Green pivot

Opportunities for electrotechnical contractors

ECA
Excellence in Electrotechnical & Engineering Services

www.eca.co.uk

ECA Technical

Agenda

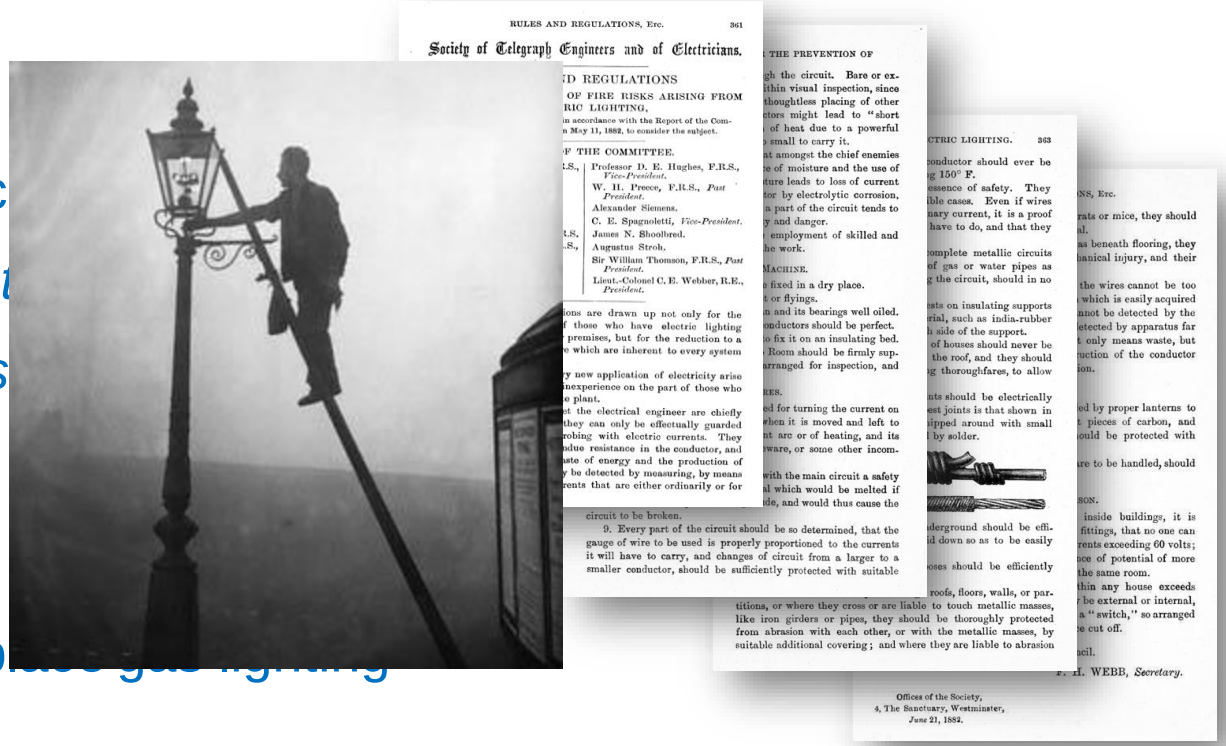
- The history of electrical installations
- The future of electrical installations
- Three new areas of work
- A changing world
- ECA support
- Summary

Electrical installations have been with us for some time, and they have changed a fair bit

THE HISTORY OF INSTALLATIONS

The role of the electrician

- In 1882 the Society of Engineers and of Elec the *Rules and Regulat prevention of fire risks electric lighting*
- This came about after **lighting** started to rep gas lighting



RULES AND REGULATIONS, Etc. 361

Society of Telegraph Engineers and of Electricians.

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CTRIC LIGHTING. 363

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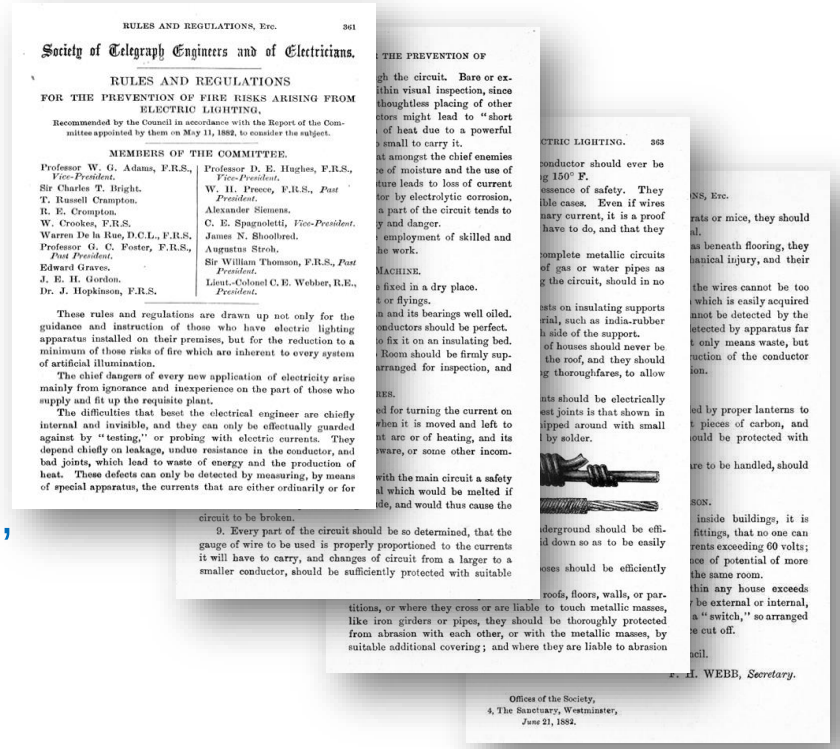
The role of the electrician

- The guide developed at pace over the next 100 or so years due to increasing demand for electrical installations
- Sockets, earthing, bonding all became the norm
- Electrical contractors started diversifying, installing emergency lighting and fire alarm systems



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The chief dangers of every new application of electricity arise mainly from ignorance and inexperience on the part of those who supply and fit up the requisite plant.

The difficulties that beset the electrical engineer are chiefly internal and invisible, and they can only be effectually guarded against by "testing," or probing with electric currents. They depend chiefly on leakage, undue resistance in the conductor, and bad joints, which lead to waste of energy and the production of heat. These defects can only be detected by measuring, by means of special apparatus, the currents that are either ordinarily or for

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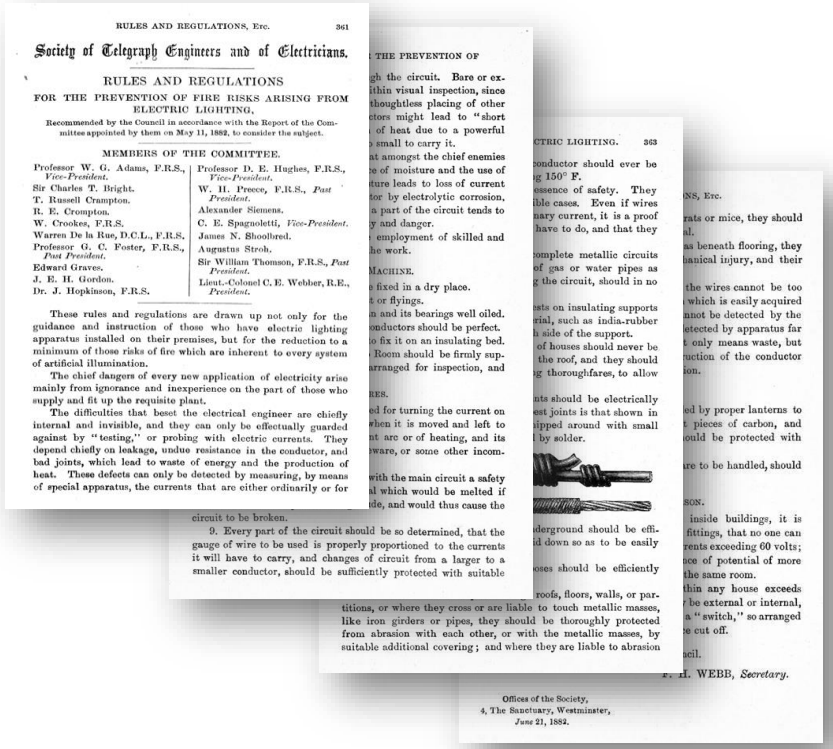
The role of the electrician

- Data, fibre optic installations, periodic testing all allowed the electrotechnical contractor the opportunity to expand their business and diversify
- Training changed, apprenticeships changed
- Soon electricians became designers, testers, metal fabricators etc.



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Will installations change more in the future?

THE FUTURE OF INSTALLATIONS

The role of the electrician

- What now?
- COVID-19 taught us that diversity is the key to business success, just ask your local pub or anyone who has home schooled
- As seen earlier, there are green opportunities out there for your business
- But are there enough areas of work?

The role of the GREEN electrician

Heating controls

BEMS

Electric vehicles

Solar PV

BACS

Power quality

Battery storage systems

Heat pumps

Wind farms

PoE

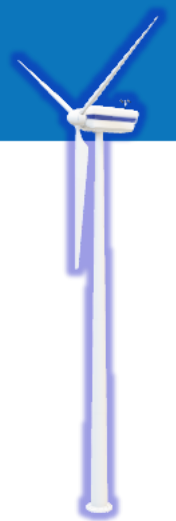
Electric railways

Smart metering

Data

Electric heating

MVHR systems



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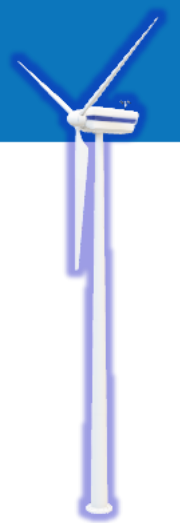

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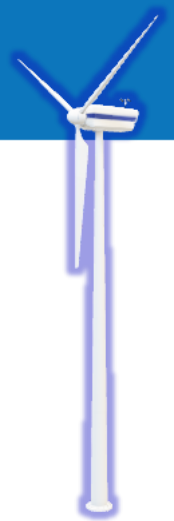
- These are all new areas for your business
- Much like those pioneering contractors 100 years ago
- Why would you stick to just **electric street lighting**?

The role of the GREEN electrician



Electric vehicles

Battery storage systems

Electric heating

- Let's focus on these three workstreams for now

New revenue streams for today and tomorrow

THREE NEW WORK AREAS

The role of the GREEN electrician - EVs

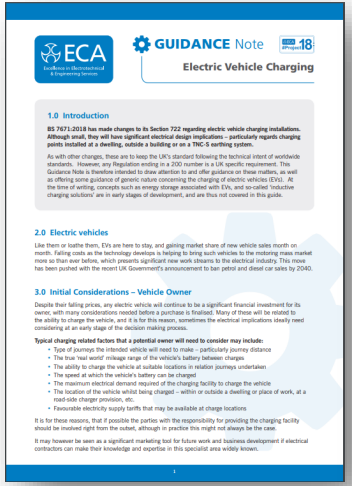
- Electric vehicle installations, or charge points (EVCP) are increasing
- Experiencing an exponential growth over the next few years to meet the targets referenced earlier
- Grants are still available
- Installers must have:
  - taken an EVCP charge point course
  - be a member of a recognised organisation (such as ECA)
  - be registered with OLEV as an EVCP installer

The role of the GREEN electrician - EVs

EV charging course		NICEIC	1 day	http://www.niceic.com/contractor/training/electrical-courses/electric-vehicle-charging-course
EVE course	C&G 2919-01 or EAL for final exam	Learning lounge	On-line training followed by an exam at a range of centres nationwide	https://www.learninglounge.com/spot/courses/eve/Electric_Vehicle_Charging_Equipment_Online_Course

ECA guidance:

- EV charging
- Process of registration with OLEV



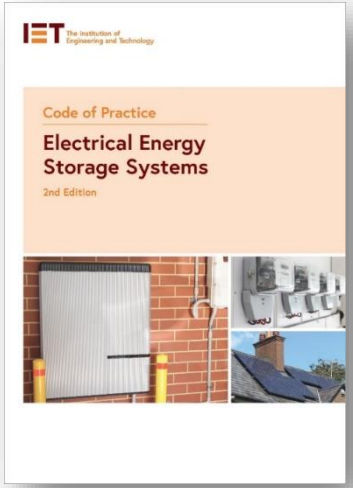
IET Code of Practice

The role of the GREEN electrician - Batteries

- Work in parallel with existing green tech such as Solar PV
- A new and emerging industry that so far is not too crowded
- A simple installation and one that helps to make an existing green system even more useful – store the solar energy in the day for use at night

The role of the GREEN electrician - Batteries

- Training is mainly delivered by manufacturers, such as:
  - TESLA
  - Solar Edge
  - ABB
  - Solax
- IET code of practice is seen as key



The role of the GREEN electrician - Heating

- Electric heating systems are becoming more common
- No new gas connections after 2025
- Lower installation costs
- Suit a well insulated property, especially wher combined with smart controls

The role of the GREEN electrician - Heating

- Updated Building Regulations and SAP (10.1/10.2) recognise the benefit of electric heating more than ever
- With more renewable generation of energy, the cost is reducing in CO_2 and money terms
- Many suppliers offer a free heating design service

The role of the GREEN electrician

- These installations all have 1 thing in common
- You need an electrician
- Additional training may be needed when starting work in a new environment and with new technology, but again this is an opportunity for you businesses to diversify
- And we only looked at three workstreams

The role of the GREEN electrician

- And all of these systems require maintenance
- Upgrades to solar PV systems are commonplace
- Additional or upgraded electric vehicle installations are already happening

Other areas of work are changing and these offer exciting opportunities for the future

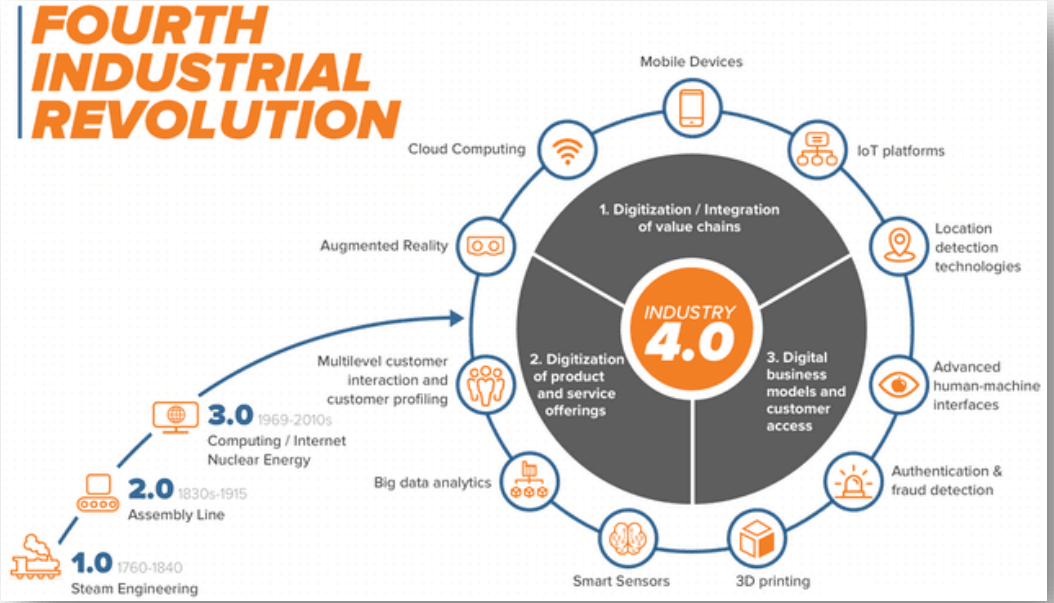
THE CHANGING WORLD

The changing world

- The electrotechnical industry is changing too, not just in relation to green technology
- Business is changing
- How many of you have worked from home in the past 18 months?

The changing world

- As highlighted earlier, smart buildings and connections are key
- We are entering a 4th industrial revolution
- Building on the digital revolution



The Smart home

Heating & Cooling

Solar PV & Storage

Blinds and Shades

Entertainment

Electric Vehicles

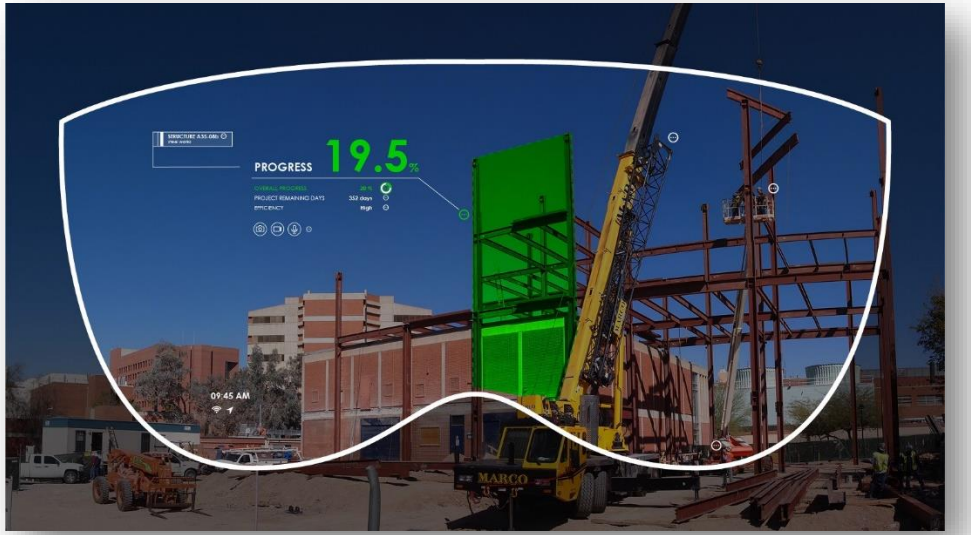
Lighting

Fire and Security

Environment Control

The changing world

- Virtual reality and artificial intelligence offers opportunities now
- During lockdown ECA Members were using this technology to undertake site inspections



The changing world

- Remote inspections and monitoring of systems are possible
- Thermal imaging is becoming more useful
- Insulation monitoring is and has been an option for some time

Where a circuit is permanently monitored by an RCM or an IMD it is not necessary to measure the insulation resistance if the functioning of the RCM or IMD is correct.

The functioning of the RCM or IMD shall be verified.

651.3 Periodic inspection and testing shall not cause danger to persons or livestock and shall not cause damage to property or equipment even if the circuit is defective.

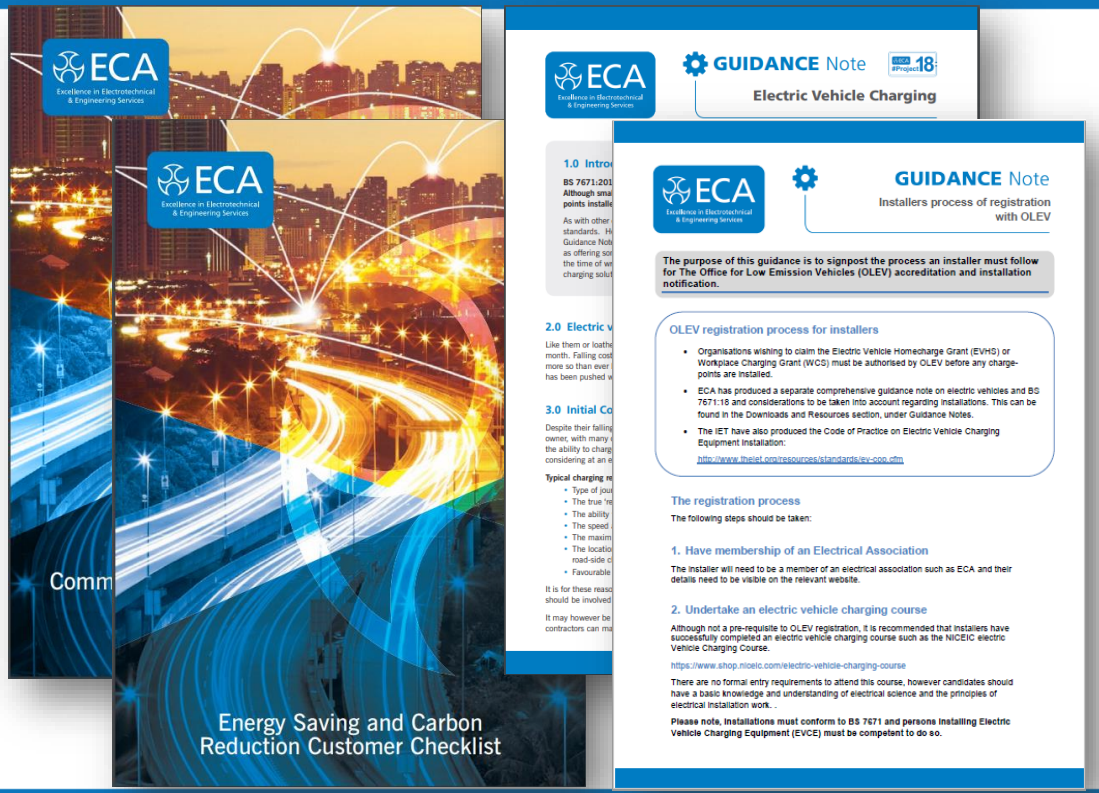
Measuring instruments and monitoring equipment and methods shall be chosen in accordance with the relevant parts of BS EN 61557. If other measuring equipment is used, it shall provide no less a degree of performance and safety.

How can ECA help your business?

HOW CAN WE HELP?

Help and support

- ECA provide Members with guides, advice and information
- We represent YOU on Standards and committees



Help and support

- ECA Technical Team are made up of 1 Director and 3 staff Engineers
  - 2 low voltage Engineers
  - 1 specialist in energy and green technology
- We are supplemented by 3 additional part time individuals
  - High voltage
  - Fire systems
  - General Engineer

Help and support

- ECA Technical work for and on behalf of Members by:
- Offering technical support
  - 300 + phone calls and emails a month
  - Help with complaints
  - Increasing Member profile and highlighting new green work streams
- Undertaking specialist assessments
  - Data
  - HV
  - Lightning protection systems
- Representing Members at Standards committees
  - BS 7671
  - BS 5266
  - BS 5839
  - Various other BSI Standards such as competence, fire engineering etc.
  - EAS

Summary

- The electrical industry has changed, and is changing
- Opportunities are there for your business
- A green and digital world is upon us
- ECA are there to support your business

And remember…

- The role of the electrician is changing
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Questions?