

AiDASH

PREVENTIONFIRST™

An Executive's Guide to the Movement
Transforming Grid Resilience



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PREVENTION FIRST

About AiDASH

AiDASH is the company leading the PreventionFirst movement for electric utilities and transforming grid resilience through its pioneering platform that unifies vegetation, asset, wildfire, and storm intelligence.

Powered by SatelliteFirst™ Inspection & Monitoring, AiDASH delivers comprehensive visibility across the entire grid at the right frequency and budget, using the right data modality. More than 200 customers trust AiDASH to keep the lights on, spend where it counts, and defend every decision, Securing Tomorrow across every mile of the grid.

TABLE OF CONTENTS

Executive Summary	4
I. Why Prevention Is Now the Mandate	5
II. PreventionFirst: The Operating Posture.....	7
III. The Three Decision Horizons	9
IV. The Four Requirements	11
V. The AiDASH PreventionFirst Platform	12
VI. SatelliteFirst Inspection & Monitoring Cadence	14
VII. The Outcomes	18
About AiDASH	19

EXECUTIVE SUMMARY

A PreventionFirst Framework for Grid Resilience

The question that defines utility accountability today is not whether you had a program. It is whether you can demonstrate that your program was targeted at the right risk, at the right time, documented accordingly – and answer for any risk event that is unaddressed.

Vegetation is the top driver of grid outages and wildfire ignitions. Assets age under compounding weather stress. And the stakeholders who matter – regulators, insurers, ratepayers – have stopped accepting reactive response as a credible posture.

The utility industry's answer to this pressure is beginning to take shape. Not as a technology upgrade, not as a new program, but as a fundamental shift in operating posture: from calendar-driven patrol and post-failure response to continuous, unified risk visibility and targeted, defensible action. That shift is toward a PreventionFirst approach.

This briefing defines what PreventionFirst means, what it requires, and how it becomes economically viable at scale across a T&D network. It covers the risk-driver evidence, the three time horizons where prevention decisions are made, the four operational requirements, and the platform and inspection approach that make it possible.

The argument is not that prevention is better than reaction in the abstract. It is that the data, the technology, and the regulatory environment have converged to make prevention the only possible operating posture – and that the utilities adopting this approach are doing so not by adding budget, but by redirecting existing resources to where the risk actually is, achieving maximum risk reduction per dollar spent.



CHAPTER I

Why Prevention Is Now the Mandate

The accountability gap has widened – and it won't close on its own.

Vegetation has always been the primary driver of T&D outages. That has been true across patrol cycles, across regions, across asset classes. What has changed is not the physics of a tree contacting a conductor –

it is the tolerance for allowing that contact to happen without a documented, defensible mitigation effort beforehand.

Across every context in which the grid fails, vegetation is the leading cause:

40%

of outages on calm, clear days - Blue Sky Days

ISA

90%

of storm outages trace directly to vegetation

Sustainability Magazine

70%

of wildfire ignitions involve vegetation or asset ignition on surface fuel contact

Customer reported

These numbers are not an indictment of any particular utility's operational performance. They are a structural description of where T&D risk lives – in the corridor between conductor and canopy, and in the aging assets that share that corridor.

Aging infrastructure compounds the exposure. As conductors, poles, and insulators accumulate weather stress and

approach end-of-life, asset condition becomes an independent ignition and outage driver.

In high-vegetation corridors, the two risks interact: a compromised pole in a high-fuel area is not a vegetation management problem or an asset problem. It is both, simultaneously, and the decisions about it have to be made that way.

The cost of the reactive posture

\$100B+

in insured wildfire losses since 2017

Statista

\$25B+

in weather-related outage costs per year

DOE

6X

more expensive to repair than to prevent

National Institute of Building Sciences

The prevention-economics arithmetic is straightforward: it costs six times more to repair the grid after a failure than to prevent the failure. That ratio holds across vegetation incident response, storm restoration, and post-ignition hardening. At T&D scale, across thousands of miles and decades of deferred risk, the compounding is significant. A PreventionFirst approach redirects that math – targeting O&M and capital to where risk is highest, achieving maximum risk reduction per dollar spent.

But the more durable pressure is not financial. It is accountability. Regulators are requiring utilities to demonstrate proactive mitigation in wildfire mitigation plans, grid hardening proceedings, and vegetation management program reviews. Insurers are pricing ignition liability with increasing precision. After a major event, the question that determines liability exposure is not whether the utility had a program – it is whether the utility can show that the program was targeted at the right risk, at the right time, and documented accordingly.

This is a different standard than a calendar-based patrol cycle provides.



CHAPTER II

PreventionFirst: The Operating Posture

PreventionFirst is the movement redefining how electric utilities take control over risks to the grid. The utilities joining are shifting from a posture organized around schedules

and response to one organized around risk, precision, and defensibility. The shift is visible across four operational dimensions:

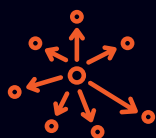
Operating today	Operating PreventionFirst
Blind spots in the risk picture – outages and ignitions from spans nobody tracked	Continuous visibility across the full T&D network, factoring in vegetation condition, asset health, and weather simultaneously
Fixed patrol cycles that reveal yesterday's risk on today's grid	Risk-based work programs that go where the data says, not where the calendar says
Siloed programs – vegetation management, asset maintenance, wildfire, and storm each running independently	One unified risk picture across programs and horizons, so cross-domain decisions get made rather than deferred
Difficulty defending O&M and capital decisions under regulatory scrutiny	An auditable, time-stamped record of risk conditions and the decisions made against them

The column on the right is not a description of a future state. It describes operations that utilities are running today – with measurable results. At National Grid, for example, transitioning from fixed-cycle to risk-driven vegetation management produced a 22% reduction in tree-related events, a 29% reduction in customer

interruptions, and a 43% drop in customer minutes interrupted on treated circuits.

That is the PreventionFirst result in concrete terms: the same field resources, redirected by unified risk data, producing better outcomes across reliability, spend efficiency, and program defensibility simultaneously.

From siloed decisions to a unified risk picture



Fragmented risk signals

A distribution feeder runs through a cottonwood corridor backed by dry grassland. Vegetation team says overhanging branches have adequate clearance per their trimming specification. Asset team says the aging splice isn't at failure threshold. Wildfire flags a red flag warning – 40 mph winds, record-low fuel moisture – but without a unified view of risk across all four programs for this specific feeder.

Storm team sees no risk. Nobody connects the dots. The wind picks up. The splice fails. The conductor drops into the cottonwoods.

The neighborhood burns. Every team followed their process. Nobody was wrong within their own program.



Unified risk picture

Aging splice plus encroaching cottonwoods plus red flag conditions plus 40 mph winds don't produce four separate yellow lights – they produce one unacceptable red on one specific feeder that needs action today. The utility acts before the event: de-energizes proactively, dispatches a crew to address the splice and clear the overhang, and affects a few hundred customers for a few hours. Instead of a neighborhood fire.

Every team was doing their job. What changed was having a unified view of risk – vegetation, asset condition, fire, weather, and storm exposure – on one risk picture, at the same time, on the same feeder. That's the difference between a maintenance ticket and a disaster.



CHAPTER III

The Three Decision Horizons

Grid risk is not a single decision. It plays out across **three time horizons**, each with its own question, its own data requirements, and its own action set.

A PreventionFirst posture requires operating across all three – not sequentially, but simultaneously, with a risk picture that connects them.

	AWARE	ACT
HORIZON 1 EMERGENCY 0–7 days	- Where is vegetation, asset, and fuel risk highest right now? - Which circuits are most exposed if the forecast materializes? - Where are restoration resources most needed before the event?	- Conduct emergency patrols of highest-risk circuits. Make surgical PSPS circuit selection decisions. - Execute targeted floor clearance, brush removal, and trimming. - Prioritize emergency asset maintenance at highest-risk locations. - Preposition restoration crews to the highest-risk spans; call for mutual aid. - Adjust automation and protection settings to match current risk conditions.
HORIZON 2 MAINTENANCE 3 months - 3 years	- Which spans and assets carry the most risk across the next O&M cycle? - Where is vegetation growing faster than the patrol interval can track? - Which assets are approaching failure before their scheduled inspection?	- Risk-based and off-cycle vegetation management. - Hazard tree removal prioritized by health and proximity, not calendar position. - Fuel load reduction before fire season. - Risk-based asset maintenance and preventive hardening before storm or wildfire season.
HORIZON 3 CAPITAL 3+ years	- Where does persistent, compounding risk justify capital allocation over sustained O&M? - Where would grid hardening or asset replacement reduce structural exposure in a corridor rather than require ongoing annual management?	- Install covered conductors in the highest-risk corridors. - Make informed undergrounding decisions based on quantified risk reduction. - Replace aged conductors, poles, and insulators before they reach failure. - Redesign grid topology to reduce structural exposure in high-risk corridors.


HORIZON 1

HORIZON 2

HORIZON 3

Why the horizons have to connect – and siloed programs can't

The most consequential operational decisions – the ones that improve reliability, reduce ignition exposure, and hold up under regulatory review – are almost never contained within a single horizon.

A Horizon 1 storm forecast surfaces a Horizon 2 vegetation problem. Storm outage intelligence identifies the circuits with the highest outage probability given the forecast; vegetation risk data overlays those circuits with current encroachment conditions. The result is a targeted work order – specific spans, specific overhang conditions – that crews can address in the days before the storm arrives. Not a general patrol assignment. A surgical response to a risk that two separate programs, connected through a unified platform, identified jointly.

A persistent Horizon 2 vegetation problem on aging assets in a high-wildfire corridor is not a maintenance question or a capital question. It is both. An organization with unified risk intelligence can assess whether enhanced vegetation management from O&M delivers more per-dollar reliability than a capital project – covered conductor, pole replacement, topology change – and make a defensible capital case for the answer. Without that unified view, the two programs operate in parallel, making decisions against their own data, without the unified view that the risk situation actually requires.

This is why unified risk intelligence is the operational requirement behind PreventionFirst. Decisions that span horizons and programs require a risk picture that spans horizons and programs. Siloed data produces siloed decisions, and siloed decisions leave the gaps that become events.

CHAPTER IV

The Four Requirements

A PreventionFirst approach requires four things. The sequence is not arbitrary – each requirement enables the next.

First, you have to see. Then you have to act precisely. Then you have to do it cost-effectively. Then you have to defend it.

1	Situational Awareness Continuous, network-wide visibility into vegetation and asset risk interaction with weather. No blind spots across programs or time horizons. A T&D organization running fixed patrol cycles and siloed work programs has structural gaps in its risk picture – gaps that don't announce themselves until a span fails. Situational awareness closes those gaps before they become events
2	Surgical Action Capability Target the right spans, assets, and actions across all three time horizons. The goal is not more miles of patrol or more aggressive trim cycles. It is deploying resources where the risk data says they belong – the right span, the right modality, the right timing. That precision is what separates PreventionFirst operations from volume-driven ones.
3	Financially Prudent at Scale Maximum risk reduction per dollar spent – comprehensive grid inspection at the right frequency, budget, and data modality. Prevention has to hold up under rate case scrutiny and capital planning review. The economics are not incidental to the approach; they are what makes it sustainable across thousands of miles and millions of assets, cycle after cycle.
4	Defensibility Every action traceable, auditable, and justifiable to regulators, insurers, and customers – including the ability to reconstruct what risk looked like on any prior date. When a regulator asks why a particular circuit wasn't addressed before an event, or why capital went to one corridor and not another, the answer has to come from the data. Not memory. Not an inspection log. The data.

CHAPTER V

The AiDASH PreventionFirst Platform

AiDASH's pioneering platform is the only system that unifies vegetation, asset, wildfire, and storm intelligence in one place – enabling a PreventionFirst posture across the full T&D network.

Unification is not a UI convenience. It means the four intelligence domains share the same data foundation, feed the same applications, and inform the same

decisions. Rather than separate risk pictures maintained independently by vegetation management, asset maintenance, wildfire mitigation, and storm resilience teams, the platform gives all four programs a single, shared view of network risk.

Every program draws from it. Every program contributes to it.

IVMS AiDASH Intelligent Vegetation Management System™	Risk-driven vegetation management across the full T&D network. IVMS surfaces which spans carry the most risk – factoring in encroachment, tree health, and fuel load – so work programs target the circuits that matter, not the circuits that are next on the rotation.
AIMS AiDASH Asset Inspection and Monitoring System™	Condition-based asset monitoring and targeted inspections. AIMS replaces age-schedule based patrol with risk-driven prioritization, surfacing the conductors, poles, and insulators most likely to fail before the next inspection window closes.
CRIS WILDFIRE AiDASH Climate Risk Intelligence System™ - Wildfire	Ignition risk reduction across all three time horizons. CRIS Wildfire is the only pillar that spans emergency, maintenance, and capital planning – from real-time fuel moisture and ignition likelihood on an extreme weather day to long-term fuel treatment strategy and hardening prioritization.
CRIS STORM AiDASH Climate Risk Intelligence System™ - Storm	120-hour storm outage prediction with crew pre-positioning capability. CRIS Storm gives T&D operations the lead time to address the highest-risk spans, preposition restoration resources, and make surgical PSPS decisions before the storm makes landfall – not after.

AI Intelligence Layer

Beneath the four applications sit four proprietary AI models that power the platform's risk intelligence: VegetationAI™, AssetAI™, IgnitionIntelligence™, and StormImpactAI™. These models share the same underlying data foundation, enabling the cross-domain risk picture that PreventionFirst requires. The models do not operate as independent engines – they contribute to a unified risk view that each application draws from.

Integration

The platform connects directly to the systems utilities already operate: GIS, work management, ADMS, EAM/ERP, and custom integrations. Risk intelligence from the AiDASH platform flows into existing operational workflows rather than sitting in a separate system. The result is that PreventionFirst posture is expressed through the tools and processes utilities already use to deploy field resources and manage their programs.

Cross-module integration: how the intelligence actually connects

The four applications share the same data foundation. That means vegetation management, asset maintenance, wildfire mitigation, and storm resilience are all drawing from – and contributing to – the same underlying risk picture. A decision made in one program reflects what the others know. Cross-program coordination happens at the data layer, not in a coordination meeting that happens after the fact.

Each module deployed compounds the value of what is already running. A utility starting with vegetation management and adding wildfire risk intelligence does not create an additional silo. It adds an intelligence layer that changes how the entire platform prioritizes risk – including how vegetation management work orders are generated.



CHAPTER VI

SatelliteFirst Inspection & Monitoring Cadence

A PreventionFirst approach only holds if it is economically viable across thousands of miles of T&D infrastructure.

Comprehensive grid inspection at the right frequency, budget, and data modality is not optional – it is what makes a risk picture real and decisions defensible.

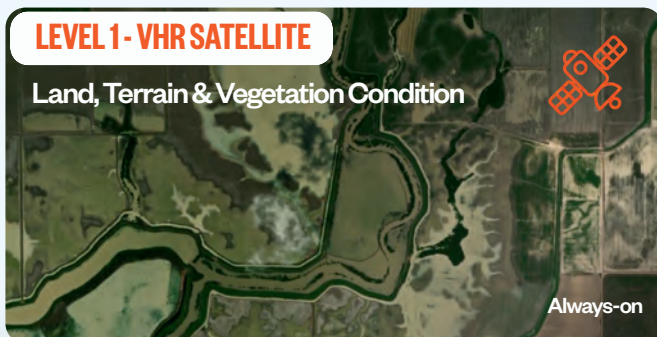
The inspection data fusion approach

Continuous satellite monitoring fused with targeted vehicle-mounted, aerial, and on-demand follow-up. SatelliteFirst is not satellite-only. It's a risk-informed inspection assessment approach - with very high resolution (VHR) satellite, high resolution (HR) satellite, vehicle-mounted survey, and aerial surveys – plus on-demand drone and manual patrols to close any remaining gaps into a single, coherent dataset that no individual modality can produce alone.



LEVEL 1 - VHR SATELLITE

Land, Terrain & Vegetation Condition



Very High Resolution (VHR) multispectral satellite imagery refreshes terrain, vegetation encroachment, and vegetation health 1-12 times per year. This is where land and terrain conditions are captured at the network level – including clearance to conductors, tree health, and vegetation density across the full T&D network.

LEVEL 2 - HR SATELLITE

Fuel Burnability & Moisture



Use High Resolution (HR) multispectral scans to update fuel load, moisture and burnability 1-7 times per week. This weekly refresh is necessary because weather conditions can change within days – a corridor can be dry and windy today and then see meaningful rain a week later that lowers wildfire risk. Near-real-time updates keep the fuel-condition picture current with how quickly conditions actually move.

Satellite is the only modality capable of scanning the full T&D network at the frequency vegetation risk requires – and its multispectral capability identifies tree health and fuel conditions – fuel load, moisture content, and burnability of vegetation and grasses on the ground – that geometry-based sensors alone cannot detect. These satellite findings determine where ground and aerial resources are deployed next.



LEVEL 3 - VEHICLE-MOUNTED

Visual & LiDAR Surveys –
Most Precise Asset Condition



Use vehicle-mounted visual and LiDAR survey, captured simultaneously in the same scan, along road-accessible corridors delivers the asset inventory, conflation, defect identification, and digital twin data that satellite cannot provide at the component level. Capturing visual and LiDAR together in the same pass – rather than as separate surveys – gives a level of detail that neither modality alone can achieve. This gives the most precise condition data on assets available anywhere in the inspection stack – down to component-level detail such as splices.

Looking up at a pole or conductor from the ground reveals structural detail that aerial platforms looking down miss.

LEVEL 4 - AERIAL VISUAL & LIDAR SURVEY

Non-Road-Accessible Assets



Where roads are inaccessible, aerial visual and LiDAR survey, also captured simultaneously, via helicopter or fixed-wing fill the gap.

Both are always fused into the combined dataset. In higher-risk areas, this survey cycle is typically every 1–5 years; in lower-risk areas, every 5–10 years depending on utility budget and risk profile.

Blanket LiDAR doesn't close blind spots. Fusing satellite, aerial, and ground data at the right cadence into a living digital twin does – so you know what to act on, when, and can plan reliability and resiliency programs in a unified way.



Drone visual inspection, and lineman ground inspection for targeted verification, are deployed surgically – at the specific locations where that level of detail is required.

This data collection approach captures most component-level defects such as damaged splices/conductors and cracked insulators that earlier levels flag for follow-up.

Multiple inspection findings are fused back into the combined dataset, adding precision without driving cost across the full network.

AD HOC BASIS

Drone & Manual Patrol
(Filling Any Remaining Gaps)



Three advantages of SatelliteFirst Grid Inspection

Living Digital Twin → No Blind Spots	A regularly refreshed digital record of the entire T&D network – spatial-temporal, meaning it captures not just where assets and risks are, but how they change over time. This continuous, time-stamped record means change is detectable across scan periods: vegetation growth, asset degradation, fuel accumulation, what shifted in the weeks before an incident. Because the record is continuous and searchable, utilities can go back to any prior date and reconstruct exactly what risk looked like at any location. That is the operational foundation for regulatory defensibility.
Right Sensor & Cadence → Cost Effective	No single modality delivers the full picture. The inspection data fusion approach – fusing satellite, visual & LiDAR, drone, and manual patrol data – compounds the capability of each sensor into a complete picture at half to a third of the cost of traditional data capture on a per-mile, per-scan basis. The AiDASH platform purchase can be capitalized; the approach also enables all remote sensing data to be capitalized.
Multiple Use Cases, One Data Foundation → Best Value	The fused, combined dataset powers vegetation management, asset management, wildfire mitigation, and storm resilience – multiple use cases, across all three planning horizons, from a single inspection program. Vegetation management, asset maintenance, wildfire mitigation, and storm resilience all draw from the same underlying record. One inspection program serves all four use cases. There is no separate data collection cost for each.

Patented co-registration: the IP behind the defensibility claim

Every pixel of every collected dataset – regardless of modality, regardless of collection date – is precisely co-registered to the same point on earth.

This is patented technology and the operational foundation for everything the platform does with change detection and historical risk reconstruction.

When a T&D team needs to demonstrate what risk looked like at a specific location

on a specific date – for a regulator, for a rate case, for an incident investigation – the answer comes from a continuous, time-stamped record where every dataset, regardless of when or how it was collected, is precisely aligned to the same point on earth. Not from inspection logs, maintenance records, or field notes assembled after the fact.

The data exists. It is searchable. And its precision is defensible.

CHAPTER VII

The Outcomes

PreventionFirst, enabled by the AiDASH platform and powered by SatelliteFirst Inspection & Monitoring, produces three outcomes. They are connected: reliability

requires visibility and surgical action; spend efficiency requires the right data at the right frequency; defensibility requires both.

Keep the lights on Grid Reliability	Unified intelligence across vegetation, assets, wildfire, and storm means T&D teams see risk before it becomes failure – and act on it with precision across every planning horizon. Lower impact from events and faster response when events do occur. Better SAIFI and SAIDI outcomes, grounded in risk data rather than patrol coverage.
Spend where it counts Cost Efficiency	Maximum risk reduction per dollar of O&M and capital. Inspection at the right frequency and budget, using the right data modality, means every dollar has a risk-reduction rationale behind it. One that holds up in rate cases and capital planning reviews.
Defend every decision Regulatory Defensibility	Every action is traceable, auditable, and justifiable – to regulators, insurers, and customers. The living digital twin and the searchable data store mean the record exists, it is quarriable, and it holds up to scrutiny whether the inquiry comes from a commission, a plaintiff, or a board.

A note on budget

The utilities joining the PreventionFirst movement are not doing so by adding budget. They are doing so by redirecting existing resources – patrol miles, trim cycles, capital dollars – to where the risk data says they belong.

The result is maximum risk reduction per dollar spent. The outcomes follow from that redirection.



The Grid Doesn't Wait

Vegetation grows. Assets age. Weather intensifies. And the standard of proof required to defend T&D operations – to regulators, insurers, and the public – keeps rising.

The utilities that are ahead of this curve are not operating with bigger budgets or more patrol resources. They are operating with a clearer risk picture, more precise work programs, and a defensible record of every decision made against the data they had at the time.

That is PreventionFirst. Not a program addition. A posture change – one that the data, the technology, and the regulatory environment now make not just possible, but necessary.

Join the PreventionFirst movement. More than 200 customers have already joined — keeping the lights on, spending where it counts, and defending every decision.

To see how a PreventionFirst approach maps to your specific network, risk profile, and program structure, contact your AiDASH representative or visit aidash.com.

aidash.com

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