# “Solar PV & Solar Thermal”

Campbell MacLennan, AES Ltd

Community-led Renewables in the Cairngorms National Park
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# Photovoltaic

- Design considerations
- Examples
- Fixing methods
- Monitoring
- Servicing

# Design considerations

- Available space
- Orientation / shading
- Roof obstructions
- Material selection
- Security

Inverter siting - security

# Examples

- Roof integrated
- Photovoltaic slates
- On-roof
  - Cheaper
  - Better cooling
  - Quicker install
  - Easier replacement
  - Greater choice

# Fixing methods

- Tile
- Slate
- Metal profile

To suit housing stock

# Monitoring

- Notification of malfunction
- Validation
- Revenue

# Servicing

- Minimal servicing requirements
- No moving parts
- Long component life

# PV summary

- PV systems require space
- Orientation and pitch
- No shading or obstructions
- Versatile installation options
- Monitoring solutions available
- Minimal service requirements

# Solar thermal

- Design considerations
- Collector types
- Fixing methods
- Storage
- Servicing

# Design considerations

- End user requirement
- Orientation / shading
- Roof obstructions
- Collector choice/mounting option

# Examples

- Roof integrated flat plate collector
- On-roof – pitched or flat
- Evacuated tube collectors

# Fixing methods

- Tile
- Slate
- Metal profile / standing seam

To suit housing stock

# Monitoring

- Error reporting
- Validation
- Revenue

# Servicing

- Annual servicing required
- Transfer fluid – limited life
- Pumps, expansion vessels – likely fail points
- Conservative design will maximise system life

# Thermal summary

- Similar requirements to PV
- Storage provision
- Usage and efficiency
- Versatile installation options
- Monitoring solutions available – not as vital as with PV.
- Regular maintenance

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