The Mayor has set out an ambitious mission for the capital to become a net zero carbon, zero-pollution city by 2030 and a zero-waste city by 2050 <sup>3</sup>.

The impact of climate change has become a reality, even in London, as evidenced by more frequent heat waves, flooding and increasing levels of air pollution. However, climate change also presents an opportunity to lower energy bills, create new jobs and improve quality-of-life.

The Mayor of London has adopted 'Accelerated Green' <sup>4</sup> as the pathway to reach the net zero by 2030 goal, balancing the urgency and ambition with social justice and deliverability. The aim is to double the size of London's green economy to £100 billion and 0.5 million green jobs by 2030. Achieving these ambitious targets will require co-ordinated action from the Mayor, local authorities, wider public sector (inc. national government), finance, businesses, education and communities.



Some of the key targets under the Accelerated Green pathway include:

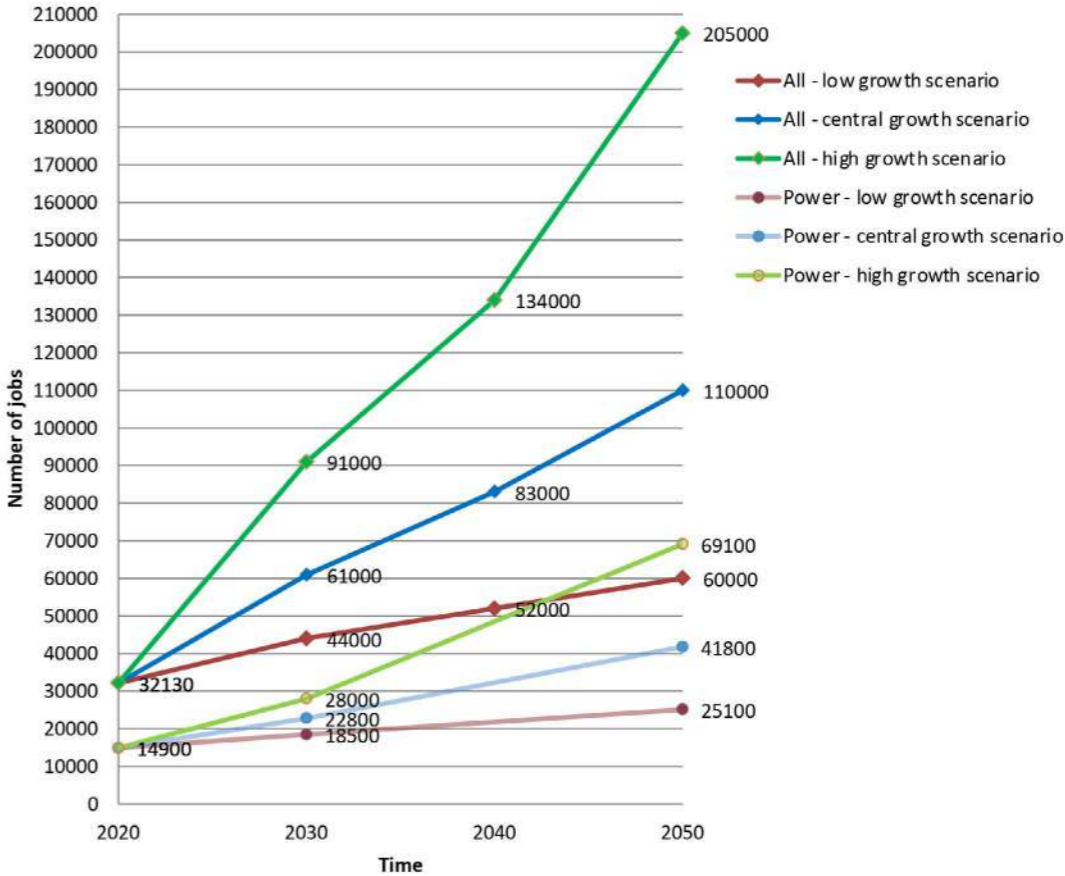
- A reduction in emissions of 78% by 2030 (22% residual emissions will need to be offset, with further reduction/ elimination tackled shortly after 2030)
- 40% reduction in the total heat demand in buildings, requiring £200K+ homes to be retrofitted each year
- The installation of 2.2 million heat pumps and 460K connections to heat networks
- A 27% reduction in car vehicle km travelled, combined with a significant transport modal shift
- Accelerating the transition to electric vehicles combined with a rapid increase in EV charging point infrastructure

These targets will support the creation of jobs and skills, in particular in the areas of retrofit and transport, creating opportunities for all to benefit from.

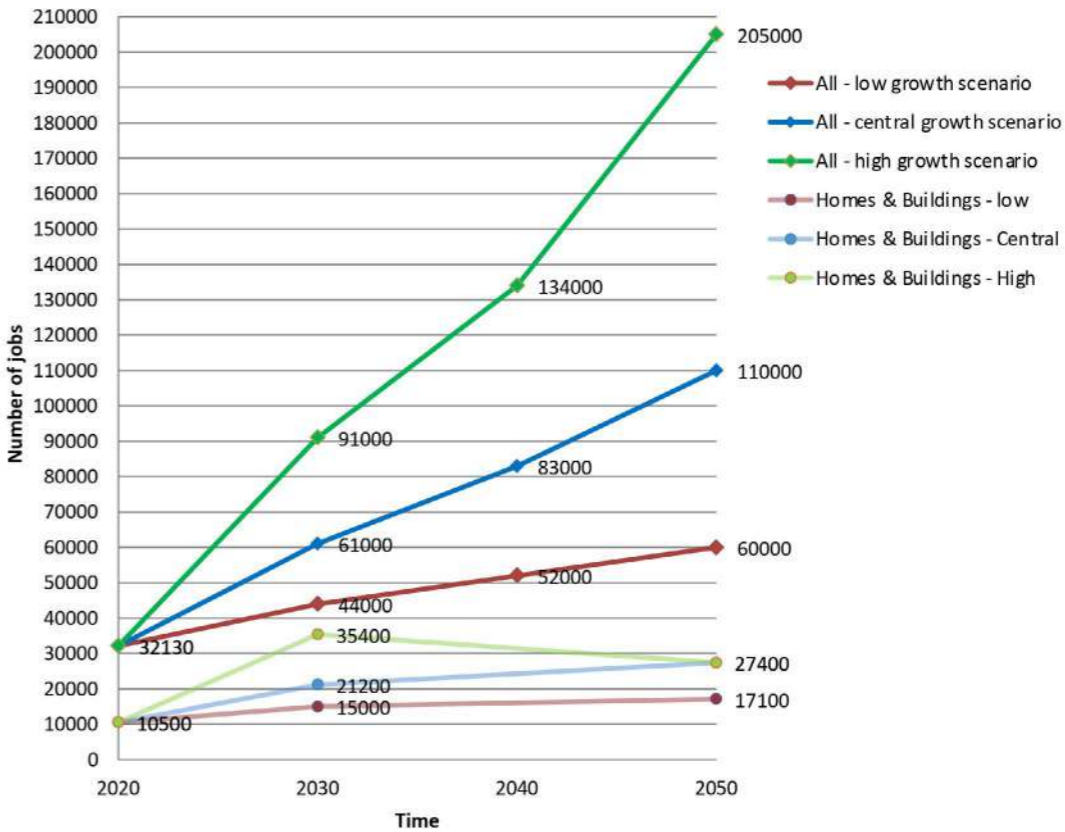
“  
THERE IS A RAPIDLY  
CLOSING WINDOW  
OF OPPORTUNITY  
TO **SECURE A  
LIVEABLE AND  
SUSTAINABLE  
FUTURE FOR ALL.**”

Growth scenarios for Local London indicate a projected rise in green jobs to 61,000 to 91,000 by 2030 (under the central and high growth scenarios) and 110,000 to 205,000 by 2050. Three sectors account for almost 8 in 10 of Local London's total number of green jobs by 2050: Power (38%); Homes and Buildings (24.9%); Low Carbon Transport (14.6%). Power represents the largest growth sector, followed by Homes and Buildings. Areas such as industrial decarbonisation, hydrogen and carbon capture have the highest predicted growth, but are starting from a much smaller base.

Local London Green Jobs Growth – All & Power Sector



Local London Green Jobs Growth – All & Homes & Buildings sector



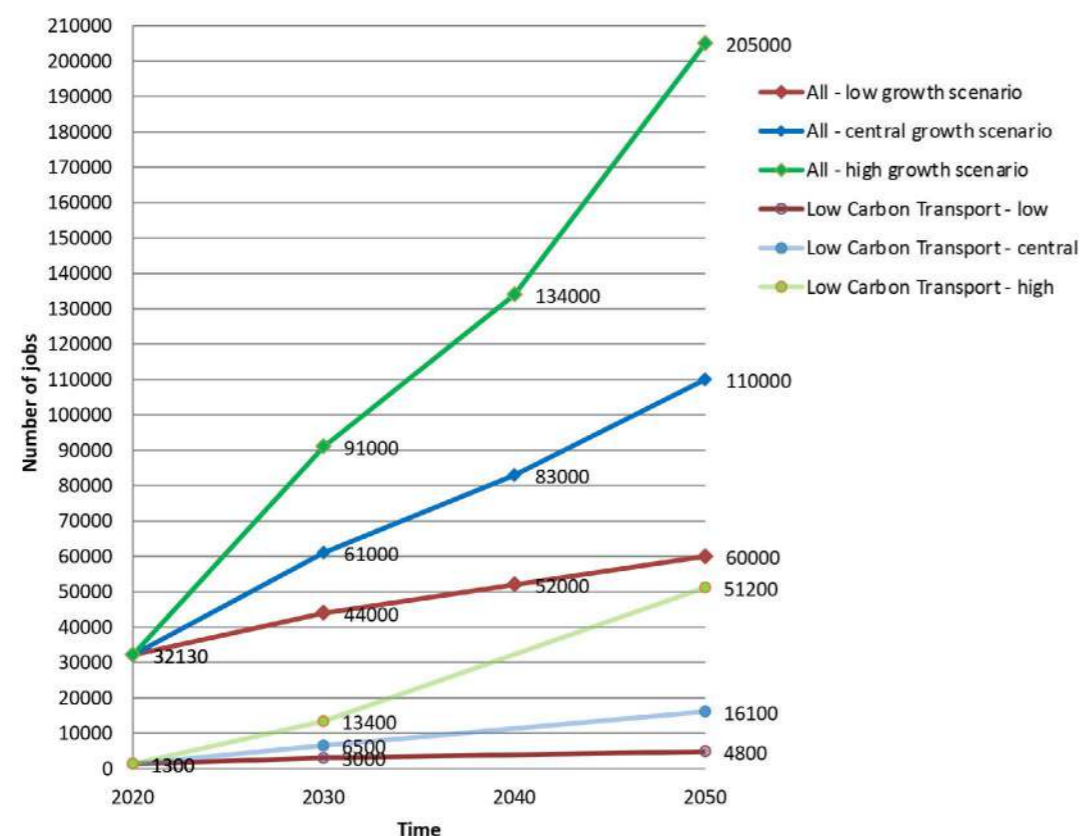
<sup>2</sup> Cooper, N., 2023. *Climate change: The IPCC just published its summary of 5 years of reports – here's what you need to know*. World Economic Forum. Online article, viewed 31 March 2023. [Link](#)

<sup>3</sup> Greater London Authority, 2023. *Zero Carbon London*. Web page, viewed 31 March 2023. [Link](#)

<sup>4</sup> Greater London Authority, 2022. *London Net Zero 2030: An updated pathway*. Online report, viewed 31 March 2022. [Link](#)

Source: Green Jobs and Skills in Local London, WPI Economics and Institute for Employment Studies, Feb. 2022.

## Local London Green Jobs Growth – All & Low Carbon Transport



Source: Green Jobs and Skills in Local London, WPI Economics and Institute for Employment Studies, Feb. 2022.

In terms of occupational groups, the fastest growth rate is projected for skilled craft workers (113% increase to 2030), projected to be the largest group in 2030. Growth rates for other groups are: associate professionals (63%); managerial (98%); professional (87%).

While there will be sectors/jobs that will be heavily impacted by the transition towards a net zero economy and even disappear altogether (in particular in construction and land transport), there is expected to be a net increase of 6,700 jobs in 2030 and around 3,900 jobs in 2050 in the Local London area.<sup>5</sup>

Even so, further and higher education will be required not only to provide new entrants to the labour market with the requisite green skills but also to upskill/reskill those already in work to be able to meet the demand for new green skills.

As such, there is both an urgent need and an amazing opportunity to:

- Increase education provision in subjects and courses that are relevant for green jobs
- Increase the proportion of those taking relevant courses who progress to employment within green sectors
- Increase the flows from other, non-green, sectors into green sectors, including through re-skilling training.



## 2.2 The project

This project is part of a wider bid, with funding allocated under the Department for Education's Strategic Development Fund (SDF). The SDF provides investment to enable areas across England to:

- reshape their teaching and training provision
- update their facilities in preparation for the rollout of local skills improvement plans.

The Green Academies Partnership – a group of colleges under the Local London Green Jobs and Skills Partnership submitted a collective bid covering the Local London area plus Bromley sub-region, spanning nine boroughs in the north, east and south east of London (Enfield, Waltham Forest, Redbridge, Newham, Barking and Dagenham, Havering, Greenwich, Bromley and Bexley), representing over 2.5 million residents and around 100,000 businesses.

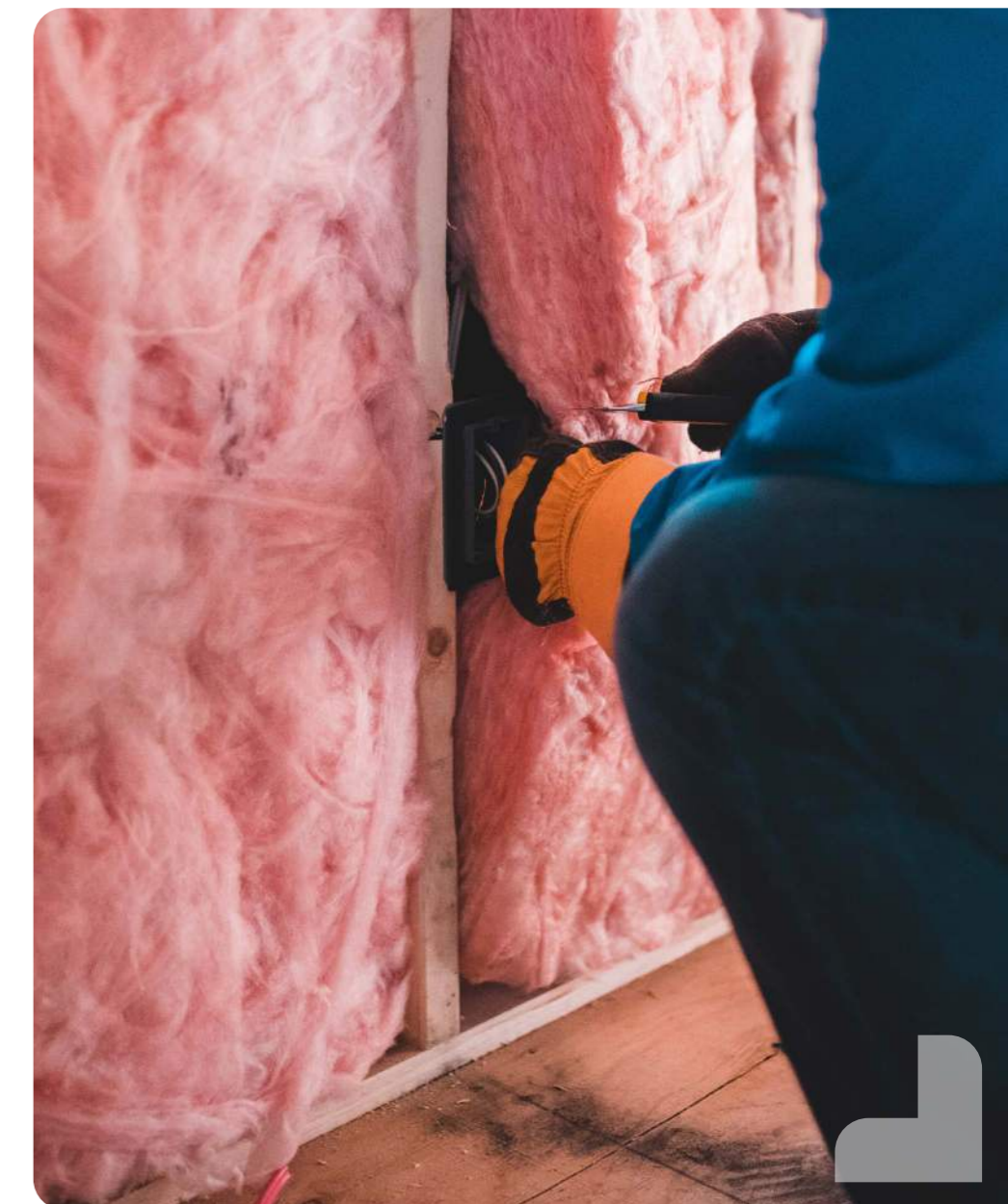
Local London is working to achieve inclusive and sustainable growth, and opportunities for all. This project is designed to support disadvantaged communities, who will benefit from the skills priorities identified, focusing on opportunities to address immediate challenges; support a green recovery; and act as a catalyst of change in the local skills delivery system. It will include collaboration with employers through the BusinessLDN led London Local Skills Improvement Plan (LSIP) to identify changing technologies, skills demands, and employment opportunities in the sector and ensure a pipeline of future skilled talent from our local communities with pathways to improved, higher value employment.

The aims of the SDF funded project are to:

- **Build capacity and coordination** through focused recruitment of specialist staff and centralised coordination of activities streamlining provision and avoiding duplication of efforts and costs
- **Design and deliver new skills in key sectors with acute skills needs** through the development of new curriculum content and qualifications that respond directly to employers and sectors with acute skills needs
- **Improve the quality of further education** through the development of a common baseline provision and quality assurance

- **Stimulate employer demand and investment in skills** through working collaboratively on approaches to employer consultation and engagement
- **Align local skills needs** with the strategic focus of the LSIP.

The project included both capital investment for a number of the colleges to invest in the delivery of new infrastructure and specialist equipment and/or upgrading of existing facilities, as well as revenue investment for curriculum and content development, staff upskilling/ capacity building and improved, coordinated industry engagement.



<sup>5</sup> Edgar, J. et al, 2022. *Green Jobs and Skills in Local London*. WPI Economics and Institute for Employment Studies.

# 3. OVERVIEW OF OUR METHODOLOGY AND APPROACH



The Crystal Associates team was appointed in January 2023 to lead on the industry consultation project, supporting nine colleges<sup>6</sup> in the Partnership with green skills provision. The main objective of this work has been to ensure the colleges and the Partnership are well placed to provide the skills and tools for local people to access the green jobs of the future.

The scope of work has focused on the following career pathways, identified by the colleges through previous research and consultation:

- Building Information Modelling
- Computer Aided Design
- Electric Vehicle Charging Installation
- Ground source heat pumps
- Internal/external insulation technologies
- Photovoltaics
- Smart/sustainable infrastructure
- Restoring and sustaining London's Green Spaces
- Retrofitting

Over the course of the project, we have focused on the following four areas, through a combination of desk research, extensive industry and wider stakeholder consultation, and direct engagement with each of the colleges:

- Facilities - we have conducted dedicated site visits with each college, including meetings with the strategic leads and other key staff
- Curriculum - we have reviewed and assessed both the current curriculum provision as well as planned provision tailored to the new pathways



- Staff skills and training - we have undertaken a combination of staff focus groups, 1:1 meetings and an anonymous staff survey, alongside dedicated research and stakeholder engagement to obtain both quantitative and qualitative data on current and future market requirements and training
- Industry engagement - we have undertaken extensive industry consultation, speaking to more than 100 organisations (from employers and industry associations to training and awarding bodies), as well as assessing the current levels of engagement at each college.

In conclusion of this project, we have provided an overall summary report for the Partnership, alongside dedicated reports for each individual college.

In this summary report, we focus on our assessment of and future opportunities for the Partnership and the Local London region as a whole, as it pertains to facilities, curriculum (current and planned), staff skills and training, and industry engagement. We share our findings and set out recommendations on facilities, future skills provision, staff training and collaboration with industry, against the overall objective of positioning the Local London area as a centre of excellence for several green skills pathways, including built environment/retrofit (incorporating key technologies such as digital, electric vehicle charging and green space).

<sup>6</sup> Barnet and Southgate College, Barking & Dagenham College, Capel Manor College, London South East Colleges, New City College, Newham College, Newham Sixth Form College, Shooters Hill Sixth Form College and Waltham Forest College.

# 4. KEY FINDINGS

Key findings in each of the four themes of facilities, curriculum, staff skills and training, and industry engagement across the colleges in the Partnership are as follows:

## 4.1 College facilities

Site visits were carried out to ten sites across the nine colleges. These were as follows:

- Barking & Dagenham College, Rush Green campus with the East London Institute of Technology
- Barnet and Southgate College, Southgate campus
- Capel Manor College, Enfield campus
- London South East Colleges (LSEC), Bromley Campus
- New City College, Hackney campus
- Newham College, the London City Institute of Technology and Stratford campus
- Newham Sixth Form College
- Shooters Hill Sixth Form College
- Waltham Forest College, Waltham Forest campus

The majority of site visits took place between 27 January and 14 February before a lot of the equipment had started to be installed. Hence our findings are based on what was available to see and design drawings and floor plans.

Four of the colleges received SDF funding for capital works expenditure: Barnet and Southgate, LSEC, Newham and Shooters Hill Sixth Form.<sup>7</sup>

Eight of the colleges received capital equipment funding and six of them are working with Quantum Group to deliver and install the physical equipment required to deliver the new green skills-oriented curriculum.

The following section summarises the facilities at each college which have been identified to provide the respective green skills courses. It also touches on any planned facility upgrades as part of the current SDF funding, and any perceived challenges and opportunities for the future. More details can be found in the individual college reports.

### 4.1.1 Barking & Dagenham College

The green provision will be located in an annex to the East London Institute of Technology (IoT). One of 12 current IoTs in the country it has been designed in partnership with Coventry University London, to deliver advanced and higher-level specialist training in emerging occupations including construction and infrastructure technologies as well as advanced engineering and robotics, creative, digital and IT.

Barking & Dagenham College (BDC) is one of six colleges working with Quantum Group to deliver and install the physical equipment required to deliver the new green skills-oriented curriculum.

The BDC project is being overseen by the Head of Department for Building Services and Smart Construction who carried out a similar project at Havering College.

At the time of our site visit on 2 February 2023, the room had been prepared but no equipment had been installed.

Capital equipment purchased by BDC as part of the SDF project is: smart home technology, a solar system, PV battery storage, four insulation testing rigs and EV testing rigs.

During the site visit we were shown where the solar panels are to be installed on an adjoining roof. We were also informed there would be an air source heat pump located outside although it seemed not to have been purchased.

<sup>7</sup> Newham College, Shooters Hill Sixth Form College and Waltham Forest College.

### 4.1.2 Barnet and Southgate College

We visited the Southgate Campus on 30 January 2023 and saw the proposed W21 (EV and PV workshop) and W25 (engineering workshop), two sections of currently one large room. We also visited a classroom for electrical teaching that had been recently refurbished. According to the Local London SDF application, Barnet and Southgate has 430m<sup>2</sup> of space, which is the largest of the colleges.

Barnet and Southgate is one of four colleges who bid for capital works expenditure as part of the SDF project.

The laser cutter and two 3D printers were already in place. The seven booths shown in the design drawings for fault finding, student installation, service and maintenance, and working system were in the early stages of assembly. Other capital equipment purchased as part of the SDF project is EV equipment, PV equipment, as well as BIM licenses.

There are also plans to upgrade the wider Southgate campus, in particular the heating systems currently under the canteen area.

At the Colindale Campus in Barnet there are air source heat pumps but these are out of scope for this SDF project, due to the location of the campus outside of Local London.

### 4.1.3 Capel Manor College

We visited the main Capel Manor and Garden site in Enfield on 6 February 2023. Capel Manor is the only land-based college within the Partnership. They did not receive any capital funding through the Local London SDF bid.

Capel Manor currently has four other sites: Forty Hall Farm, Mottingham, Regents Park and Crystal Palace. All sites cover all five of Capel Manor's curriculum areas.

The Enfield site covers 30 acres. As well as the opportunity to focus on and demonstrate urban greening solutions such as rainwater harvesting, green walls and green roofs, Capel Manor has a lot of space for technology e.g. ground source heat pumps.

There is also scope for Capel Manor to decarbonise its own buildings, such as the Vendo building which is said to be 80% ready and could be upgraded for rainwater run-off and storage and an existing network to showcase sustainable resourcing.

### 4.1.4 London South East Colleges (LSEC)

We visited London South East Colleges' Bromley campus on 14 February 2023. London South East Colleges (LSEC) is the lead partner in the Partnership.

LSEC is a large further education college, with eight campuses across south east London providing a wide range of vocational and higher education courses.

The LSEC campuses are located in three of the Local London boroughs: Bromley (Orpington campus), Bexley (Holly Hill and Bexley campuses) and Greenwich (Adult & Community Learning Centre at Greenwich Park Centre, Construction Skills campus in Kidbrooke and Plumstead campus).

LSEC is one of four colleges who bid for capital works expenditure as part of the SDF Application. LSEC is also one of the six colleges working with Quantum Group to deliver and install the equipment required.

In line with the SDF application, LSEC plans a refurbishment and the electrification of existing space to provide a dedicated workshop of 300 m<sup>2</sup> to accommodate the following equipment: working, student install and fault-finding air source heat pumps, solar PV, solar thermal and battery storage equipment, EV charging point systems, and 20 laptops and EV charging point systems as well as 20 laptops. At the time of the visit the equipment was still to be installed.

In future the College also wants to develop a 'smart home', subject to further funding.

Space is an issue around the site, making it necessary to move learners around different campuses.

The Plumstead campus in the Royal Borough of Greenwich is currently being developed and could play a role in the future green and digital skills provision.

### 4.1.5 New City College

We visited New City College on 3 March 2023 although we went to the Hackney campus (located outside the Local London boundaries) rather than the Rainham campus in order to see their completed green lab.

New City College (NCC) consists of 11 campuses, six of which are located within the Local London region. Three are in the London Borough of Havering (Ardleigh Green Campus, Havering Sixth Form Campus and Rainham Construction & Engineering) and three in the London Borough of Redbridge (Epping Forest & Redbridge Campus, Ilford Campus and Redbridge Campus).

The other five NCC sites are in Hackney (Hackney campus), Tower Hamlets (Arbour Square Campus & Atlee A Level Academy and Tower Hamlets Campus) and further afield at the Westbourne Academy in Bournemouth and the Oxford School of English.

Workshops and installation bays were showcased at the Hackney campus, as the first ones in the college group to be supplied and installed by Quantum Group. The finished bays provide practical spaces for learning, installing and maintaining heat pumps, electric vehicles, PV, solar thermal and battery storage.

Quantum Group is also supplying and installing the same equipment at the Rainham Construction & Engineering site and NCC has purchased two panels and DC battery storage, an air source heat pump system, EV charging points, a garage service kit and a demonstration vehicle.



### 4.1.6 Newham College

We visited Newham College's Stratford campus on 27 January 2023 and the London City Institute of Technology on 9 February and again on 23 February 2023. We have covered the two sites separately.

#### 4.1.6.1 Stratford campus

Newham is one of four colleges who bid for capital funding as part of the SDF application. It is also one of the six colleges working with Quantum Group to deliver and install the equipment required. This is focused on the Stratford campus and the refurbishment of 360m<sup>2</sup> of existing space, called W Block, to provide dedicated workshop space as a green technology facility for electric vehicles and new energy.

Quantum Group is supplying and installing a full working solar PV system on the roof, EV charging points, air source heat pumps, solar thermal systems, PV panels, specialist tools and materials, and metaverse training resources.

In addition, according to the SDF application, Newham College has also purchased IT hardware.

As a result of a connection facilitated by Crystal Associates during the course of our consultation project, Newham College is planning to install 300 smart sockets in W Block supplied by Measurable Energy, which should support significant energy and carbon savings.

#### 4.1.6.2 London City Institute of Technology

The London City Institute of Technology (IoT) is a partnership between Newham College and Queen Mary University of London which has been open since September 2022.

The IoT is comprised of eight floors shared with Queen Mary University, delivering high-quality technical qualifications in a range of science, technology, engineering, and mathematics (STEM) subjects including engineering, digital and construction.

Newham College uses the first five floors which include two set aside for businesses to occupy. The other floors consist of small classrooms – some set up as workshops, others as traditional classrooms, albeit with camera



technology to allow for interactive hybrid learning.

The eighth floor is used by Level 7 and 8 students on Mondays and Tuesdays. The rest of the week it is available to host events. During the course of this project the Crystal Associates team organised two events at the IoT: a roundtable on electric vehicles, chaired by the Clean Energy Cities lead at the Centre for Net Zero (part of Octopus Energy), and the Tech London Advocates PropTech Net Zero Challenge awards.

### 4.1.7 Newham Sixth Form College (NewVlc)

We visited Newham Sixth Form College (NewVlc) on 3 February 2023.

NewVlc's main focus will be on the delivery of computer aided design (CAD) and building information modelling (BIM) courses. Therefore, 23 workstations were due to be bought as part of the SDF application.

During the visit, we passed through the current classrooms and a new classroom which has been set up in a refurbished block in order to deliver the CAD training.

### 4.1.8 Shooters Hill Sixth Form College

We visited Shooters Hill Sixth Form College on 30 January 2023.

Shooters Hill is one of four colleges which bid for capital funding as part of the SDF application. This covers enclosure and bunding for the electric vehicle yard, estimated to be 35 m<sup>2</sup> which was about to start at the time of the visit. The campus currently provides four bays for internal combustion engine vehicles.

Shooters Hill is also one of the colleges working with Quantum Group to deliver and install the equipment required.

In order to deliver the EV courses, Shooters Hill has purchased an EV charging point and a demonstration vehicle, which will be either full electric, a plug-in hybrid electric vehicle (PHEV) or hybrid. The equipment is relatively low voltage due to safety considerations, however the team would like to be able to offer training on higher voltage charging points for larger vehicles such as HGVs and buses in the future. Post our site visit we learnt that the charging unit has been installed, however it is smaller than anticipated and thus its effectiveness for teaching is uncertain.

During the visit we also met with the Estates Director, who informed us Shooters Hill is also planning a wider redevelopment of the grounds.

4.1.9 Waltham Forest College

We visited Waltham Forest College on 2 February 2023.

We walked through a number of workshop areas which were being reconfigured to allow for the provision of green skills training.

The College has an impressive motor vehicle area which looks like a professional garage. There is currently one bay for EVs, however this may not be sufficient.

The College is also creating a smart home area. Bricklaying students have built the 'home' and it is currently being kitted out with PV as well as an air source heat pump. There is scope to add other technologies such as solar shading window film and smart sockets.

Capital equipment purchased by Waltham Forest to be installed in the smart home includes air source heat pump systems and solar PV and battery storage systems (working, student install and fault finding).



4.2 Curriculum

This section provides an overview of the current and planned provision for the nine career pathways, followed by a pathway by pathway overview of market trends and qualifications, with recommendations on opportunities for improvement, including:

- Possible collaborations in the development of the curriculum and content
- The potential for sharing specialist teaching and learning resources
- Ways to reduce duplication and optimise value for money across the Partnership.

Given the timing of the SDF funding, colleges have already settled on their respective pathways. Our consultation work has focused on identifying and evaluating the current curriculum being offered and the plans for the next academic year and beyond. We reviewed what colleges are planning to provide, assessing its relevance through an industry lens and identifying areas for collaboration with industry and across the colleges.

The below table indicates what career pathways each college is currently delivering or plan to deliver in the next academic year and what pathways they are considering to offer in the future.<sup>8</sup>

College	Retrofit	PV	Heat pumps	Insulation tech	Smart/sust. infra	CAD	BIM	EV charging	Green spaces
Barking & Dagenham	✓	✓	✓		✓			✓	
Barnet & Southgate		✓				✓		✓	
Capel Manor									✓
LSEC		✓	✓		✓	✓	✓	✓	
New City	✓	✓	✓			✓		✓	
Newham	✓	✓	✓	✓	✓	✓	✓	✓	
NewVic		✓			✓	✓	✓		
Shooters Hill			✓		✓			✓	
Waltham Forest		✓	✓	✓	✓	✓	✓	✓	

✓ - immediate area of focus  
✓ - future area of focus

<sup>8</sup> As confirmed by the colleges during our site visits in January-March 2023.

The pathways in order of popularity are:

1. **Electric vehicle charging installation:** seven colleges are delivering or plan to deliver courses in the next academic year.
2. **Photovoltaics:** six colleges are delivering or plan to deliver courses in the next academic year and one is considering it for the future.
- 3= **Heat pumps (predominantly air source heat pumps):** five colleges are delivering or plan to deliver courses in the next academic year and one college is considering it for the future.
- 3= **Smart/sustainable infrastructure:** five colleges are delivering or plan to deliver courses in the next academic year and one is considering it for the future.
5. **Computer aided design:** four colleges are delivering or plan to deliver courses in the next academic year and two are considering it for the future.
6. **Building information modelling:** three colleges are delivering or plan to deliver courses in the next academic year and one is considering it for the future.
7. **Retrofit:** one college is delivering or planning to deliver courses in the next academic year and two are considering it for the future.
8. **Internal/external insulation technologies:** two colleges will be considering it in the future.
9. **Green Spaces:** there is only one college with an obvious alignment with the green spaces career pathway, which is Capel Manor, however other colleges should keep the pathway in mind due to its broader relevance within planning and urban development.

The career pathway choices are mostly based on/influenced by a combination of different factors, including:

- The existing curriculum and qualifications offered by the colleges, combined with facilities, staff availability and staff experience. Therefore, colleges offering trades such as electrical, mechanical engineering, heating engineering, plumbing and construction, are considering green technologies such as photovoltaics, electric vehicle charging and heat pumps.

- Previous decisions taken about capital funding and allocation on the upgrading of college facilities and infrastructure.
- Awareness of the local policy framework, e.g. London's focus on clean air and electric vehicle charging infrastructure.
- A lack of in-depth awareness and insight in green career pathways in the FE education sector, such as:
  - Retrofit - there is a lack of understanding and consideration of roles that are critical and the qualifications/routes into retrofit careers, including Retrofit Advisors, Coordinators, Assessors, Designers, Installers and Evaluators.
  - Insulation technology - this is one of the core components of retrofit and there is a need to ensure qualifications meet the occupational standards and alignment to PAS2035.
  - Air source heat pumps (ASHP) – there is a growing nationwide need for ASHP installation, particularly in London, where space is limited for ground source heat pumps. The colleges are recognising this and are starting to send lecturers on ASHP courses.
  - Alignment between different green technologies – creating a need for college departments to work together, for example automotive and electrical (for EV and EV charging), technology and construction (for smart building and energy efficiency), the trades (for green technologies and retrofit).
- A lack of coordinated decision making within the Partnership leading to many of the colleges delivering the same pathway or qualifications.



The qualifications offered by colleges vary depending on the type of college:

- Most predominantly offer full-time courses for 16-19 years olds: Level 1, 2 and 3 qualifications and Level 3 apprenticeships in construction and the trades, e.g. bricklaying, carpentry, plumbing, electrical and construction multi skills. All of these subjects and qualifications are useful pathways into green careers in photovoltaics, electric vehicle charging installation, heat pumps, retrofitting and internal/external insulation technologies.
- Level 3 apprenticeships allow learners to specialise in year 4 in a green technology, e.g. a Level 3 qualification in plumbing or conventional heating engineering, with a specialisation in ground source heat pumps. This ensures laying down the foundational learning and industry prerequisites before choosing a green pathway.
- Several of the colleges are planning to offer or are already offering the new T-levels. The T-levels are intended to be an alternative to A-levels, apprenticeships and other courses for 16-19 year olds. They are currently in an early stage of development and the available construction related T-levels are primarily focussed on new build. However, they offer a good opportunity for the green career pathways, in particular if the work placement is able to offer the relevant experience. Some T-levels, such as the T-Level in Construction Design, Surveying and Planning, give learners the opportunity to develop highly desirable design skills, using tools like CAD. Other construction T-levels, such as T-level Technical Qualification in Onsite Construction, allow learners to develop more of the skills for installing, maintaining and fault finding of green technologies.
- Several colleges are offering transition pathways at Level 2, which are a good way to introduce learners to different green pathways. These courses are designed to allow a learner to gain the level of mathematics and English they require and to try the

vocational area, before considering whether to progress onto a T-Level, apprenticeship or other Level 2-3 qualification.

- A smaller number of colleges offer short or part-time courses for adult learners who want to upskill. This is a very important aspect of the green careers pathways. Examples include upskilling in retrofit via PAS2035-aligned qualifications (for skilled workers in aligned trades, e.g. plastering, rendering) or Level 3 18th Edition: Award in the Requirements for Electrical Installation Award, for Photovoltaics (key for employers).

A list of the qualifications offered by the nine colleges is included in Annex 1 of this report.

The following section gives further details for each pathway. Our recommendations for career pathways and qualifications across the Partnership are based on: industry needs, Local London needs, recognising which colleges are best suited to deliver specific pathways, reviewing types and levels of qualification and which colleges are best placed to deliver them, coordinating and combining resources and staff training.

#### 4.2.1 Computer Aided Design (CAD) and Building Information Modelling (BIM)

Given the connected nature of these two career pathways we have looked at them together in this report.

#### THE MARKET

The global computer-aided design (CAD) market was valued at USD 9.89 billion in 2021 and is expected to grow at a compound annual growth rate (CAGR) of 6.9% up to 2030.<sup>9</sup>

Key players in the 3D CAD software market that have been mentioned by some of the colleges and employers interviewed include Autodesk, Bentley Systems, Dassault Systèmes, Siemens, Trimble and TurboCAD.

### BIM ALSO STANDS FOR 'BETTER INFORMATION MANAGEMENT'

The global building information modelling (BIM) market was valued at USD 5.2 billion in 2019, and is projected to reach almost USD 16 billion by 2027<sup>10</sup>.

The generally understood objective of BIM software is to enhance project performance and to produce better outcomes through enhanced data communication and coordination among various stakeholders coupled with improved construction productivity. To this effect, BIM is sometimes also defined as "Better Information Management" and not just at construction stage but across the whole value chain from initial concept design, through to construction, operation, retrofit and even demolition.

A key part of this is the concept of digital twins. The global digital twin market size was valued at USD 11.12 billion in 2022 and is projected to exhibit a CAGR of 37.5% from 2023 to 2030.<sup>11</sup>



### COLLEGE PROVISION

Of the nine colleges, five will focus on CAD – Barking & Dagenham, LSEC, New City, Newham and NewVlc and three on BIM – LSEC, Newham and NewVlc in the short term.

NewVlc is actually supporting Barking & Dagenham College with the delivery of its CAD training.

Barnet and Southgate and Waltham Forest colleges are considering CAD and BIM from September 2024, although there could be an opportunity sooner for Barnet and Southgate to leverage its focus on gaming, as some universities such as the University of East London (UEL) are doing.

The general feedback has been that the high cost of the CAD licenses from the key market players is generally prohibitive. Licenses are mainly paid for on an annual basis or on a Software-as-a-Service (SaaS) model.

Capel Manor College is also using CAD as part of the garden design provision but plans to use Trimble's SketchUp software which is less flexible than some other software but cheaper.

### QUALIFICATIONS

Colleges could consider:

- Partnering with [MOBIE](#) to deliver the Pearson BTEC Level 3 Extended Diploma in Construction and the Built Environment, which has the existing core units from Pearson and six specialist MOBIE modules designed to give learners foundational knowledge and experience about the future of home building and smart/sustainable building. The modules cover:
  - o Building Information Modelling (BIM)
  - o CAD (Revit)
  - o Principles of Offsite Construction
  - o Off-site manufacturing (OSM) Housing Industry and Economics
  - o Alternative and Renewable Energy Systems
  - o Digital Technologies

### EMPLOYERS ARE REALLY LOOKING FOR PEOPLE WITH DEGREE LEVEL QUALIFICATIONS FOR BIM

The vocational learning options include:

- For CAD:
  - o City & Guilds Computer Aided Design (7689) Level 1 Award in Parametric Modelling and Level 2 Computer Aided Design courses.
- For BIM:
  - o OCN Level 3 Implementation of Building Information Modelling (6073-31) and Level 3 Fundamentals of Building Information Modelling (6073-30)
  - o OCN NI Level 3 Award in Digital Construction with Building Information Modelling (BIM).

#### 4.2.2 Electric vehicle charging

#### THE MARKET

As part of its announcement on 30 March 2023, the UK Government revealed plans to invest more than £380 million into boosting EV charging points and infrastructure across the country to support the roll-out of electric vehicles.<sup>12</sup>

This follows on from the setting out of its UK electric vehicle infrastructure strategy in March 2022 and the vision to end the sale of new petrol and diesel vehicles by 2030 and for all new cars and vans to be fully zero emission at the tailpipe by 2035.

As part of the Mayor of London's 'Accelerated Green' pathway, there is an ambition to reduce car vehicle km travelled by 27% by 2030 as

well as accelerating the shift to EVs and enabling a rapid increase in EV charging point infrastructure.

One key barrier to the adoption of electric cars is the number of publicly available rapid chargers. As of November 2021, there were around 8,400 chargers in London – the Mayor of London has committed to a further 1,000 rapid chargers by 2030.<sup>13</sup>

In addition to cars, the number of electric black cabs is also increasing as well as electric delivery vans and zero emission buses. The latter require higher voltage charging points. There are examples around the world of the electrification of river freight and HGVs which could also be relevant to London and the UK in the not-too-distant future.

### COLLEGE PROVISION

Seven of the nine colleges plan to provide courses on EV charging. Shooters Hill is also looking at maintenance and fast overhead chargers for larger vehicles such as HGVs and buses.

Several of the colleges already have motor vehicle provision, including LSEC, Newham (Stratford campus), Shooters Hill and Waltham Forest. Once the infrastructure has been installed Shooters Hill will also offer short bolt-on courses.



<sup>9</sup> Polaris Market Research, 2022. *Computer Aided Design Market Share, Size, Trends, Industry Analysis Report, By Component (Software, Services); By Technology (3D Technology, 2D Technology); By Application; By Industry; By Region; Segment Forecast, 2022 - 2030*. Online report, viewed 31 March 2023. [Link](#)

<sup>10</sup> Allied Market Research, s.d. *Building Information Modeling Market Statistics: 2027*. Online article, viewed 31 March 2023. [Link](#)

<sup>11</sup> Grand View Research, s.d. *Digital Twin Market Size, Share & Trends Analysis Report By End-use (Manufacturing, Agric. Grand View Research, s.d. Digital Twin Market Size, Share & Trends Analysis Report By End-use (Manufacturing, Agriculture), By Solution (Component, Process, System), By Region, And Segment Forecasts, 2023 - 2030*. Online report, viewed 31 March 2023. [Link](#)

<sup>12</sup> Gov.uk, 2023. *Shapps sets out plans to drive multi billion pound investment in energy revolution*. Press release, viewed 31 March 2023. [Link](#)

<sup>13</sup> Cecil, N., 2021. *Londoners buying electric cars soars as capital shifts to becoming green city*. Evening Standard. Online article, viewed 31 March 2023. [Link](#)

## QUALIFICATIONS

Colleges should consider:

- The IMI qualifications:
  - o IMI Level 3 award in electric hybrid vehicle system, repair and replacement
  - o IMI Level 2 and 3 diploma in light vehicle maintenance and repair principles
- Providing a Level 2 introduction to Electric Vehicle Charging. This can be included as part of a transition course or other foundational learning before choosing Level 3 progression routes or alternative pathways. As mentioned above, Quantum Group has created a Level 2 qualification which is a good introduction to renewable technologies, including EV charging: Level 2 'Sustainable Energy and Renewables Technologies' course. This qualification covers installation, service, maintenance, commissioning and fault finding. It also covers wider aspects of understanding the climate challenge, energy transition and the commercial skills required for the workplace.
- Adding bolt-ons and final year specialisms to existing Level 2/3 qualifications in Electrical Apprenticeships and other qualifications. At Level 3, there are prerequisites to be met for electrical installation – these can be achieved by providing the learners with City & Guilds Level 3 18th Edition: Award in the Requirements for Electrical Installation Award.
- IMI Level 3 advanced apprenticeship in engineering maintenance (electric/electronic) with electric vehicle specialist pathway
- LCL Level 3 Award in the Design Installation and Commissioning of Electrical Energy Storage Systems (Quantum Group can support this)

- LCL Level 3 Award in the Installation and Commissioning of Electric Vehicle Charging Equipment in Domestic, Commercial, and Industrial locations (Quantum Group can support this)
- City & Guilds 2921-31 Design and installation of domestic and small commercial electric vehicle charging installations.
- City & Guilds Level 3 18th Edition: Award in the Requirements for Electrical Installation Award
- City & Guilds Level 3 award in electric/hybrid vehicle awareness
- OLEV<sup>14</sup>-approved workplace charging scheme installer certification
- OLEV-approved domestic smart charger grant installer certification
- OLEV-approved public charging infrastructure grant installer certification

### 4.2.3 Heat Pumps

#### THE MARKET

The UK Government's Ten Point Plan for a green industrial revolution published in 2020, set out ambitions to roll out 600,000 heat pumps into homes per year by 2028.<sup>15</sup> One of the measures in the Government's announcement on 30 March 2023 was for a new £30 million Heat Pump Investment Accelerator designed to leverage £270 million private investment to boost manufacturing and supply of heat pumps in the UK. The Boiler Upgrade Scheme, which offers a £5,000 grant to anyone buying a heat pump, will be extended to 2028.<sup>16</sup>

The Mayor of London's 'Accelerated Green' Pathway sets out plans to roll out 2.2 million heat pumps by 2030 in London alone.<sup>17</sup>



New build housing, of which there are some 160,000 per annum, will likely be where we see the fastest uptake of heat pumps (both air source (ASHP) and ground source (GSHP) in the short term as developers look to secure solutions before the looming ban on gas boilers in 2025.

However, if the UK is to reach the 2028 target of 600,000 heat pumps, then it is the household retrofit market that will need to contribute the majority of the installations. The expectation is that retrofit will be best serviced by air source heat pumps as a direct replacement for the existing gas boiler market. There were a reported 1.7 million gas boilers installed in 2020 and with well over 20 million residential buildings currently still using a gas boiler there are no doubts about the size of the market as well as the skills challenge.

However, the UK still lags far behind its European neighbours such as the Nordics, France and Switzerland in terms of the roll-out of heat pumps. Key barriers to adoption in the UK are stated as the perceived cost and issues around the ability to effectively heat the existing stock of domestic and non-domestic buildings without an insulation first approach which underlines the need for skills in this area too.<sup>18</sup>

## COLLEGE PROVISION

Of the nine colleges, six plan to provide dedicated courses on heat pumps. Only Barnet & Southgate, Capel Manor and NewVlc colleges do not. In the short-term, Shooters Hill College would like to focus on F-Gas training.

Originally the colleges were going to focus on ground source heat pumps, as indicated in the SDF application. However, due to space constraints the main focus will be on teaching air source heat pumps; colleges like LSEC will just touch on ground source and there is potential to use the provision at CEME Innovation Centre in Rainham. The refocus on ASHP makes sense in view of the scale of the skills challenge from a domestic market perspective as identified above.

### QUALIFICATIONS

Colleges can consider providing a Level 2 Introduction to Heat Pumps, which can be included as part of a transition course or other foundational learning before choosing Level 3 progression routes or alternative pathways. As outlined above, Quantum Group has created a Level 2 qualification which is a good introduction to renewable technologies, including heat pumps: Level 2 'Sustainable Energy and Renewables Technologies' course. This qualification covers installation, service, maintenance, commissioning and fault finding. It also covers wider aspects of understanding the climate challenge, energy transition and the commercial skills required for the workplace.

Another option is adding bolt-ons and final year specialisms to existing Level 2/3 qualifications in plumbing or conventional heating engineering. Specialist qualifications include:

- City & Guilds Level 3 Award in the Installation of Heat Pump Systems (Non-refrigerant circuits) 2399-34
- Level 3 Award in Environmental Technologies

### 4.2.4 Internal/external insulation technologies

#### THE MARKET

On 30 March 2023, the UK Government unveiled the Great British Insulation Scheme, a rebranded ECO+, which aims to upgrade 300,000 of the country's least energy efficient homes.<sup>19</sup>

This follows on from the award on 23 March of £1.8 billion through the Social Housing Decarbonisation Fund, Home Upgrade Grant and Public Sector Decarbonisation Scheme to upgrade social homes and public buildings. As part of this, more than 115,000 vulnerable households and off-gas grid homes with an EPC rating of D or below across England are to receive upgrades to improve their energy efficiency. These schemes could support around 20,000 jobs in the construction and home retrofit sectors and thus will require the necessary skills.<sup>20</sup>

In London, the Mayor's Warmer Homes Programme, launched in May 2022, pledged 43 million pounds of funding for low-income households living in low energy efficiency homes. This was to support around 45,000 London homes with grants for insulation for floors, walls and roofs as well as heat pumps, heating system improvements, draught proofing and solar energy.<sup>21</sup>

### COLLEGE PROVISION

Only one of the colleges is planning to offer provision around internal and external insulation technologies at a future stage.

Some of the colleges such as Barking & Dagenham and Waltham Forest have provided plastering courses in the past but this provides an issue with space, which is limited in most of the colleges.

To support this transition, we have engaged with the Finishes & Interiors Sector (FIS). FIS's members are made up of fit-out and specialist contractors, manufacturers and distributors involved in the supply and installation of ceilings, steel framing systems,

operable walls, partitions, plastering, dry lining and joinery products in every type of building.

## QUALIFICATIONS

Colleges can consider:

- Adding bolt-ons to existing trades-based 'Multi Skills Construction' apprenticeships or T-Levels, or as a progression route.
- Supporting learners to take additional unit(s) reflecting a range of insulation-related specialisms.

The vocational learning options include:

- GQA Level 2 NVQ Diploma in Thermal Insulation (Construction)
- City & Guilds Level 2 and 3 NVQ Insulation and Building Treatments
- NOCN Cskills Awards Level 2 NVQ Diploma in Insulation and Building Treatments (Construction) (various pathways).
- Learners upskilling or reskilling can take additional unit(s), available from NOCN, GQA and City & Guilds, including:
  - o Cavity Wall Insulation
  - o Solid Floor Insulation
  - o Under Floor Insulation
  - o External Wall Insulation Boarder
  - o External Wall Insulation Finisher



<sup>14</sup> Office for Low Emission Vehicles

<sup>15</sup> Gov.uk, 2020. The ten point plan for a green industrial revolution. Web page, viewed 31 March 2023. [Link](#)

<sup>16</sup> Gov.uk, 2023. Shapps sets out plans to drive multi billion pound investment in energy revolution. Press release, viewed 31 March 2023. [Link](#)

<sup>17</sup> Greater London Authority, 2022. *London Net Zero 2030: An updated pathway*. Online report, viewed 31 March 2022. [Link](#)

<sup>18</sup> Jackman, J., 2023. *Which Countries Are Winning the European Heat Pump Race?* The eco experts. Online article, viewed 31 March 2023. [Link](#)

<sup>19</sup> Gov.uk, 2023. Shapps sets out plans to drive multi billion pound investment in energy revolution. Press release, viewed 31 March 2023. [Link](#)

<sup>20</sup> Gov.uk, 2023. *£1.8 billion awarded to boost energy efficiency and cut emissions of homes and public buildings across England*. Online article, viewed 31 March 2023. [Link](#)

<sup>21</sup> Greater London Authority, 2023. Warmer Homes. Web page, viewed 31 March 2023. [Link](#)

## 4.2.5 Photovoltaics

### THE MARKET

The Mayor of London is committed to increasing the amount of solar energy captured in London as part of his wider ambition for London to become a zero-carbon city.

The Mayor of London's 'Accelerated Green' net zero pathway sets a target for at least 1.5 gigawatts (GW) of rooftop solar to be installed by 2030<sup>22</sup>, exceeding his previous target of 1GW under the 2018 Mayor's Solar Action Plan. Achieving this will require strong and supportive policy from national government alongside local government, private sector, charities, individuals and of course colleges.

Through spatial mapping and access to technical support the London Solar Opportunity Map highlights opportunity areas for installing solar and battery storage in homes and businesses.

A report commissioned by the Greater London Authority and published in April 2022 'Planning for Roof Mounted Solar Photovoltaics in London' identified that almost one third of Greater London's area consists of building rooftops, 530km<sup>2</sup>, however half of the existing residential building stock are flats with complex shared ownership and one fifth is designated as a Conservation Area.<sup>23</sup>

Nevertheless, 15% of households or half a million homes are already in fuel poverty. Increasing installation rates of solar PV could not only provide energy savings but also help alleviate fuel poverty within the city, especially as energy prices have increased considerably since 2020.

### COLLEGE PROVISION

Of the nine colleges, six plan to provide courses around photovoltaics in the short term. NewVlc would like to introduce photovoltaics at some time in the future, space permitting or in partnership with a college that already provides photovoltaics. Only Capel Manor and Shooters Hill do not plan to provide courses around solar although Capel Manor may utilise solar panels on the homes in the show gardens.



Of the seven colleges, four are also looking to include battery storage and solar thermal – these are LSEC, New City College, Newham College and Waltham Forest College.

To support this transition, we have engaged with Solar Energy UK, an established trade association working for the solar industry, representing 256 businesses and associations. Solar Energy UK has a core set of recommended qualifications that we have considered and curated in the CPD, training and qualifications spreadsheet (see Annex 2).

### QUALIFICATIONS

Colleges have several options to consider:

- Providing a Level 2 Introduction to Photovoltaics – this can be included as part of a transition course or other foundational learning before choosing Level 3 progression routes or alternative pathways. Quantum Group has created a Level 2 qualification which is a good introduction to Photovoltaics: Level 2 'Sustainable Energy and Renewables Technologies' course. This qualification covers installation, service, maintenance, commissioning and fault finding. It also covers wider aspects of understanding the climate challenge, energy transition and the commercial skills required for the workplace. Quantum Group offers a license model for colleges and train the trainer

training, teaching and assessment resources.

- Providing an environmental specialism in Year 4 of Level 3 courses, such as trade based electrical apprenticeships, or as a bolt-on or progression route. For example, City & Guilds offers qualifications in 'Installation, Service and Maintenance of Environmental Technology Systems' and an appropriate selection for the following awards:
  - Level 3 Award in Environmental Technologies
  - Level 3 Award in the Installation of Small Scale Solar Photovoltaic Systems
  - Level 3 Award in the Installation and Maintenance of Small Scale Solar Photovoltaic Systems
  - Level 3 Award in the Installation of Solar Thermal Hot Water Systems
  - Level 3 Award in the Installation and Maintenance of Solar Thermal Hot Water Systems

All learners will need at least a NVQ 3 in Electrical Installation (Buildings and Structures) or equivalent earlier certification that provides evidence of competence. In addition, if not included, they will need current certification of BS 7671 Requirements for Electrical Installations – this can be provided by offering the City & Guilds Level 3 18th Edition: Award in the Requirements for Electrical Installation Award.

## 4.2.6 Restoring and sustaining London's green spaces

### THE MARKET

The Mayor of London's overarching goal is for London to be a greener, cleaner and healthier place for all Londoners.

The top priority is tackling toxic air, a public health crisis which is linked to over 4,000 premature deaths every year as well as strokes, heart attacks, asthma, dementia and stunted lung function in children.

Other related priorities for London, which also support better air quality include:

- Making London the first National Park City, with more than 50% green space by 2050.
- Protecting and improving London's outstanding green spaces; increasing the number of trees through projects including the £9 million Greener City Fund. Green Capital grants support strategic green space projects to bring multiple environmental benefits such as river restoration in parks, new habitats for wildlife and improved space for play.
- Making new buildings more eco-friendly, including installing more green roofs and walls. In August 2020 London's first Green Spaces Commission made two key recommendations in its report.
- Establishing and resourcing a Centre for Excellence for London's public parks and green spaces with the pan-London charity, Parks for London.
- Establishing a Future Green Space skills programme as part of the wider ambition to develop green skills in London, bringing together providers and employers to respond to current and future requirements. This is being taken forward in part through the Mayor's Skills Academies programme and the London Green Space Skills hub led by Groundwork London and Parks for London (including Capel Manor College).<sup>24</sup>

The Green Spaces Commission's report also highlighted the topic of natural capital and that London's public green spaces have a gross asset value of more than £91 billion, providing services valued at £5 billion per year.<sup>25</sup>

At a Local London borough level there is an abundance of green and blue space which will require green skills. Examples include the London Borough of Bexley with over 100 parks covering 638 hectares, including the 100-hectare Foots Cray Meadow; Waltham Forest's jewel - Walthamstow Wetlands in a 211-hectare nature reserve; and Greenwich's Royal Greenwich Park covering 74 hectares.

There are also many developments – large and small - across the Local London boroughs, which include large green and blue spaces. One example is the redevelopment of Thamesmead, London's biggest regeneration project, which has 240 hectares of parks and green space, 7km of canals, five lakes, 5km of river frontage and 53,000 trees and will need continual investment in maintenance and enhancement.

### COLLEGE PROVISION

Capel Manor College is clearly best placed out of all the Local London colleges to engage in the green spaces pathway and already runs various courses which meet some of London's ambitions around green spaces.

Possible provision to develop further could include training of business employees on topics such as wilding, as is already the case with Peabody staff at Thamesmead.

Nevertheless, there is also the opportunity for other colleges in the Partnership, possibly with Capel Manor's support, to provide teaching provision in urban greening, potentially in areas such as green walls and roofs, as this is becoming increasingly important in urban planning and development.

<sup>24</sup> Greater London Authority, 2023. London Green Spaces Commission. Web page, viewed 31 March 2023. [Link](#)

<sup>25</sup> Parks for London, 2019. *A review of London's parks and green spaces: strategy, governance and value*. Online report, viewed 31 March 2023. [Link](#)

## QUALIFICATIONS

As a method of raising awareness and providing opportunities for learners to develop their knowledge of green pathways, green technologies and sustainability, colleges can consider:

- Pearson's BTEC Sustainability Skills Level 2
- Pearson's Apprenticeship Frameworks in Environmental and Land-based Environmental Conservation Level 3
- City & Guilds Environmental Conservation Level 2 and 3. These knowledge-based qualifications form part of the Apprenticeship Framework for Environmental Conservation, Equine and Floristry and the Advanced Apprenticeship Framework for Environmental Conservation, Equine, Forestry and Floristry. They are also ideal for professional development and preparing you for further learning in the land-based sector.
- The OCNLR Level 2 Award, Certificate and Diploma in Skills for Professions in Horticulture, Environmental and Animal Care. This has been developed to provide a flexible approach to study, combining vocational units with ones to enhance learning and employability. The vocational units fall into four themes: i) horticulture, which encompasses but is not restricted to an organic approach; ii) environmental conservation; iii) 'green care', which adopts a holistic approach to the relationship between outdoor environments and human health and wellbeing; and iv) animal care. The green units include:
  - o Ethical and Political Issues relating to Land-Based Activities L2
  - o Global Warming and Climate Change L2
  - o Introduction to Sustainability L2
  - o Investigate an Environmental Issue L2
  - o Project in Sustainability L2
  - o Global Warming and Climate Change L2

- o Exploring Careers in the Green Industries
- A T-Level in Agriculture, Environment and Animal Care <sup>26</sup>

For adult learners and upskilling only:

- BPEC Rainwater Harvesting & Greywater Recycling Systems – the prerequisites for this qualification are a number of years' experience in a relevant subject area or a formal qualification in plumbing or heating engineering.

### 4.2.7 Retrofitting

#### THE MARKET

Homes and workplaces account for around 78% of carbon emissions in London, and with 80% of the existing building stock likely to still be in place in 2050, it is important to improve the energy performance of these buildings in order to cut costs and carbon. <sup>27</sup>

Home retrofitting, involving fabric improvements, renewable energy generation and low carbon heat sources, is essential for making London's homes greener, warmer and more affordable to live in. For these reasons, there is also a high level of political support across London to achieve deep carbon reductions from home retrofit.



Retrofit London is a collaborative programme, led by London's local authorities, which will achieve mass home retrofitting to achieve an average Energy Performance Certificate Level of B by 2030. It is being led by the London boroughs of Enfield and Waltham Forest, with support from London Councils and the London Housing Directors' Group (LHDG), a professional network of senior housing officers. The programme is nationally significant, with an estimated cost of £49bn. and will require a collaborative approach from all parts of government and the retrofit sector, including colleges, to ensure success. This relates to over two million homes across London. <sup>28</sup>

However, retrofit does not only relate to homes. Across London, a quarter of a million non-domestic buildings need to be retrofitted by 2030. <sup>29</sup> A large proportion of buildings are classified as heritage buildings and would require 205,000 workers alone if they are to be retrofitted by 2050. <sup>30</sup>

Skills shortages are a significant issue – nationally we need around 400,000 additional people - and thus it is one of the 12 priorities in Retrofit London's 'Housing Implementation Plan'. This creates a significant opportunity for the colleges in Local London, particularly for Waltham Forest and Barnet and Southgate.

## COLLEGE PROVISION

Of the nine colleges, only New City College is specifically looking to provide courses on retrofit in the near future. The current provision is theory based and the College wants to transition to more practical courses.

Barking & Dagenham and Newham colleges are considering such courses in the future.

To support this transition, we have been engaging with various industry stakeholders, including the Retrofit Academy, who are able to support with a compelling license agreement to exclusively deliver accredited training, resources, quality assurance and assessment support.

### QUALIFICATIONS

A retrofit career path can be started through a general construction course or apprenticeship (e.g. Level 2 plastering, dry lining, construction skills, and installation operative; Level 3 Plastering, Thermal insulation, Construction Multi-Skills) and then adding on smaller retrofit qualifications or applying directly to an employer and working towards the achievement of specific retrofit qualifications, such as Level 2 and 3 NVQ Insulation and Building Treatments, which is a requirement for installing insulation on retrofit projects.

A tradesperson needs to be skilled in one or more of a range of energy efficiency measures to take on one of the main retrofit roles, such as Assessor, Coordinator or Installer. The Retrofit Academy has a long history in the sector and created the first accredited programme. Their retrofit courses and qualifications are:

1. NOCN Level 2 Retrofit Understanding of Domestic Retrofit - this provides an excellent grounding for anyone in the retrofit sector, but is specifically designed for technicians ahead of their NVQ or apprenticeship, as part of a transition course or T-Level.

2. NOCN Understanding Repair and Maintenance of Traditional Pre-1919 Buildings (for historic buildings)
3. AIM Level 3 Award in Domestic Retrofit Advice – this qualification gives learners an appropriate level of technical understanding together with customer service skills. This can also be used in addition to an apprenticeship, as a bolt-on to a T-Level, or before a Level 4 or 5.
4. AIM Level 4 Award in Domestic Retrofit Assessment – for the assessor role
5. AIM Level 5 Diploma in Retrofit Coordination and Risk Management – for the coordinator role

For colleges offering programmes and apprenticeships in areas such as electrical, plumbing and heating, they can also consider:

- Adding a specialist pathway to year 4 of an Apprenticeship in Plumbing or Domestic and Heating Technician, using a bolt-on qualification from a variety of units the NOCN Group offers, covering subjects such as retrofit, solar, insulation and energy efficiency. These are ideal to support existing qualifications, courses and apprenticeships or as part of the FE enrichment programmes. In particular, there is a retrofit unit which is specific to historic buildings: Understanding Repair and Maintenance of Traditional Pre-1919 Buildings - Level 3.

### 4.2.8 Smart/sustainable infrastructure

#### THE MARKET

The term 'smart and sustainable infrastructure' is extremely broad and people's perceptions and understanding of its meaning and impact vary significantly.

In a 'Smart London' context, London's Chief Digital Officer has set out six key priorities for the 2021 to 2024 Mayoral term which build on the now completed 'Smarter London Together' roadmap. Two of the six priorities



refer specifically to "green" including the Emerging Technology Charter and the Sharing Cities project which focus on scaling green tech and open innovation linked to the Green New Deal. <sup>31</sup>

The [Horizon 2020 'Sharing Cities' project](#) was a major international smart cities project, with London as one of the three lead cities, that addressed some of the most pressing urban challenges facing today's cities such as energy use, low carbon transport and buildings, and harnessing data for the good of the city. The programme was officially completed in December 2021. The London pilot projects were set in Greenwich and delivered by DG Cities, the digital arm of Greenwich Council. The pilot projects focused specifically on a water-sourced heat network, building energy efficiency measures, electric vehicles as well as digital engagement with local residents, all topics relevant to the Local London Green Jobs and Skills Partnership.

Smart buildings normally refer to the use of Internet of Things (IoT) devices (e.g. sensors, software, online connectivity) across various building wide systems (HVAC, lighting, alarms, security) into a single IT managed network infrastructure, in order to maximise the efficiency of building operations and services, and ensure the comfort of its occupants. Smart buildings are seen as a critical component in the race to achieve net zero. The global smart building market was valued at USD 67.60 billion in 2021 and is projected to grow significantly to USD 328.62 billion by 2029. <sup>32</sup> The global smart home market is also expected to grow from USD 99.89 billion in 2021 to USD 380.52 billion in 2028. <sup>33</sup>

<sup>26</sup> <https://www.cityandguilds.com/tlevels/land-based>

<sup>27</sup> Greater London Authority, 2023. *Energy in Buildings*. Web page, viewed 31 March 2023. [Link](#)

<sup>28</sup> London Councils, 2023. Retrofit London. Web page, viewed 31 March 2023. [Link](#)

<sup>29</sup> Greater London Authority, 2022. *London Net Zero 2030: An updated pathway*. Online report, viewed 31 March 2022. [Link](#)

<sup>30</sup> Grosvenor, s.d. *Heritage and carbon*. Webpage, viewed on 31 March 2023. [Link](#)

<sup>31</sup> Greater London Authority, 2023. *Smart London Programmes*. Web page, viewed 31 March 2023. [Link](#)

<sup>32</sup> Fortune Business Insights, s.d. *Smart Building Market Size, Share & Covid-19 Impact Analysis, By Component (Solution, and Services), By Application (Residential, and Commercial), and Regional Forecast, 2022-2029*. Online article, viewed 31 March 2023. [Link](#)

<sup>33</sup> Fortune Business Insights, s.d. *Smart Home Market Size, Share & Covid-10 Impact Analysis, By Product (Home Monitoring/Security, Smart Lighting, Entertainment, Smart Appliances and Others) and Regional Forecast, 2021-2028*. Online article, viewed 31 March 2023. [Link](#)

## COLLEGE PROVISION

Of the nine colleges, six plan to provide courses related to smart and sustainable infrastructure - Barking & Dagenham, LSEC, Newham, NewVic, Shooters Hill and Waltham Forest.

Shooters Hill is introducing a short Level 2 award in sustainability and green energies for around 100 students this academic year. Waltham Forest is introducing a T-Level on Building Services in September 2023; supported by its smart home. NewVic plans to pilot a new Level 2 course on sustainability from February 2024.

The focus of the colleges is primarily on the domestic market, however there is a strong argument that they should also focus on the commercial market, particularly in building services.

## QUALIFICATIONS

Colleges can consider:

- The 'Design, Engineer Construct! The Digital Built Environment' course – an introduction for 16–19-year-old learners. The DEC Learning Programme <sup>34</sup> project-based learning allows learners to apply science, technology, engineering and maths. This pathway leads to a range of professional career pathways in industry and academic progression routes. DEC comprises three levels, each with recognised qualifications:
  - Foundation Level 1
  - Intermediate Level 2
  - Advanced Level 3, which attracts full UCAS points for university and degree apprenticeships.

The qualifications are:

- TQUK Level 1 Certificate in Design, Engineer, Construct! The Digital Built Environment (RQF)
- TQUK Level 2 Certificate in Design, Engineer, Construct! The Digital Built Environment

- TQUK Level 3 Diploma in Design, Engineer, Construct! The Digital Built Environment

### 4.3 Staff skills and training

This section provides a summary of findings from staff engagement and stakeholder consultations, as it pertains to staff skills and staff confidence, and opportunities for training and Continuing Professional Development (CPD) to deliver the green careers pathways.

We carried out in-depth engagement through 1:1 meetings, focus groups and an anonymous online survey to identify what staff require to gain the confidence and competence to deliver the new green careers pathways.

This involved speaking direct to 43 out of 61 teaching and careers staff identified as being involved with green careers pathways (in seven of the nine colleges <sup>35</sup>) as well as a small number of students, and reviewing the results of 23 completed surveys.

#### 4.3.1 Staff confidence and competence

When reviewing competencies, our key findings are as follows:

- Staff are keen to upskill and many have started already, but capacity is always an issue.
- Staff who still work in industry are the most current and are willing to support their colleagues in a 'train the trainer' capacity.
- Staff in more traditional trades lack the hands-on industry experience but have higher-level maths, English and design skills.
- Staff reported a lack of confidence and awareness of the bigger picture, including the climate crisis, sustainability, national policy and legislation, the green agenda, industry needs, the sector's employment needs, and general health and safety considerations for the new green technologies.

- There is a lack of confidence to deliver against the new standards at Level 3 and a lack of experience with green technologies.
- There is a lack of confidence, in particular for those pathways that encompass a number of disciplines, such as retrofit, and those that include technology, e.g. smart/sustainable infrastructure.
- There are not enough competent and confident staff mainly due to the salaries not being competitive with industry. This is even more challenging where colleges want to recruit staff with current green technologies and design experience, along with a Level 3 competence in maths and English. Some of the colleges have identified solutions, e.g.:
  - NewVic has recruited a diverse team from industry, academia and maths GCSE and A-level teachers to deliver the T-level and the transition programmes. The department lead provides opportunities for training, including staff to staff training and joint planning of the teaching and learning approach for a qualification.
  - Shooters Hill have arranged an industry-led EV course at Level 3 or Level 4 (two days of training at a test centre).
  - Shooters Hill developed a partnership with a small local business, [Coolio Ltd](#), who designed the learning content and deliver both theory and practical workshop elements. Coolio Ltd spends one day a week delivering the programme to 84 students alongside an additional CPD offer.
  - Colleges that have been working with Quantum Group on the installation of new green facilities and equipment have been or will be receiving training and CPD from them (listed in the CPD table), so that they can confidently and competently use the new facilities and deliver qualifications.

- There are specific challenges for the new T-Levels. For more trade-based colleges, the design and technical element of the T-level Construction: Design, Surveying and Planning can be more challenging to deliver, as it requires a higher level of maths and English, alongside design experience. Those colleges often do not have the learner profile, the staff experience or the facilities to deliver this.

When reviewing confidence levels (drawn from the survey responses <sup>36</sup>), our findings are as follows:

Common themes:

- Most respondents (70%) did not feel confident teaching higher level apprenticeships.
- Most respondents (74%) felt they needed more support to build wider subject knowledge and be able to deliver the qualification at all levels.
- Most respondents (64%) felt they needed more support developing technical (hands-on) experience.

Stark differences between some of the green career pathways/colleges:

- EV charging installation: respondents were most ready to deliver the green pathways. They felt confident teaching the learning outcomes required and clear on how to plan and set assessments. However, those that had not had hands-on experience and training wanted to have this before they began teaching.
- Heat pumps: respondents returned lower levels of confidence compared to other pathways. Only one respondent (25%) agreed with the statements "I know how to assess a learner in ground source heat pumps" and "I can plan and set learner assessments for ground source heat pumps". When rating their confidence teaching the four key learning outcomes, three responded "partially confident" and one had "zero confidence".

This may be partly due to the potential change to air source heat pumps and because staff are in the process of planning the CPD they require. The staff are also aware that there are wider considerations within a new build or retrofit installation, including the assessment of needs, design and other installation considerations which differ from a standard installation.

- CAD and BIM: respondents teaching CAD at NewVic reported high levels of confidence in planning and setting learning assessments and teaching a wide range of course levels. This is mainly because there is a staff member that is competent with CAD and is willing to support other staff. There is also a commitment from the department lead to support staff to develop both CAD and BIM skills.

- Modular qualifications/short credentialled courses: very few respondents felt confident teaching these courses to support green career pathways, mainly because they are used as bolt-ons and staff did not yet feel confident to deliver these subject areas. Where the bolt-on is a technical skill like BIM, they require the specific CPD course to upskill.
- Green spaces: Capel Manor had the widest range of confidence. This is likely due to the fact that they are a land-based college offering a very different range of qualifications to the rest of the colleges.



<sup>34</sup> Through DEC, colleges and learners can access case studies, resources and training. DEC is created by Class Of Your Own, who have partnered with Training Qualifications UK (TQUK) as the Awarding Organisation licensed to deliver official DEC qualifications.

<sup>35</sup> We were unable to engage with Barking & Dagenham College and we were only able to speak with one member of staff at Waltham Forest College on the final day of the consultation.

<sup>36</sup> Respondents were asked to rate their confidence teaching a green career pathway. This included setting tasks and assessing learners, teaching installation, maintenance and troubleshooting and teaching different course types. Respondents were also asked in which areas they felt they needed more support and training.

### 4.3.2 Continuing Professional Development and training options

During the focus groups and meetings, many of the staff members suggested and requested ideas for training to ensure colleges have confident and competent teaching staff.

There is a plethora of providers offering Continuing Professional Development (CPD) and training in the industry prerequisites, the technical installation of green technologies and technical design areas such as BIM and CAD. In addition, there is also provision for foundational professional development in general sustainability and climate awareness, industry health and safety considerations, industry awareness, government policy and legislation.

Annex 2 includes a table with the top-level recommended training and CPD options to equip staff to deliver the green skills pathways, along with a link to the more comprehensive CPD, training and qualifications spreadsheet.

### 4.4 Industry engagement

A key deliverable from our industry consultation project was to provide an employer perspective on the Partnership's and each of the colleges' approach to facilities, curriculum, staff skills and training, and of course, industry engagement.

In this section, we cover the latter. We set out what we have gleaned through desktop research but mostly through direct engagement with over 100 industry stakeholders as well as the college staff who play a role in employer engagement.

We have used a mix of in-depth interviews, more general discussions and participation in a number of roundtables and workshops. We have been actively involved in the various roundtables focused on the London Local Skills Improvement Plan (LSIP), both at a Local London and pan-London level, as well as the colleges' own Employer Advisory Boards.

This section sets out our key findings at a Partnership level on:

- The current landscape in terms of stakeholder and industry engagement
- The Local London market
- Industry feedback - challenges
- Industry feedback - driving industry engagement

#### 4.4.1 Stakeholder and industry engagement

Engagement between industry and education has been developing and growing over the last ten years, with increasing initiatives and collaborations to engage the next generation into industry. This has been in response to the ever-growing skills gap and the overt peril for business succession plans, primarily visible in construction and engineering. Prime contractors and large multi-disciplinary engineering practices have dedicated outreach teams and community managers to create initiatives and opportunities for engagement with the schools and communities in which they work, however this approach is generally hyperlocal. While this creates pockets of best practice, they are quite siloed and do not achieve the reach a regional joined-up approach could have.

Local authorities in London support the development of careers and skills hubs in schools and colleges. Careers hubs such as [London East Careers Hub](#) support students by showcasing the multiple opportunities to learn from employers about work, employment and the skills that are valued in the workplace. The hubs integrate the Mayor's Enterprise Advisory Network in signposting the range of opportunities for students from all backgrounds and showcasing the career opportunities and pathways available into industry in the local area, through careers fairs, voluntary and work experience, workplace visits and enterprise schemes.

These initiatives are beneficial, however they do not mitigate the barriers and challenges faced by small to medium-sized enterprises (SMEs) and Further Education colleges in the engagement and development of skilled young people.

The challenges and barriers identified include the perception of the construction/built environment industry as an unattractive sector to work in for younger generations, a general lack of awareness of the green agenda and its priorities by consumers, and the slow demand from industry for green skills vis-a-vis unrealistic targets set by the Social Housing Decarbonisation Fund (SHDF) <sup>37</sup> and Energy Company Obligation (ECO4) policies <sup>38</sup>. There is an opportunity to join the dots from government to grassroots to create the incentives, links and pathways that support local industry needs and access to talent, and generate enough student demand to meet the skills needs.

Taking a snapshot view across the colleges in the Partnership, we observed that industry engagement is good but patchy. Larger college groups, such as New City College and LSEC, and others such as Newham College and Barking & Dagenham College enjoy good cross-sectoral industry engagement supported by dedicated people, teams and processes, including documented engagement strategies and Customer Relationship Management (CRM) systems. For some of the smaller colleges, it came down to staff, such as the Head of Curriculum, to engage with customers, supported by a simple Excel spreadsheet. However, all colleges acknowledge that improvements can be made. Business engagement remains a priority focus for all FE colleges, and is an Ofsted requirement, and all are working to identify new possibilities.

Colleges recognise that government and industry's push for net zero targets and the subsequent development of new green technologies, their installation and maintenance, will need further and deeper commitments from industry to support a co-designed and

integrated approach to future skills' provision, if supply levels are ever going to reach and match demand.

This project has included a review of current best practice for industry engagement across the nine colleges and the opportunities on which to build and develop across the Local London region and Partnership. Colleges are willing to share details with each other on the interventions which have the most impact and the areas of greater need. And there is an opportunity to create a collective approach across the Partnership.

Examples of best practice include interventions which form a symbiotic relationship between a college and industry, e.g.:

- **Employer Advisory Boards (EABs)** – these are being reinstated by colleges post-pandemic and are in the planning for those that did not have any. EABs comprise of representatives from relevant and specific industry sectors, such as construction, engineering and digital, and are designed to keep the colleges up to date with current industry needs. They provide industry practitioners with the opportunity to develop meaningful relationships with the colleges and a platform for the development of a co-designed approach to deliver the right skills at the right time. Members of the Crystal Associates team are now permanent members of Newham IoT's Construction and Digital EABs and also participated in LSEC's latest Construction EAB.
- **Business organisations** – the main business organisations within the Local London boroughs are the local Chambers of Commerce and The Federation of Small Businesses (FSB). Chambers active in the area include the South East London Chamber of Commerce, which covers five boroughs including Bexley, Bromley and Greenwich, and of which LSEC is a Strategic Partner and thus represented on the Board. Newham College is represented on the Newham Chamber of Commerce. LSEC also engages with the

FSB as well as pan-London business organisations such as BusinessLDN, which supported the SDF application, and the London Chamber of Commerce (LCCI), with a representative on LCCI's skills committee.

- **Civil engineering forums and digital construction programmes** – in collaboration with industry, these support vocationally related approaches, helping colleges to keep abreast of varying pathways into industry via employers or workforce representatives who engage with the students.
- **Fellowship awards schemes and employer membership initiatives** – these are loyalty programmes for local and engaged employers. Representatives are invited in to speak with staff and learners, and are incentivised as individuals for their time.
- **Industry taskforce participation** – such as the London Local Skills Improvement Plan (LSIP), the Construction Industry Training Board (CITB) and government policy groups, both at the national and London level.
- **Careers hubs, fairs, inspiration and open days** – bringing together local schools, young people, families and employers.



“

IT HAS BEEN A **WONDERFUL JOURNEY** COLLABORATING WITH FURTHER EDUCATION TO SUPPORT THE GROWTH IN RENEWABLE TRAINING AND LOCAL GREEN SKILLS SO FAR. MY ENGAGEMENT WITH INDUSTRY STAKEHOLDERS AND ATTENDING LSIP MEETINGS HAS ENABLED A PRODUCTIVE DIALOGUE BETWEEN EDUCATION PROVIDERS AND EMPLOYERS. IT IS IMPORTANT TO SPEAK OPENLY ABOUT THE CHALLENGES WE FACE WITHIN LOCAL ECONOMIES, WHICH IS SUPPORTING NEW ENTRANTS TO THE WORKPLACE WITH HIGHLY PRACTICAL AND TECHNICALLY COMPETENT SKILLSETS. IT IS IMPERATIVE THAT THESE SKILLSETS EVOLVE AT THE SAME PACE AS RENEWABLE TECHNOLOGY ADVANCEMENTS.

**Maria Gonella, Managing Partner, The Quantum Group**

<sup>37</sup> The Social Housing Decarbonisation Fund – Wave 2 supports the government's targets to reduce carbon emissions to net zero by 2050 by funding measures such as ground source heating. It aims to deliver warm, energy efficient homes and reduce carbon emissions and fuel bills.

<sup>38</sup> The ECO – Energy Company Obligation order (Jul '23 – Mar '26) places legal obligations on energy suppliers to deliver energy efficiency measures to domestic premises. It focuses on low income, vulnerable and fuel poor consumer groups through the installation of insulation and heating measures. It aims to encourage the installation of renewables and district heating connections, and the upgrading of heating systems.

4.4.2 The Local London market

Architecture, Engineering and Construction (AEC) organisations working on developments in and around the Local London region, provide the main demand and opportunity for local young people and students.

Travel can be a barrier to under-represented groups and so local job opportunities are key drivers for learning and college enrolment.

The table below sets out over £10 billion of current and future developments across the Local London boroughs. Each will provide hundreds of new jobs and apprenticeship opportunities for students now and over the next few years.

“  
ENGAGEMENT AT A LOCAL LEVEL IS KEY.



Borough	College	Project	Organisations	Project description
Barking and Dagenham	Barking & Dagenham	<a href="#">Eastbrook Studios</a>	Be First, HCP	New homes, film studio, data centre
Bexley	LSEC	<a href="#">Thamesmead regeneration project</a>	Bexley / Greenwich Councils, Peabody Lend Lease	£1bn. investment in homes, commercial, and green and blue space
Bromley	LSEC	<a href="#">Bromley homes for Bromley people</a>	Bromley Council, ZED Pods	1,000 homes by 2030
Enfield	Barnet and Southgate	<a href="#">Meridian Water</a>	Enfield Council, Galliford Try, Meridian Water	10,000 homes, infrastructure, green spaces
Greenwich	LSEC	<a href="#">Thamesmead regeneration project</a>	Peabody, Lend Lease	£1bn. investment in homes, commercial, and green and blue space
Havering	New City College	<a href="#">12 estates regeneration project</a>	Havering Council, Wates	£1bn. investment over 12 years; 12 estates and 3,500 homes
Newham	Newham College, NewVlc	<a href="#">Royal Docks</a>	GLA, Newham Council, various	£8bn. regeneration project including Albert Island and Silvertown Quays
Redbridge	New City College	<a href="#">Ilford Western Gateway</a>	Redbridge Council + Developer (TBA)	860 flats and 4,600 sqm of commercial and green space commercial space, green space
Waltham Forest	Waltham Forest College	<a href="#">Fellowship Square</a>	Waltham Forest Council, Countryside Properties	Transformation of the Town Hall Campus (next to the College)
Thames & Thames Estuary	LSEC, Newham College, NewVlc	<a href="#">Silvertown Tunnel</a>	Riverlinx, TfL	New river crossing from Greenwich to Newham



“  
AS A BUSINESS WE JUST WANT ONE POINT OF CONTACT WITHIN THE COLLEGES RATHER THAN EMAILING LOTS OF PEOPLE WHO JUST DON'T RESPOND.

4.4.3 Industry feedback – the challenges

As mentioned, we engaged with over 100 industry stakeholders during the course of the project through a mix of in-depth-interviews, general discussions and participation in roundtables and workshops. This gave us a unique insight into the key challenges employers are facing:

- There is an obvious growing need for green skills in industry, specifically for the national retrofit programme and in line with the Social Housing Decarbonisation Fund (SHDF) and ECO4 policy, yet in some areas there is a push back on the green skills' focus as traditional skills are deemed more urgent now.
- Findings show there is an immediate need for both traditional retrofit skills such as carpentry, dry-lining and HVAC installers, and new retrofit skills such as assessors, coordinators and designers, as well as the upskilling of trades for installers, insulators and technicians.
- Contractors are expecting the workforce to be traditionally skilled, with growing expertise in green technologies, such as heat pumps, photovoltaics and electric vehicle technologies.
- Transferable skills are top of identified employability issues and have been cited as equal or more of a priority to green skills. There is a desire for these to be learnt at college, but it also underpins the requirement for meaningful experiences with employers, in line with Gatsby Benchmarks.

- SMEs, who have the highest need to recruit a ready-skilled and experienced workforce, often lack the time, resources and funds to support apprenticeships or graduates.
- The threat posed by the so called 'missing middle' – Architecture, Engineering and Construction (AEC) organisations are experiencing an expanding talent gap between the older generation of workers, in the last decade of their careers, and new entrants into organisations in the form of graduates and apprentices. If there is a lack in student demand for the existing vocations and the development of new skills required by industry, the talent gap will only widen and create more issues for future progress.

“  
WE'RE JUST A SMALL BUSINESS SO IT'S DIFFICULT TO FIND TIME TO SUPPORT THE COLLEGES BUT WILLING TO CHAT AND FIND OUT HOW WE CAN DO THIS – BUT IT NEEDS TO BE EASY.



4.4.4 Industry feedback - driving industry engagement

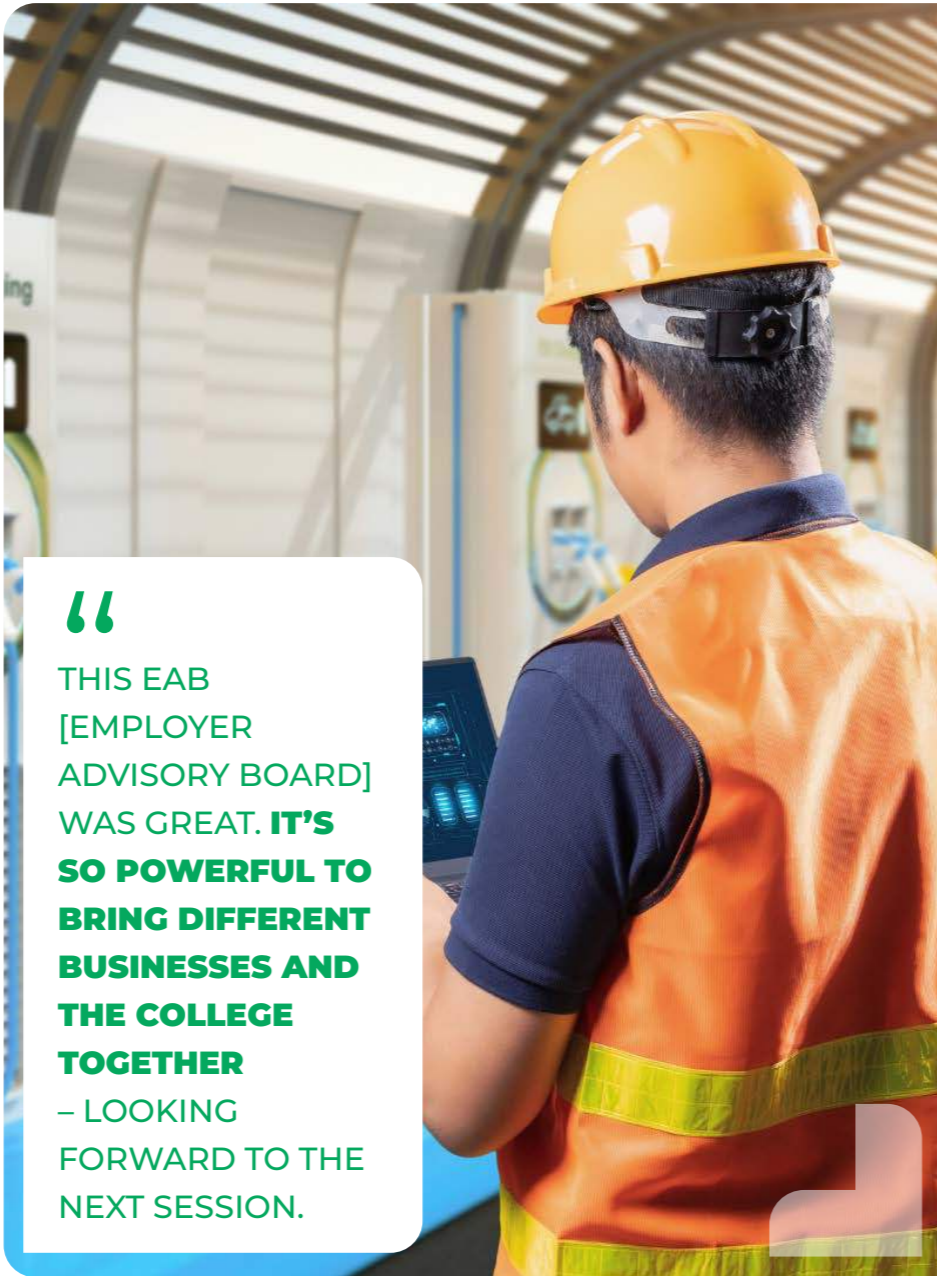
Our discussions with stakeholders have also highlighted many positive aspects. The following comments and suggestions include ways colleges and the Partnership as a whole can drive or further improve industry engagement:

- **Ease of engagement** – many of the employers expressed a desire to start or expand their engagement with the colleges, provided it is easy to do so. Most organisations want to avoid complex processes and prefer a clear ask from the colleges, with plenty of time to plan for activities.
- **A hierarchy of engagement** – it would be highly beneficial for colleges to create strategic models of engagement for industry partnerships, with a hierarchy of mutual opportunities that companies can commit to, in line with their daily reality, from a light touch representation on an EAB to employing apprentices and arranging secondments.
- **On-site engagement** – industry can play a big part in supporting colleges with the development of a skilled workforce, through the sharing of their industry skills and experience with college students through talks or workshops, and workplace/construction site tours. These help bring to life the real world of work and are invaluable when it comes to inspiring young people. They also help dispel the myth that the AEC industry is an unattractive sector for a career.
- **Providing mutual benefit** – it is important for colleges to communicate the mutual benefits of working with industry, as some businesses do not see the urgency or the benefit for them to spend time and resources attracting the next generation or developing new service lines such as heat pumps over traditional plumbing services.
- **Collective engagement** – working as a Partnership with a one-to-many strategic engagement approach to industry would drive regional efficiencies and deliver better and more opportunities than through individual engagement at the college level. Some manufacturers and building suppliers offered to provide in-

kind sponsorship for practical workshops, which helps engender mutual loyalty from the employers to the colleges, and the students to the industry brands.

- **Strategic partnerships** – these are strongly encouraged. Staff secondments can plug gaps in current teaching staff levels; industry can be brought into the classroom and the class can be taken into industry. Inspiration and workplace experience is of paramount importance to encourage students to learn, progress and enter industry.
- **Leveraging destination data** – this will help colleges to keep course topics relevant and in line with industry needs/new technologies. Data supports the generation of a workforce with the right skills at the right time, in line with market forces.

- **Collaboration with industry associations** - the associations have also expressed an interest in engaging with the colleges, whether to support their immediate need with upskilling resources (e.g. BRE), or to share industry learning resources, whitepapers and digital courses. Industry data is needed to maintain strategic growth across the region, to provide a continuous pipeline of skilled workforce to industry, and to reach local and sector sustainability targets. Groups such as the Recruitment and Employment Confederation and the Association for Decentralised Energy are willing to keep colleges up to date with local and national labour market figures, new trends and research.



“ THIS EAB [EMPLOYER ADVISORY BOARD] WAS GREAT. IT’S SO POWERFUL TO BRING DIFFERENT BUSINESSES AND THE COLLEGE TOGETHER – LOOKING FORWARD TO THE NEXT SESSION. ”



Reassuringly, more than half of the organisations we spoke with are keen to explore or expand engagement with the colleges, some of whom we have already introduced to the respective college(s). The organisations are listed in the table below.

Built environment /AEC		Associations / strategic partnerships	
Abintra	Morgan Sindall	The Association for Decentralised Energy (ADE) BRE BIM Academy East London Business Alliance (ELBA) Finishes & Interiors Sector (FIS) Goodpeople Institution of Engineering and Technology (IET) London Chamber of Commerce & Industry (LCCI) Local Chambers MOBIE OCN London Recruitment and Employment Confederation (REC) Retrofit Academy Worshipful Company of Constructors	
Arcadis	My Lady Builder		
Artelia	Peabody		
Atkins	Pickerings Lifts		
CBRE	Polypipe		
Construction Carbon	Quantum Group		
Cundall	Retrofit Academy		
Faithful & Gould	RLB		
Foster & Partners	Siemens		
G&T	Sirus		
Galliford Try	Sun-X		
Get Living	TripShift		
Gleeds	United Living		
Hoare Lea	Waterman		
Hydrock	Wates		
ISG	WSP		
Jerram Falkus			
KT Heating			
Mace			
Digital		Electric vehicles	
Aadra		Arcadis Centre for Net Zero Curv / Project EV Quantenergy Transport for London UPS	
Google Cloud			
Harland & Wolff			
ICE Architects			
JLL			
Measurable Energy			
Norman Architects			
Tech London Advocates / Global Tech Advocates			
		Energy Garden Green Roof Organisation (GRO) Peabody UK Green Building Council (UKGBC) Waste Not Want Not ZED Eco Homes	

# 5. RECOMMENDATIONS FOR THE FUTURE OF THE PARTNERSHIP



We have below provided a set of key recommendations in the four areas of college facilities, curriculum, staff skills and training, and industry engagement, alongside some general ones, for consideration at the Partnership level. College specific recommendations have been included in the individual reports. In addition, we have also set out a proposed framework to develop regional centres of excellence.

In order for many of these recommendations to be successfully implemented, we believe it is essential for the Partnership to have a centrally resourced hub that has responsibility for industry engagement, future funding opportunities, professional training and development, and communications for the colleges as a collective. In addition, the central hub should also support the process to develop centres of excellence.

The central hub would be funded by the colleges (or through additional external funding) and would have the people, infrastructure and processes in place to drive forward the strategic planning and collaborative working. Even though there will be costs involved in the setting up, resourcing and running of the hub, the colleges would greatly benefit from the efficiencies and cost savings derived from joined-up strategic planning and collaborative working.

## 5.1 Recommendations

### GENERAL

- Develop an internal and external communications strategy, which would include:
  - o The roll-out and management of the Local London Green Jobs and Skills Partnership website and central information hub.
  - o A monthly newsletter, providing updates on Partnership and college specific initiatives, industry news, new technologies and innovations, case studies and inspiring profiles.



- Regularly review and make use of data sets, including destination, market and employment data, to inform all aspects of strategic planning for the Partnership.
- Create a central information bank on environmental excellence including best practice examples from different colleges.

### COLLEGE FACILITIES

- Leverage the Partnership's green focus and new course provision to identify new sources of funding, including through exploring further collaboration with the Councils, Local London and the Greater London Authority. Funding could be used for further capital upgrades as well as revenue funding for the central hub and specific joint initiatives.

- Explore the opportunity to combine the installation of green labs and the greening of the curriculum with the wider decarbonisation of each of the college estates.
- Where relevant, ensure tenders/ contracts for retrofitting the respective college estate include conditions for contractors to offer work placements, master classes and site tours to students and possibly staff.
- Share innovations which are being installed and tested at certain colleges, e.g. the plan to install 300 smart sockets at Newham College's W Block.
- Where feasible, provide space for relevant businesses to engage with the respective college and the students as is being done at Barking & Dagenham College and planned at the London City IoT (Newham College).

### CURRICULUM

- Create a dedicated plan of action to develop the Local London region as a centre of excellence for a few key areas: 1) built environment/retrofit 2) digital green skills 3) EV charging 4) green spaces (supported by Capel Manor College). Draw on the framework outlined below and consider the best leadership approach to drive this, either with 1-2 anchor colleges or through a more flexible approach of rotational leadership.
- Coordinate green career pathway delivery across the Partnership, ensuring both a holistic regional provision as well as each college delivering the most appropriate curriculum aligned with local and learner needs, college facilities and staff expertise:
  - o Develop an easily searchable map of the curriculum offer across the Local London region.
  - o Use ongoing industry engagement/partnerships and employment data to inform, develop and adapt the curriculum.
- Embed the new green pathways and new T-Level qualifications by engaging with:
  - o The Education and Training Foundation (ETF) for T level support, particularly the support around engaging with industry to develop best practices and technical skills.
  - o The Association of Colleges and their series of FE events and training, from webinars, annual in-person and online conferences and exhibitions to master class series, workshops, leadership and management programmes and in-house training.
- Put in place a regular, structured review process to future proof the green skills curriculum. This should take into account industry needs, national and local policy and regulation, climate and sustainability targets, and industry innovation.
  - o Develop the template and process to enable informed decision making.
  - o Keep abreast of additional, new industry trends/pathways, e.g. hydrogen, to ensure the career pathways focus of the

- Partnership remains relevant and up to date.
  - o For the built environment/ retrofit/construction related curriculum, consider both the skills required for the domestic and non-domestic sector, including commercial and historical buildings.

### STAFF SKILLS AND TRAINING

- Develop collaborative, cross-college relationships to create a Partnership wide teaching, training and CPD plan. Consider:
  - o Creating a Partnership-wide record of teaching staff and their specialisms.
  - o Sharing teaching resources to optimise curriculum provision to students.
  - o Implementing a train-the-trainer model, whereby staff from one college can train staff from other colleges in their specialism.
  - o Developing a process and set of resources to attract and support people from industry to teach in colleges, working in partnership with the industry engagement teams. A good avenue for this is through HR as part of the organisation's CSR, ESG and SDG reporting.
  - o Creating a central hub of 'experts' comprised of industry partners who spend a small amount of time in education and industry lecturers who

- would be too expensive to employ full-time. This hub of experts could:
  - Help co-design learning and create new resources
  - Provide master classes for staff and learners.
- o Setting up a 'College Training and Development' group to share best practice between colleges.
- o Implementing a training and CPD offer with a central coordinator, which would reduce administration and costs, generate higher attendance and facilitate the opportunity for staff from different colleges to interact and learn from each other.
- o Working with external specialist providers to supplement the delivery of courses e.g. the BIM Academy, and to provide specialist training and a broader introduction to green technologies and sustainability/ ESG.
- o Combining industry site visits – apart from being preferable and easier for employers, it will also reduce administration requirements, such as the need for multiple risk assessments.
- o Arranging Partnership college visits for staff and students, for example to Waltham Forest College to learn from the smart home development.



## INDUSTRY ENGAGEMENT

- Develop a Partnership-level industry engagement and communications strategy, led by a central team that consolidates and further develops region-wide employer relationships and collaborative partnerships. Consider:
  - Developing a menu of easy engagement options for employers and industry stakeholders, including master classes, industry-led teaching, site visits, and product and technology demonstrations and installations
  - Creating a Partnership programme of inspirational events and rolling careers information, advice and guidance (CIAG) activities, to bring together employers, staff, students and parents, bolstering engagement and keeping abreast of new technologies and industry developments
  - Organising an annual event bringing together all the Employer Advisory Boards (EABs) from across the nine colleges (and other Local London colleges) to foster collaboration.
  - Sharing business engagement resources across the Local London colleges to foster collaboration – this will be particularly helpful to colleges who may not have the need or funding for their own full-time resource.
- Create a central planner for key industry events and explore the benefits of having a joined-up Partnership presence at some of these.
- Implement a process for upstream and downstream sharing of employer engagement information, i.e. from the central hub to individual college teams (where the engagement is hyperlocal) and from the individual college business engagement team to the central hub (where there is an opportunity for wider collaboration across the region).
- Consider introducing a central Partnership-wide CRM system, to facilitate the coordination of industry engagement.

## 5.2 Developing centres of excellence

We believe there is a real opportunity for the colleges in the Partnership to collectively develop regional centres of excellence. We have identified three major areas of opportunity that can be explored on the basis of the nine career pathways:

- Built environment, with a particular focus on retrofit and associated technologies, such as photovoltaics, heat pumps, insulation technologies and sustainable/smart infrastructure
- Digital, with a particular focus on the role of CAD and BIM in supporting green solutions (in particular in the built environment)
- EV charging, including design, installation and maintenance (as part of a wider transition towards low carbon transport solutions)

Developing centres of excellence will require a collective and long-term vision, supported by a dedicated collaborative framework. We have below identified the key steps involved in this process, along with a draft framework for collaboration.

### 5.2.1 Key steps

The key steps in this process include:

- **Identifying key stakeholders** (inc. employers, industry associations, professional bodies and government agencies). Through the stakeholder engagement work undertaken by Crystal Associates a large number of key stakeholders have already been identified (as outlined in the industry engagement section of this report and the list included in Annex 2) and some have already been introduced directly to the colleges.
- **Conducting a needs assessment** to help inform the development of the career pathway. Through the work undertaken by Crystal Associates, including market analysis, curriculum review, and qualification and training research, the courses and qualifications required for the above career pathways have already been identified and outlined in this report. The colleges will need to consider how to collectively provide a comprehensive curriculum offer rather than purely as individual colleges.



- **Developing and piloting the career pathway.** Based on the plans already in progress at the colleges and the further recommendations provided by Crystal Associates in both the individual and summary reports, the colleges are already well placed to start developing the curriculum required for a specific career pathway. Piloting/testing new courses and programmes at a smaller level to allow for gathering feedback and making adjustments before a full-scale implementation may be beneficial in certain cases. Through the focus groups the Crystal Associates team has undertaken with various colleges, we have already identified some areas for improvement.
- **Establishing collaborative relationships.** A centre of excellence approach will require developing regular and structured engagement between colleges as well as with employers, industry associations and other relevant stakeholders to ensure the curriculum continues to evolve and meet the needs of industry.
- **Implementing the career pathway on a larger scale.** This will require a dedicated implementation plan, including provision for staff training/ upskilling, and promotion and marketing, as already outlined in the recommendations to various colleges.
- **Monitoring and evaluating the career pathway.** By leveraging both the collaborative relationships (internal and external) and collecting direct feedback from learners and teachers, the colleges will be well placed to ensure the pathway continues to be effective and meets the needs of the market.

## 5.2.2 A framework for collaboration

It is essential for all colleges with plans for current/future provision within a specific pathway to contribute to the creation and implementation of a centre of excellence proposition. However, we believe there is benefit in having anchor leadership to ensure:

- 1) clear direction in the development process,
- 2) greater focus, efficiency and streamlined decision making and
- 3) a clear point of contact for external stakeholders.

The leadership can either be fixed with one or two colleges taking on a permanent anchor role or it could take a more flexible approach through a form of rotational leadership. The latter would put less pressure on an individual college and allow for the sharing of responsibilities, as well as opportunities to showcase multiple colleges and campuses.

Taking a lead role would come with both responsibilities and benefits (for both the lead college(s) and the wider region).

Responsibilities include:

- Creating a project plan, which sets out the goals, timeline, budget, and deliverables for the development of the centre of excellence. The plan should address curriculum development and delivery, but also wider opportunities for funding, staff training and joint marketing/ promotion. In addition, the plan should also consider channels for regular monitoring and evaluation, e.g. annual surveys.
- Undertaking market research, to stay abreast of market trends, new and upcoming government policies and regulation, technological developments, funding opportunities, etc.
- Setting up and chairing a Steering Group with representatives from the relevant colleges, which meets on a regular basis and ensures all the colleges involved have an opportunity to contribute, so the needs and priorities of all colleges can be reflected and an effective regional offer can be established.



- Establishing and chairing a dedicated Employer Advisory Group (EAG), that brings together key representatives from industry, including employers, associations and training/awarding bodies. The role of the EAG will be to provide guidance and advice on the development of a regional centre of excellence.
- Leading regular stakeholder engagement (beyond the EAG) to gather input and feedback on the curriculum, quality of graduates, etc. as well as to develop mutually beneficial opportunities for collaboration and partnerships, e.g. maintenance contracts with the colleges that include staff training and student placements, industry secondees, career support, etc.
- Leading on coordination and oversight of curriculum development, ensuring the regional offer is comprehensive, relevant and aligned with industry needs.
- Identifying opportunities for collective training and support for college staff, and for optimising/ sharing resources between colleges.

Benefits include:

- Greater visibility and recognition, allowing the college to position itself as a leader in the field and demonstrating its commitment to providing high-quality training and education in this area.
- Enhanced reputation and standing within the industry and among external stakeholders, creating more opportunities for staff and learners.
- An overall improved curriculum that is relevant, up-to-date, and aligned with the needs of the industry, resulting in better outcomes and opportunities for learners.
- Access to increased funding opportunities from external sources, such as government agencies, including the Greater London Authority, or industry associations.

The Partnership could also consider establishing a more formalised structure, e.g. through a joint venture, with a central hub and resources. This hub could be commissioned to lead on work that is strategically important and relevant to all the colleges, e.g. labour market information, workforce assessment, curriculum development, funding applications and lobbying.

# 6. CONCLUSION AND KEY NEXT STEPS



This SDF project provides all colleges within the Partnership with a huge opportunity to drive the green skills agenda within the Local London region and beyond.

The SDF has provided the colleges with the funding and broader support to update their facilities in preparation for the roll-out of local skills improvement plans and to start reshaping their teaching and training provision.

If implemented, the recommendations proposed will support the Partnership in meeting the stated aims, namely:

- **Building capacity and coordination** through focused recruitment of specialist staff and centralised coordination of activities, streamlining provision and avoiding duplication of efforts and costs.
- **Designing and delivering new skills in key sectors with acute skills needs** through the development of new curriculum content and qualifications that respond directly to employers and sectors with acute skills needs.
- **Improving the quality of further education** through the development of a common baseline provision and quality assurance.
- **Stimulating employer demand and investment in skills** through working collaboratively on approaches to employer consultation and engagement
- **Aligning local skills needs** with the strategic focus of the LSIP.

To ensure the Partnership is best placed to take full advantage of this significant investment and to really drive forward the spirit of collaboration we have witnessed first-hand over the last 11 weeks as part of our consultation work, we have set out below a proposed timeline and some key next steps.

Activity / Action	By Date
Hold a debrief session with all the colleges to share lessons learnt and agree next steps for the Partnership (including the LSIP).	21 April 2023
Respond to the London LSIP consultation (due to start 6 Apr).	21 April 2023
Launch the Partnership website at the CEME event and start to develop a marketing and communications plan.	26 April 2023
Each college to prepare a business engagement strategy to feed into an overall Partnership strategy.	31 May 2023
Identify a pilot for the 'centre of excellence' approach and set up the required Steering Group.	30 June 2023
Continue bi-weekly KIT (Keeping-In-Touch) online meetings to share key updates and initiatives. Hold quarterly in-person meetings, rotating between college sites (perhaps combining this with visits to new green lab infrastructure).	Ongoing



# ANNEX 1 – GREEN CURRICULUM OVERVIEW



Please find [here a link](#) to an overview of the green curriculum offer provided by each of the nine colleges



# ANNEX 2 – CPD AND TRAINING OPTIONS



Please find below a table with the top-level recommended training and CPD options to equip staff to deliver the green skills pathways and [here a link](#) to the more comprehensive CPD, training and qualifications spreadsheet.

Green Careers Pathway	Training and / CPD Option provider	Description	Who should attend
Building Information Modelling	<a href="#">BIM Academy</a>	A BIM personal development programme, with content on BIM and digital construction; bespoke courses, short-courses and online learning.	Staff teaching: T-level Construction Design, Surveying and Planning.  Smart/sustainable infrastructure.
	<a href="#">BRE Academy</a>	From BIM Foundations to a BIM Bundle; the bundle includes several courses including the BIM ISO 19650 Essentials course, providing an introduction to the concepts of BIM and helping participants develop skills to manage and coordinate BIM projects.	
	<a href="#">CIOB Academy</a>	30-20-10 BIM Foundation course, covering an introduction to BIM principles and practices, inc. the benefits of BIM, the BIM maturity model and the key components of a BIM project, providing participants with an understanding of BIM terminology and the ability to communicate effectively with BIM specialists.	
Computer Aided Design	<a href="#">Armada</a>	AutoCAD Essentials – for beginners. Short courses in a variety of formats and a discount for teaching staff.	Staff teaching: Built Environment, particularly, the higher level apprenticeships in Electrical , plumbing and Heating Engineers.  T-level Construction: Design, Surveying and Planning.
	<a href="#">Cadline</a>	AutoCAD & AutoCAD LT Essentials, Intermediate and Blocks Training Course - Beyond The Basics.  Instructor-led virtual training courses at a variety of levels suitable for teaching staff to build on their existing skills.	
	<a href="#">Symetri</a>	Essentials, Beyond the basics and Electrical Essentials, Instructor-led virtual training courses on AutoCAD and other CAD software, at basic, intermediate and advanced levels.	
EV Charging Installation	<a href="#">NIC EIC</a>	Electric Vehicle Charging for Electricians. The course covers the requirements of BS 7671:2018 with a particular focus on Section 722 'Electric vehicle Charging. Installations' and the IET Code of Practice for Electric Vehicles Charging Equipment Installation.  An overview and signposting to the latest government grants and funding strategies will also be provided.	Staff teaching: Electrical.

Green Careers Pathway	Training and / CPD Option provider	Description	Who should attend
Internal/external insulation technologies	<a href="#">Goldtrowel</a>	External Wall Insulation Courses training provider in Essex.  External Wall Insulation Training Courses (EWI) are full hands-on courses.	Staff teaching: Built Environment, Trades and Construction.  Trades - dry walling, plastering.
	<a href="#">PermaRock Solid Wall Training Academy</a>	Training course to install PermaRock EWI and render systems correctly.  PermaRock systems are used on new and existing buildings using insulation materials that include fire safe Mineral Fibre, enhanced Expanded polystyrene and high performance Phenolic foam.  Products exceed Passivhaus / EnerPhit, BREEAM.	
	<a href="#">RetrofitWorks</a>	Installer Training: Warmshell Internal Wall Insulation Systems (IWI).	
	<a href="#">The Green Register</a>	Internal Wall Insulation: Installer Training. A 2-day course for professionals involved in installing, managing or inspecting IWI installations.	
Retrofitting	<a href="#">The Retrofit Academy</a>	There are many routes into areas of retrofit covering domestic, commercial, public estate and historic building retrofitting.  The Retrofit Academy is a good place to investigate and seek advice on what training is best suited.  Starting with a general overview of the sector and Government targets is recommended.	Staff teaching: Built Environment, Trades and Construction.
Smart/sustainable infrastructure	<a href="#">MOBIE</a>	CPD training/upskilling courses provided through MOBIE's network.	Staff teaching: Built Environment, Trades and Construction, Technology department.
General green career pathways	<a href="#">STEM Learning</a>	This is missing and in general the CIAG provision needs to drastically improve. This resource is recommended as something to review while other services are being developed.  Green Careers Hub on the STEM learning hub.	CIAG staff, teaching staff and curriculum leads

Green Careers Pathway	Training and / CPD Option provider	Description	Who should attend
Sustainability / ESG	<a href="#">Green Gorilla Consultants</a>	The fundamentals of sustainability and specific green career pathways, looking at opportunities, risks and trends, and the key aspects of each of these careers and environmental and social impacts.	Teaching staff and curriculum leads.  CIAG staff, teaching and curriculum leads.
	<a href="#">Climate Coaching</a>	Training and coaching to transform the organisation's culture in support of the environment.	
	<a href="#">Aimhi Earth</a>	Sustainability Jump-Start Masterclass (90 minutes). Whole Picture Programme (4 parts).	
	<a href="#">Just Ask Scarlett</a>	ESG e-learning course for FE, introducing the ESG framework to understand how we all play our part in looking after the environment and society.	
Multiple	<a href="#">Quantum Group</a>	<b>Green technologies for FE:</b>  Level 3 CPD in Sustainable Energy and Renewables Technologies - designed specifically for FE and teachers, it covers five pathways for renewables: ASHP, PV, solar thermal, battery storage and EV charging.	All staff teaching across the green career pathways
		<b>For PV:</b>  LCL Level 3 Award in the Design Installation and Commissioning of Electrical Energy Storage Systems.  LCL Awards Level 3 Award in the Installation and Maintenance of Small-Scale Solar Photovoltaic Systems.	Staff teaching:  Built Environment, Trades and Construction, particularly Electrical.
		<b>For heat pumps:</b>  LCL Level 3 Award in the Installation and Maintenance of Air Source Heat Pumps Systems (nonrefrigerant circuits).  LCL Level 3 Award in Low Temperature Heating and Hot Water Systems in Dwellings.  LCL Awards WRAS Water Regulations Advisory Scheme.  LCL Awards Hot Water Systems & Safety (inc. Unvented hot water.	Staff teaching:  Built Environment, Trades and Construction, particularly plumbing and staff teaching heating engineers.
		<b>For EV Charging:</b>  LCL Level 3 Award in the Design Installation and Commissioning of Electrical Energy Storage Systems.  LCL Level 3 Award in the Installation and Commissioning of Electric Vehicles.	Staff teaching:  Trade- electrical, Automotive and Mechanical Engineering.

Green Careers Pathway	Training and / CPD Option provider	Description	Who should attend
T-level readiness	Education and Training Foundation (ETF)	Engage with the Education and Training Foundation (ETF) for T level support, in particular around engaging with industry to develop best practices and technical skills. They also have a mentoring scheme.	Any staff teaching or preparing to teach T-levels.
T-level readiness/ green career pathways	Association of Colleges (AoC)	AoC offers a range of FE events and training, including webinars, annual in-person and online conferences and exhibitions, master class series, workshops, leadership and management programmes, and in-house training.	Any staff teaching or preparing to teach T-levels and green career pathways.

We would like to thank the senior leadership, strategic project leads and other key members of staff at each of the nine colleges for their cooperation and contributions to this report, as well as the teaching staff and students who took the time to take part in focus groups and 1:1 meetings, or responded to the survey.

A special thank you goes out to the core project team, including Liz Lake, Loraine Williams, Penny Walters, and of course Andrew Cox for his leadership in the initial phase. This team has been instrumental in driving the project and facilitating engagement with the colleges in the wider Partnership. Their continued support, patience and responsiveness have been invaluable in bringing everything together and will no doubt continue to provide momentum for the Partnership moving forward.

We hope this report, along with the individual college reports, prove to be of great value to the Local London Green Jobs and Skills Partnership as you continue to grow and strengthen the regional offer for green skills provision and develop centres of excellence.

We look forward to further opportunities to support you on this journey, so we can collectively deliver the skills required to drive the green economy and achieve net zero.

Best wishes,

**The Crystal Associates team – Mark Jenkinson, Erica Neve, Jo Tasker, Lucette Demets, Ped Parasmand**



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