



WHITE-SPACE OPPORTUNITY REPORT

Where the field is still open.

A map of the unclaimed and under-claimed space inside a crowded patent landscape — drawn from mapped claim-limitation evidence, not keyword clusters.

■ SPECIMEN

This is a **format sample**. The subject field, parties, identifiers, counts, confidence values, and evidence references below are **fabricated to demonstrate the report's structure and look** — they are not real search results, not a real client engagement, and contain no legal conclusions.

<p>SUBJECT FIELD</p> <p>EV battery thermal-runaway detection & mitigation</p>	<p>PREPARED FOR</p> <p>[Sample Client]</p>	<p>SCOPE</p> <p>Focused — single technology field</p>	<p>CORPUS WINDOW</p> <p>2014 - present (illustrative)</p>
<p>REPORT ID</p> <p>WS-SPEC-0000</p>	<p>METHOD</p> <p>Claim-limitation comparison</p>		

01 The read, in one page

In this illustrative field, detection is crowded and cooling is crowded — but the bridge between them is thin. The openings appear where *predicting* a cell failure is connected to *acting* before it vents, and few filings claim that link.

The map on the next page shows four dense clusters of existing patent activity and two candidate openings — areas where adjacent ideas are heavily claimed, yet the specific combination between them appears under-claimed in this sample dataset. Each opening is supported by the nearby filings that define its edges, so your counsel can judge the gap on evidence rather than on a headline.

This report does not assert that any opening is patentable. It shows where room **appears** to exist and hands you the record behind that reading.

02 Scope & method

WHAT WAS MAPPED

- ◆ **Field** — a single, client-defined technology area, framed by sensing modality (how a fault is detected) and intervention mechanism (how it is acted on).
- ◆ **Unit of comparison** — individual claim limitations, not document keywords, so a gap is judged against what is actually claimed.
- ◆ **De-duplication** — patent families and repeated jurisdictional filings collapsed to distinct inventions before counting.

HOW AN OPENING IS JUDGED

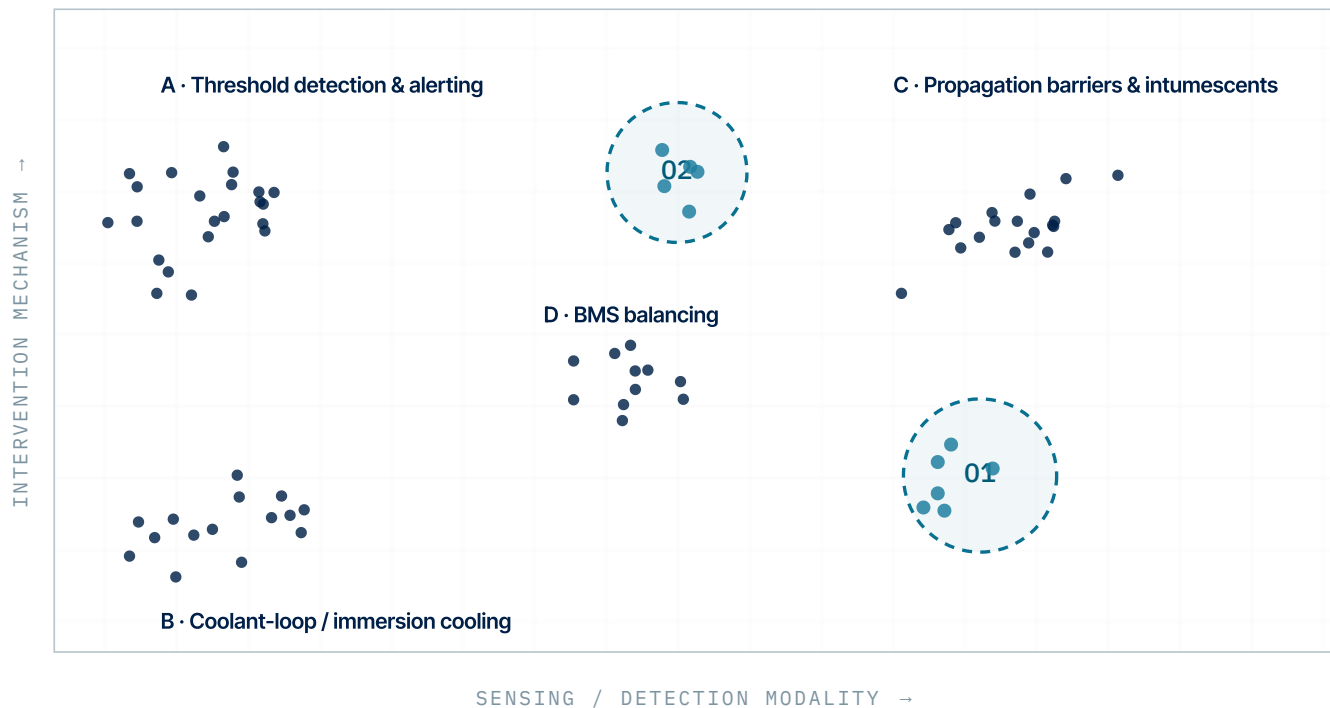
- ◆ **Crowded edges** — the adjacent clusters whose limitations are densely claimed.
- ◆ **Thin centre** — the specific combination of those limitations that few or no filings claim together.
- ◆ **Classification check** — a scan for filings whose official codes understate the real technology, so a gap is not a mislabelling artifact.
- ◆ **Evidence** — every edge is tied to a source passage, paragraph, and byte span.

03 The landscape at a glance

Each dot is one distinct invention after family de-duplication. Dense regions are crowded with existing claims; the dashed rings mark candidate white space, positioned where strongly-claimed ideas surround a thinly-claimed centre.

Technology space — sensing modality × intervention mechanism

ILLUSTRATIVE LAYOUT · FABRICATED POINTS



■ Distinct invention (crowded) ■ Edge filing near an opening □ Candidate white space

Counts & positions are fabricated

04 Candidate openings

Each opening is described in plain terms, then justified by the crowded edges around it. The evidence rows are the representative nearby filings that define those edges — shown with the citation-grade fields every Lambeth IP result carries.

IVE

Predictive pre-venting actuation driven by per-cell impedance drift

Threshold detection (cluster A) and venting hardware are both heavily claimed, and impedance-spectroscopy diagnostics appear in balancing work (cluster D). What looks thin is the *link*: using per-cell impedance drift as a forward signal to stage a controlled vent *before* a thermal event, rather than reacting to temperature or voltage after it begins.

WHY IT READS AS OPEN

The surrounding limitations — impedance measurement, vent actuation, staged response — are each well claimed, but few sampled filings claim them *in combination* as a predictive trigger. Two nearby filings were re-surfaced by the classification check after being filed under generic BMS codes.

REPRESENTATIVE FILING	MAPPED LIMITATION (EDGE)	PARAGRAPH · BYTE SPAN	CONFIDENCE
US 11,842,310 B2	"determining a cell impedance trend over successive cycles"	¶0042 · 18,204–18,377	 0.92
US 10,977,486 B2	"actuating a pressure-relief member responsive to a control signal"	¶0067 · 31,540–31,712	 0.84
US 2022/0173451 A1	"staged thermal response based on a predicted fault state"	¶0031 · 9,860–10,041	 0.71




ILLUSTRATIVE — FABRICATED FOR LAYOUT; NOT LIVE CORPUS OUTPUT.

Acoustic gas-pocket sensing fused with state-of-charge for early warning

Ultrasonic and acoustic sensing appear in state-of-charge estimation, and off-gas detection appears in safety filings — but the sample shows little claiming the *fusion* of an acoustic gas-pocket signature with BMS state to raise an early-warning flag ahead of measurable temperature rise.

WHY IT READS AS OPEN

The two sensing approaches sit in separate, well-claimed clusters; the centre that combines them as a single early-warning trigger is sparsely populated in this dataset. A figure-search pass matched two ultrasonic-transducer drawings that text-only review had missed.

REPRESENTATIVE FILING	MAPPED LIMITATION (EDGE)	PARAGRAPH · BYTE SPAN	CONFIDENCE
US 11,309,588 B2	"ultrasonic transducer arranged to interrogate a cell interior"	¶0055 · 24,118–24,290	 0.88
US 11,656,290 B2	"correlating a sensor signature with a state-of-charge estimate"	¶0048 · 20,733–20,905	 0.76
US 2021/0399361 A1	"detecting evolved gas within a battery enclosure"	¶0029 · 8,402–8,571	 0.69

ILLUSTRATIVE — FABRICATED FOR LAYOUT; NOT LIVE CORPUS OUTPUT.

05 Who is filing nearby

The same evidence that maps the gaps also shows the neighbourhood — which parties are active around each opening, and where their programs appear to be moving. Trajectory is read from filing cadence within the corpus window.

ASSIGNEE (ILLUSTRATIVE)	ACTIVE NEAR	RECENT FOCUS	TRAJECTORY
Auria Power Systems	A · O1	Impedance diagnostics, balancing	 expanding
Meridian Cell Technologies	C · D	Propagation barriers	 steady
Helios Cell Co.	B · O2	Immersion cooling, off-gas sensing	 expanding
Northwind Mobility	A · C	Pack-level safety systems	 steady

06 How to read this report

EVERY EVIDENCE ROW CARRIES

- ◆ **Filing** — the patent or publication identifier.
- ◆ **Mapped limitation** — the exact claim element that places the filing on an opening's edge.
- ◆ **Paragraph · byte span** — the precise location of the supporting passage in the source document.
- ◆ **Confidence** — the system's match strength for that limitation-to-passage link, for your own verification.

WHAT THE REPORT DOES NOT DO

- ◆ It does not rank an opening as patentable or grantable.
- ◆ It does not provide a freedom-to-operate clearance.
- ◆ It does not replace attorney review — it shortens the path to it.
- ◆ Confidence is a retrieval score, not a legal opinion.

◆ Scope & boundaries

- § **This is a specimen.** All parties, identifiers, counts, confidence values, paragraph references, and byte spans are fabricated to demonstrate format. They are not live search results and do not describe any real engagement.
- § **Opportunity, not a guarantee.** A White-Space Report shows where room appears to exist and the evidence behind that reading. Whether to file, and whether a claim will ultimately grant, is a legal judgment for your patent counsel.
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