

CHIMERA VISION
ENERGY / POWER LINES

Intelligence that focuses the mission.

Observe. Focus. Collect.



Concept visual | Illustrative inspection workflow

A VISION FOR ADAPTIVE POWER-LINE INSPECTION

Connect what the aircraft sees to what it investigates next.

Chimera Vision connects local analysis, mission planning and operator decisions. The ambition: make each observation useful to the next collection action, so inspection teams can focus on the evidence that matters.

TOWERS / INSULATORS / CONDUCTORS / FITTINGS

Cover: AI-generated concept visual. Illustrative inspection workflow.

THE POSSIBILITY

Recognise what matters. Focus the next collection.

A useful inspection does more than collect images. It connects an observation to the next question: what evidence would help the reviewer decide?

Chimera Vision is designed as a ground-based intelligence layer alongside mission control. It brings available imagery and telemetry into local analysis, then prepares follow-up tasks for operator approval.

01 Put the observation in context

Associate imagery with capture time, available position and the asset under inspection. Relevant prior surveys or sensor records can add context.

02 Identify where attention is needed

Use the configured analysis workflow to surface candidate regions. The inspection question defines the asset classes and evidence that matter.

03 Prepare purposeful collection

Translate an unresolved question into a capture task: another angle, more usable optical detail or a complementary observation.

04 Keep the decision with the operator

Present a proposal to approve, modify or reject. An approved task returns through the supported aircraft interface.

05 Carry evidence into the next decision

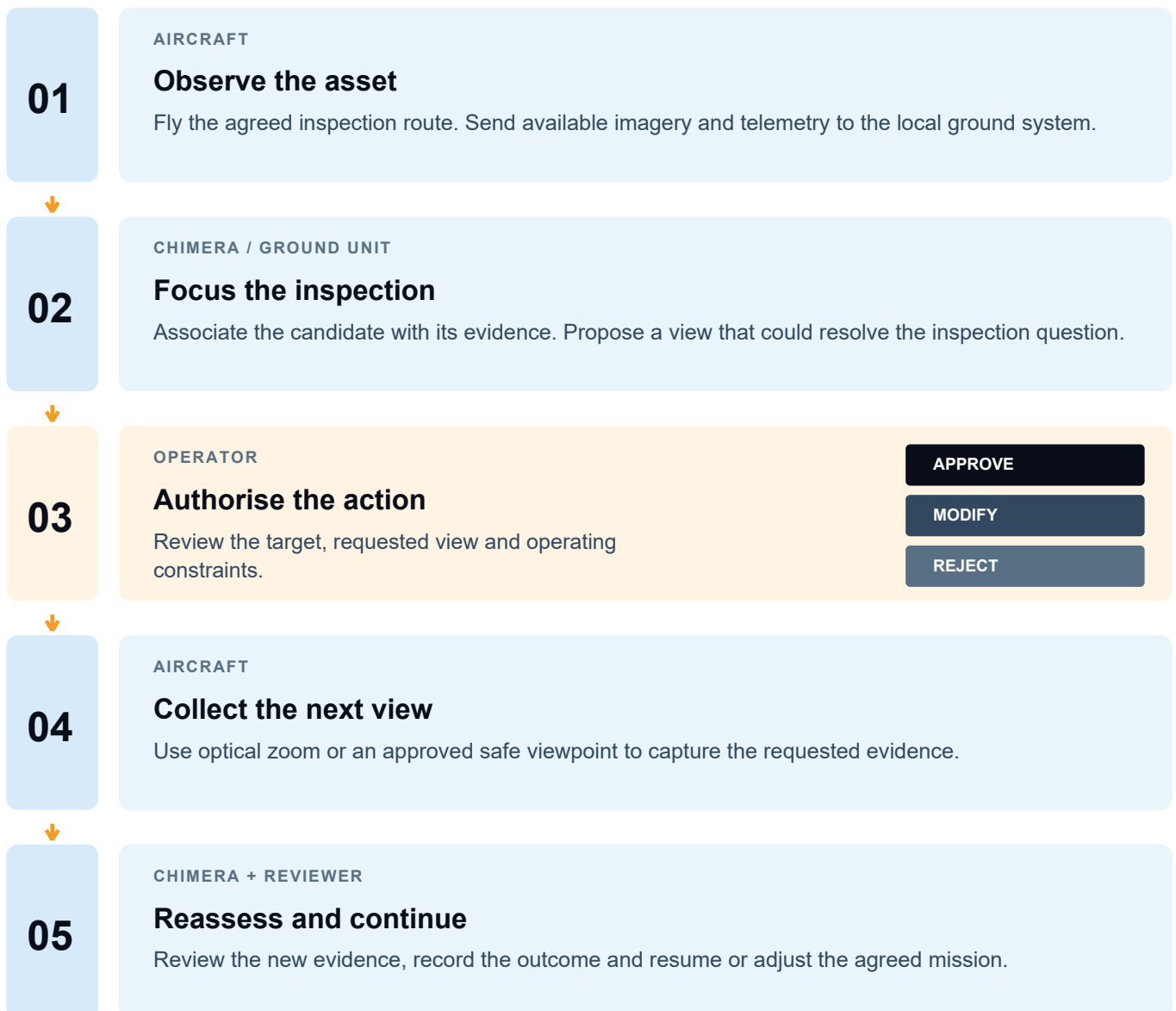
Link the follow-up imagery to the original observation, so the reviewer can record a supported finding or the evidence still needed.

The objective is purposeful collection: evidence chosen to answer the inspection question.

OBSERVE. FOCUS. COLLECT.

One question. A more useful next view.

An illustrative power-line mission sequence, with intelligence beside the operator and action subject to approval.

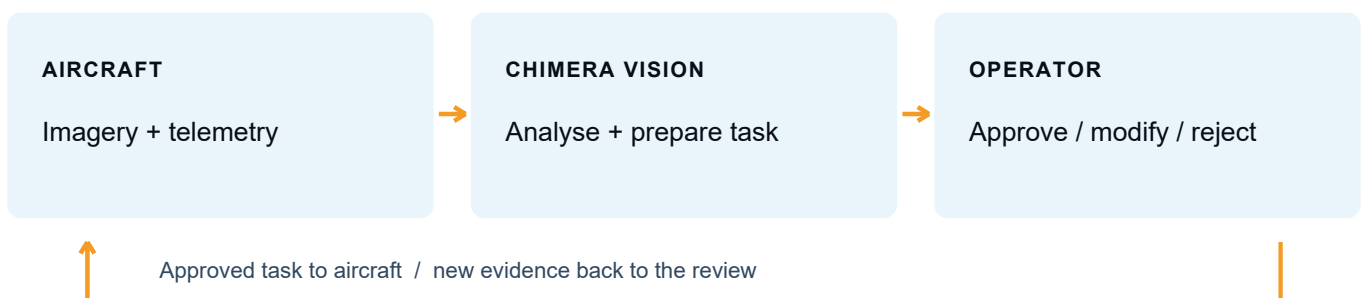


Conceptual sequence. A candidate is an observation for assessment, not a confirmed defect.

LOCAL INTELLIGENCE. ADAPTIVE MISSIONS.

A local loop between evidence and mission control.

The aircraft collects the data. A portable ground unit brings analysis and mission intelligence to the people directing the inspection.



Relevant context: prior surveys, asset geometry and aligned sensor records.

Local analysis, with a supported data link

The workflow is designed to run beside the field crew without cloud processing for that analysis. Available image detail, transfer timing and telemetry determine what the ground unit can assess during collection.

Fusion means evidence in a shared context

Useful sources must refer to the same asset and relevant time. Timestamps, positioning, camera information and available geometry help associate the observations, including data from different flights or systems.

Mission intelligence within the operating envelope

Follow-up tasks must fit the aircraft interface and the approved plan. Geometry, standoff, visibility, battery and site constraints inform the decision. Link-loss and abort behaviour must be established with the flight system.

MULTIPLE SOURCES. ONE WORKFLOW.

Choose the evidence the question needs.

Each input should contribute something different. The architecture connects compatible sources around the inspection task; they need not come from one aircraft or one flight.

01**RGB IMAGERY****Visible component detail**

Inspect insulators, fittings, conductors and tower surfaces. A complementary view can clarify overlap or a feature that needs closer assessment. Useful detail depends on focus, resolution, light and viewing angle. [1, 2]

02**THERMAL DATA****Temperature observations**

Where a compatible radiometric source is available, associate thermal observations with RGB context. Load, wind, reflections, emissivity and settings affect interpretation. A hot region alone does not establish a failure mechanism. [3, 4]

03**GEOMETRY / SURVEY MODELS****Asset and spatial context**

Relate the aircraft, the structure and the component under review. Available geometry can inform viewpoint planning. Engineering clearance assessment still requires its own accuracy and operating assumptions.

04**PRIOR / GROUND RECORDS****Broader or repeated observations**

Bring in earlier imagery, maintenance context or structural measurements where interfaces and time/location alignment are available. Use them to help explain what has changed and what evidence is still needed.

The next view earns its place when it helps answer the original inspection question.

ILLUSTRATIVE INSULATOR WORKFLOW

Turn a question into a reviewable finding.

A first view raises a question. A focused follow-up is designed to provide the detail needed for an assessment.

- 01

The first view raises a question

An insulator feature warrants review. Is it damage, overlap or an imaging artefact? Associate the candidate with its source image and available asset context.
- 02

The next capture has a purpose

Propose a complementary view with sufficient optical detail. The operator approves, modifies or rejects it against the mission and site constraints.
- 03

The observation is reassessed

Bring the additional imagery back into the review. Record a supported finding, dismiss the candidate or specify the remaining evidence requirement.

ILLUSTRATIVE FINDING RECORD

Reference	Asset / component, source image and capture context
Question	Candidate observation and the evidence needed
Response	Requested view and the operator's decision
Evidence	Follow-up images linked to the original observation
Assessment	Reviewed finding or unresolved evidence requirement

Illustrative workflow. The cover scene is a concept visual, not a recorded power-line mission or a diagnosed fault.

BUILD ON THE INSPECTION WORKFLOW

Better evidence for the people making decisions.

Chimera's focus is the connection between an observation and the next collection action while the field operation is active.

COMPONENT DETAIL

Request another angle for an obscured fitting, or more optical detail for an ambiguous insulator feature.

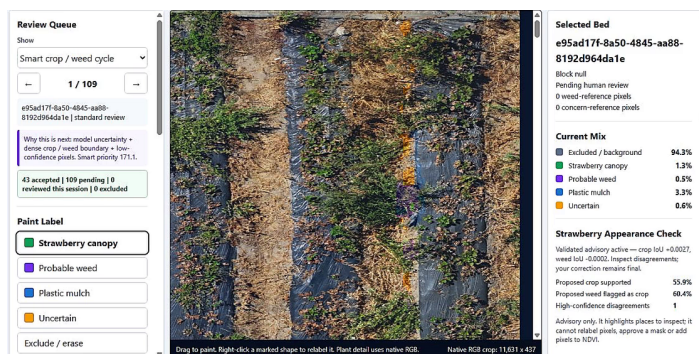
THERMAL CONTEXT

Relate a temperature observation to matching visible detail and the relevant operating conditions.

CONNECTED FINDINGS

Carry the source image, follow-up evidence and review decision forward together.

DEVELOPMENT FOUNDATION



Actual Chimera prototype: agricultural evidence review. Shown as the development foundation, not a power-line inspection interface.

Where the capability stands

Chimera has developed agricultural field workflows and demonstrated the adaptive mission loop in software-in-the-loop testing. Power-infrastructure performance and platform integration require asset-specific validation.

Define success around the inspection question.

Evaluate relevant targets, the usefulness of the requested view, evidence completeness and whether the reviewer can reach a supported assessment. These are the criteria for a meaningful demonstration.

FROM VISION TO YOUR INSPECTION QUESTION

See how observation can guide the next action.

Bring an aircraft platform, a component inspection question and the evidence your team needs. Explore how purposeful collection could fit your workflow.

DISCUSS YOUR INSPECTION WORKFLOW

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REFERENCES AND TECHNICAL CONTEXT

- 1 EPRI - Transmission and Distribution AI**
Imagery, analysis and inspection context.
- 2 EPRI - Automated Visual Line Inspections**
Component imagery and useful viewing conditions.
- 3 U.S. Bureau of Reclamation - Thermal Analysis**
Facilities Instructions, Standards and Techniques, FIST 4-13.
- 4 FLIR - Measuring temperatures**
Measurement parameters and interpretation context.

VISUAL CREDITS AND EDITION

Cover artwork: AI-generated concept illustration created for Chimera. Prototype screenshot: supplied Chimera agricultural demonstration. Mission sequence and architecture: Chimera diagrams. Reference publications provide technical context; they do not imply endorsement or establish Chimera performance.

8 October 2026 | Revision 1.1 | A vision for adaptive power-line inspection