

SOURCEENERGY TECHNOLOGIES

SourceEnergy Technologies Quantum Ready Energy Infrastructure Directive

SET Q 001**Controlled Nonproduction Mobilization**

Document field	Controlling value
Directive identifier	SET-Q-001
Version	1.0
Issue date	September 14, 2026
Executive sponsor	Dr. Oliver E. Jones, Knowledge Governor and Executive Sponsor
Operating owner	SourceEnergy Technologies
Initial authority	Controlled planning, evidence collection and nonproduction validation
Reserved authority	Spend, key creation, production, external submissions and binding commitments
Authoritative PQC posture	PQC_GOVERNED_NOT_YET_PQC_ENFORCED

Issued for immediate Phase Zero and Phase One execution within the controls stated in this directive

Executive Decision

SourceEnergy Technologies shall establish a Quantum Ready Energy Infrastructure program that converts qualified quantum technologies into secure, measurable and commercially deployable energy capabilities. The company will lead the application, validation and deployment layer. It will not represent itself as a quantum computer manufacturer or claim operational quantum advantage without reproducible evidence.

This directive authorizes controlled nonproduction mobilization beginning September 14, 2026. It authorizes governance registration, technical planning, cryptographic discovery, synthetic data preparation, classical baseline development, partner diligence and sandbox design. It does not authorize cloud spending, cryptographic key creation, production deployment, customer data transfer, external proposal submission, procurement, equity investment, use of an SBLC or other instrument, or a binding partner commitment.

Material decisions remain subject to accountable human authorization and controlling external evidence. Experimental quantum or hybrid outputs shall remain advisory. They shall never directly operate grid protection, switching, treasury, custody, banking, life safety or community critical systems.

Leadership Position

SourceEnergy Technologies will position itself as the energy domain owner, infrastructure integrator and governed commercialization partner for quantum technology. Its planned 5,000 substation nodes, each associated with a 5 MW Solar and BESS opportunity, can generate a portfolio of recurring planning, resilience and optimization problems. If fully developed, the program represents 25 GW of potential infrastructure and a distinctive application environment. Planned scale is not treated as deployed capacity.

Leadership platform	Market offer	SourceEnergy advantage	First proof
Protect	Quantum Ready Infrastructure Assessment and PQC migration	SIOS governance, PQ-CGL controls and infrastructure relationships	Verified cryptographic inventory and one bounded PQC pilot
Optimize	Quantum Grid Intelligence Lab	5,000-node problem portfolio and digital twin capability	Classical benchmark plus independently reproduced hybrid result
Sense	Quantum sensing field validation	EPC access to substations, buildings, logistics and resilience sites	One supervised field pilot with a conventional comparator
Commercialize	Technology transfer and validation gateway	SETC governance and SourceEnergy Capital stage-gated financing	One customer-backed pilot that passes technical and economic gates

Required Outcomes

- A repeatable Quantum Ready Grid Node specification for new and existing infrastructure.
- A vendor-neutral benchmark contract that compares quantum and hybrid methods with the strongest practical classical baseline.
- A controlled pipeline from technology transfer through validation, commercialization and capital release.

- A portfolio of protected intellectual property in energy problem definitions, integration patterns, field evidence and deployment methods.
- An accurate public posture that distinguishes governance readiness, pilot evidence and production capability.

Current Verified Baseline

The current repository evidence shows that SourceEnergy has already established a meaningful post quantum governance foundation. SET-Q-001 extends that foundation into energy applications and commercialization; it does not create a competing control plane.

Baseline component	Verified state	Directive treatment
PQ-CGL governance	Phase IV engineering baseline on the private SIOS repository	Retain as the cryptographic governance authority
QRI data model	Readiness assessments, scores, infrastructure readiness, crypto agility and recommendations exist	Extend through governed records rather than parallel spreadsheets
Hybrid profile	HYB-Q3-ECDSA-P256-MLDSA65-V1 remains pilot	No production promotion under this directive
Provider candidates	AWS KMS preferred for a nonproduction pilot; Google Cloud KMS retained for interoperability benchmarking	Recommendation only; no provider approval or spend inferred
Provider state	PROVIDER_PREFERRED_AWAITING_HUMAN_APPROVAL	Remain fail closed until the approval package is complete
Operational posture	PQC_GOVERNED_NOT_YET_PQC_ENFORCED	Use this exact label in system and external materials
Key and signature evidence	No active operational PQC key and no valid PQC signature envelope evidenced	Do not claim end to end PQC
Legacy release holds	Separate release evidence may remain unresolved	SET-Q-001 does not lift any P0 hold or production restriction

Existing Controls Preserved

- Cryptographic choices remain abstracted from business logic wherever practicable.
- Private keys are prohibited from GitHub, Supabase tables, Drive, chat, tickets, documents, environment variables and ordinary application storage.
- Client roles receive no direct access to PQC and evidence schemas.
- Cryptographic validity is evidence and does not create legal, fiduciary, regulatory, banking, custody, investment or institutional authority.
- Append only evidence, gate decisions and accountable approvals remain the basis for status promotion.

Seven Dimension Governance Lens

Dimension	Control principle	Required evidence
Fear of the Lord	Truthful representation and zero tolerance for unsupported claims	Claim to source mapping and signed decision record

Dimension	Control principle	Required evidence
Presence of the Lord	Human accountability remains present at material decisions	Named approver, time, scope and authority reference
Wisdom	Select problems where quantum may create practical value	Use case score and opportunity cost review
Knowledge	Use primary evidence and reproducible measurements	Dataset, method, environment and result hashes
Understanding	Evaluate dependencies, failure modes and system effects	Architecture review and hazard analysis
Counsel	Require qualified independent challenge	External review or reproducibility record
Might and Power	Release execution authority only after gates pass	Authorized transition and bounded operating mandate

Program Workstreams

Quantum Safe Infrastructure

This workstream converts the existing PQ-CGL control plane into a repeatable infrastructure assessment and migration service. It begins with cryptographic discovery and confidentiality horizon analysis. Migration priorities shall reflect data life, system criticality, replacement complexity and exposure to harvest now decrypt later risk.

- Inventory public key algorithms, certificates, libraries, protocols, code signing, firmware signing, device identities, service accounts and vendor dependencies.
- Create a cryptographic bill of materials for each target system and node class.
- Map each asset to Q1, Q2 or Q3 assurance requirements already defined by PQ-CGL.
- Design algorithm and provider agility, rotation, rollback and incident response before migration.
- Validate interoperability in a nonproduction environment before any production change.

Quantum Grid Intelligence

This workstream creates a governed library of energy problems suitable for classical, quantum inspired and quantum hybrid evaluation. The first release shall use synthetic, public or formally authorized data. Each benchmark shall freeze the problem statement, constraints, dataset and classical baseline before a quantum run begins.

- Solar and BESS siting, sizing and portfolio sequencing near substations.
- Interconnection, resource adequacy and transmission expansion planning.
- Microgrid placement, islanding, outage restoration and resilience scheduling.
- Maintenance, field service, fleet routing and spare parts allocation.
- Battery, thermal and materials discovery only through qualified research partners.

Quantum Sensing and Timing

This workstream evaluates field technologies whose value may mature before general fault tolerant computing. Candidate pilots may include electromagnetic anomaly measurement, infrastructure condition monitoring, precision timing, navigation resilience and subsurface sensing. Every candidate requires a conventional instrument comparator, a defined environment and an independent evaluator.

Technology Transfer and Commercialization

This workstream routes external science through SETC before operational or capital adoption. SourceEnergy Technologies owns application requirements, integration, field validation and deployment methods. Hardware vendors retain responsibility for their hardware claims. SourceEnergy Capital may evaluate financing only after the technology and commercial gates pass.

Stage	Decision question	Minimum evidence	Permitted outcome
Technology intake	Is the claim attributable and within scope	Primary source, owner, IP status, maturity and restrictions	Register or reject
Problem qualification	Is there a decision worth improving	Named user, baseline process, constraints and value hypothesis	Authorize benchmark design
Controlled validation	Does the result reproduce under equivalent conditions	Frozen dataset, classical baseline, run record and independent check	Advance, hold or reject
Operational validation	Can the capability operate safely and reliably	Security, hazard, recovery, support and field evidence	Authorize bounded pilot
Commercial validation	Does customer value exceed total cost and risk	Customer evidence, unit economics, SLA and legal review	Commercialization eligible
Capital release	Is financing aligned with verified milestones	Approved investment memo and accountable authority	Release bounded capital

Quantum Ready Grid Node Specification

The following controls define the minimum planning baseline for a Quantum Ready Grid Node. A node is quantum ready when its cryptography, data, interfaces and evidence can support controlled migration or experimentation. The designation does not mean that quantum computing, quantum networking or quantum sensing is installed.

Control	Domain	Requirement	Acceptance evidence
QGN-ID-001	Identity	Assign a durable Cube UID, site ID, asset ID, owner and jurisdiction.	Registry record and ownership attestation
QGN-CBOM-001	Cryptographic discovery	Maintain a current cryptographic bill of materials for software, firmware, devices and services.	Signed CBOM and scan evidence
QGN-ALG-001	Algorithm agility	Externalize approved algorithms and prevent business logic from depending permanently on one public key algorithm.	Configuration, tests and rollback record
QGN-KEY-001	Key custody	Keep private key material inside an approved KMS or HSM boundary and register references and fingerprints only.	Provider, key and ceremony references
QGN-NET-001	Segmentation	Separate operational control, safety, telemetry, corporate, vendor and experimental traffic.	Network diagram and rule review
QGN-TIME-001	Time integrity	Use attributable, monitored and redundant time sources appropriate to the node risk class.	Time source and drift evidence
QGN-TEL-001	Telemetry	Record health, performance, security and environmental telemetry without copying prohibited payloads.	Schema and retention record
QGN-DATA-001	Data governance	Apply classification, lawful basis, minimum necessary collection, retention and access controls.	Data charter and access evidence
QGN-SAFE-001	Operational safety	Keep experimental optimization and sensing outputs advisory and isolated from protective relays and safety interlocks.	Safety architecture and test record
QGN-UPD-001	Software integrity	Require signed firmware and software updates, dependency control, rollback and recovery testing.	SBOM, signatures and recovery test
QGN-QAD-001	Quantum adapter	Expose provider neutral problem and result interfaces with no direct actuator privileges.	Interface contract and access policy
QGN-EVID-001	Evidence	Record source, observed time, place, authority, confidence, version, decision and outcome.	Append only governed event
QGN-RES-001	Resilience	Maintain safe classical operation when experimental services, communications or providers fail.	Failover and degraded mode test

Control	Domain	Requirement	Acceptance evidence
QGN-HUM-001	Human authority	Require accountable approval for material configuration, production and operational decisions.	Authorization record

Node Readiness States

State	Meaning	Allowed representation
Registered	Identity and intended scope exist	Registered node
Observed	Configuration and evidence have been collected	Assessment in progress
Validated	Required controls passed against current evidence	Quantum ready for the stated scope
Pilot enabled	A bounded experiment has separate authorization	Authorized nonproduction or field pilot
Production approved	Security, safety, performance and accountable approvals passed	Production capability for the exact approved scope
Degraded	One or more required controls no longer pass	Degraded; remediation required
Blocked	A prohibition or missing gate prevents use	Blocked; no promotion or execution

Quantum Benchmark Contract

The benchmark contract prevents a vendor demonstration from being mistaken for decision advantage. It governs classical, quantum inspired and quantum hybrid experiments. The benchmark owner shall pre register the decision problem and freeze the comparison before results are observed.

Required Contract Fields

Field group	Mandatory content
Identity	benchmark_id, Cube UID, version, owner, jurisdiction, environment
Decision	decision scope, decision user, materiality, allowed use, prohibited use
Problem	objective function, constraints, feasible set, required precision, failure cost
Data	dataset reference, hash, provenance, classification, authorization, freeze time
Classical baseline	solver, version, hardware, tuning budget, run count, best result and total cost
Experimental method	provider, algorithm, hardware or simulator, qubits, shots, error mitigation and preprocessing
Results	solution quality, feasibility, wall clock time, compute time, energy, cost and variance
Verification	classical verifier, reproduction count, independent evaluator and discrepancy record
Governance	source evidence, approvals, conflicts, limitations, state and gate decision
Commercial	customer value hypothesis, integration cost, operating cost, SLA and adoption dependency

Measurement Rules

- Compare equivalent problem definitions, datasets, quality thresholds and tuning budgets.
- Report total workflow time and cost, including data preparation, queue time, classical preprocessing, quantum execution, error mitigation and classical verification.
- Report infeasible solutions, discarded runs, variance and negative results.
- Use at least three reproducible runs unless the benchmark charter provides a documented reason for another design.
- Preserve raw provider receipts and hashes without storing restricted customer payloads or private keys.
- Do not claim advantage from simulator results, qubit counts, single benchmark instances or vendor supplied comparisons alone.

Gate Decisions

Decision	Required finding	Effect
Advance	Evidence is complete and the predefined threshold is met	Proceed to the next bounded stage
Hold	Potential remains but evidence, reproducibility or authority is incomplete	No promotion; assign remediation and review date
Reject	Claim is disproven, unsafe, uneconomic or outside strategy	Close or reframe the opportunity

Minimum Commercialization Criteria

- A named customer or internal decision owner confirms that the problem matters.
- The result meets a pre approved quality threshold and is independently reproduced.
- The total cost and operational burden are known within a decision useful range.
- The system can fail safely and retain an approved classical path.
- Security, privacy, export control, procurement and contractual requirements are resolved for the proposed scope.
- Accountable authorities approve the commercial offer and any associated capital release.

One Hundred Eighty Day Execution Plan

The execution clock begins September 14, 2026. Work may proceed concurrently where dependencies permit, but no team may bypass an evidence or authorization gate to meet a calendar target.

Window	Dates	Priority work	Exit evidence
Days 0 to 7	September 14 to 21, 2026	Register SET-Q-001; appoint interim program roles; freeze the baseline; issue data and claims rules	Directive record, owner register, evidence index and initial risk register
Days 8 to 30	September 22 to October 14, 2026	Begin cryptographic discovery; select three grid problems; qualify one sensing candidate; prepare opportunity briefs	CBOM coverage report, three problem charters and one sensing charter
Days 31 to 60	October 15 to November 13, 2026	Build the vendor neutral sandbox and classical baselines; complete provider approval package without creating a key	Sandbox design, reproducible baselines and provider decision package
Days 61 to 90	November 14 to December 13, 2026	Run synthetic dry tests; select independent evaluators; complete field site and safety design	Dry run evidence, evaluation protocol and approved pilot designs
Days 91 to 120	December 14, 2026 to January 12, 2027	Execute only authorized PQC, optimization or sensing pilots	Attributable run records, incidents, costs and preliminary results
Days 121 to 150	January 13 to February 11, 2027	Reproduce results independently and complete economic assessment	Independent findings and commercial decision models
Days 151 to 180	February 12 to March 13, 2027	Issue commercialization decisions and the first public safe technical report	Advance, hold or reject records; customer pilot package; state of readiness report

First Thirty Day Deliverables

ID	Deliverable	Accountable role	Due	Acceptance condition
SETQ-D01	Governance registration	Program Director	Day 7	Directive and scope recorded
SETQ-D02	Owner and authority register	Executive Sponsor	Day 7	Every control has an accountable role
SETQ-D03	Current state evidence index	SIOS Product and Data Owner	Day 10	Claims trace to repository and runtime evidence
SETQ-D04	Cryptographic discovery plan	Security and Cryptography Authority	Day 14	Systems, tools, custodians and boundaries approved
SETQ-D05	Three grid problem charters	Grid Engineering Lead	Day 21	Decision owner, dataset and classical baseline named
SETQ-D06	Quantum sensing candidate charter	Field Validation Lead	Day 21	Site, comparator, hazard and evaluator defined
SETQ-D07	Partnership and funding opportunity brief	Commercialization Lead	Day 21	Go or no go recommendations issued

ID	Deliverable	Accountable role	Due	Acceptance condition
SETQ-D08	Day 30 gate review	Executive Sponsor	Day 30	Advance, hold or corrective mandate recorded

Day Thirty Gate

The program may enter sandbox implementation only when roles are assigned, scope and data boundaries are documented, at least one classical baseline is feasible, the cryptographic discovery plan is approved, and no unresolved issue would expose production systems or restricted information. Failure to meet these conditions results in HOLD with named remediation.

Authority and Responsibility

Role	Primary accountability	Current designation
Knowledge Governor and Executive Sponsor	Scope, governance rulings and reserved material approvals	Dr. Oliver E. Jones
Program Director	Integrated delivery, schedule, dependencies and gate preparation	To be appointed
SIOS Product and Data Owner	Schemas, governed events, evidence integrity and release alignment	To be appointed
Security and Cryptography Authority	CBOM, algorithms, providers, IAM, ceremonies and incident response	To be appointed
Grid Engineering Lead	Power system problems, safety constraints and classical baselines	To be appointed
Field Validation Lead	Site access, sensing comparators, hazards and field evidence	To be appointed
Commercialization Lead	Partners, customers, offers, unit economics and funding channels	To be appointed
Independent Evaluator	Reproduction, challenge and validation opinion	External and independent
Capital Authority	Financing decision after commercialization approval	Authorized SourceEnergy Capital officer

Reserved Decisions

Decision	Required authority and evidence
Approve a PQC provider for pilot	Named accountable approver; account owner; region; IAM; audit; spend ceiling; two ceremony approvers
Create a cryptographic key	Approved provider decision and completed pre ceremony checklist
Use production or customer data	Data owner, lawful basis, classification, minimum necessary design and security approval
Connect to an operational control system	Safety, cybersecurity and operational authority; validated isolation and rollback
Submit an external proposal	Executive approval of scope, claims, budget, partners and representations
Make a binding commitment	Authorized officer, legal review and recorded decision
Release capital	Commercialization gate approval and separate investment authorization
Claim quantum advantage or production PQC	Reproducible evidence for the exact scope and approved public claim

Risk Register

Risk	Exposure	Rating	Control	Owner
SETQ-R01	Premature capability claims	High	Use exact state labels and claim to evidence mapping	Program Director
SETQ-R02	Experimental access to operational systems	Critical	Network isolation, advisory outputs and explicit connection approval	Grid and Security Leads
SETQ-R03	Private key or restricted data leakage	Critical	Managed key boundary, reference only registry and automated scanning	Cryptography Authority
SETQ-R04	Vendor lock in	High	Provider neutral adapters, portable records and independent verification	SIOS Owner
SETQ-R05	Weak classical comparison	High	Pre registered champion baseline and equivalent tuning budget	Grid Lead
SETQ-R06	Irreproducible result	High	Multiple runs, raw receipts, environment record and external evaluator	Independent Evaluator
SETQ-R07	Uncontrolled spend	High	No spend under this directive; separate ceiling and billing alerts required	Capital Authority
SETQ-R08	Export control or security restriction	High	Jurisdiction, partner and technology review before transfer	Commercialization Lead
SETQ-R09	Program fragmentation	Medium	One register, one benchmark contract and one gate vocabulary	Program Director

External Engagement Priorities

External engagement shall focus on programs that need energy use cases, field validation and commercialization capacity. SourceEnergy should enter as an application and deployment partner unless it has a qualified quantum architecture partner and evidence supporting a broader role.

Channel	Immediate action	Decision timing	Control
NIST NCCoE PQC	Prepare a nomination for the Migration to PQC Community of Interest	Representative decision within 10 business days	Joining or submitting information requires approval
NSF Project Triad and Quantum X	Prepare an energy partnership brief based on sensing, networking and grid applications	Initial brief by September 21, 2026	No capability claim beyond evidence
DOE quantum grid commercialization	Map the three selected grid problems to the current challenge and laboratory evaluation model	Opportunity status review within 5 business days	Submit only after scope and partner approval
DARPA QBI	Assess an application or validation partner role with an eligible architecture developer	Go or no go by September 18, 2026 for the September 30 deadline	Do not apply as a qubit developer without qualifying evidence
Universities and national laboratories	Seek one independent benchmark and one sensing validation relationship	Shortlist by Day 30	Define IP, publication, export and data rights first

Commercial Offer Architecture

Offer	Customer problem	Deliverable	Release condition
Quantum Ready Infrastructure Assessment	Unknown cryptographic exposure and migration priority	CBOM, risk ranking, target architecture and roadmap	Evidence reviewed by security authority
PQC Migration Factory	Need to replace vulnerable cryptography without disrupting operations	Controlled implementation, interoperability evidence and rollback	All scope specific tests pass
Quantum Grid Benchmark	Unverified claims of planning or optimization improvement	Equivalent classical and quantum hybrid comparison	Independent reproduction completed
Quantum Sensing Pilot	Need for better measurement, timing or navigation resilience	Bounded field trial with comparator and safety record	Field and independent acceptance
Quantum Commercialization Gateway	Laboratory technology lacks a path to an infrastructure customer	Transfer, validation, deployment and finance decision package	Commercial and capital gates approve

Performance Scorecard

Measure	Day 30	Day 90	Day 180
Governance	Roles and registers established	All pilots have approved charters	Every opportunity has a recorded decision

Measure	Day 30	Day 90	Day 180
Cryptographic readiness	Discovery plan and priority scope	Verified inventory and pilot approval package	One evidence backed reference implementation or documented hold
Grid benchmarks	Three problem charters	Three classical baselines	At least one independently reviewed comparison
Sensing	One qualified candidate	Approved field protocol	One completed pilot or evidence based rejection
Partnerships	Target shortlist	At least one validation arrangement in negotiation	One executed validation relationship
Commercialization	Offer definitions	Customer discovery evidence	One paid pilot candidate or documented no go
Claims discipline	Claim register active	No unsupported promotions	Public report reconciles every material claim

Immediate Executive Actions

1. Record SET-Q-001 as the controlling directive for the quantum ready energy infrastructure initiative.
2. Appoint the Program Director, SIOS Product and Data Owner, Security and Cryptography Authority, Grid Engineering Lead, Field Validation Lead and Commercialization Lead.
3. Require a Day 7 evidence index that reconciles repository state, runtime state, prior holds and public claims.
4. Authorize synthetic data and classical baseline work for three grid problem charters.
5. Reserve AWS KMS approval, spend and key creation for the existing provider decision package and ceremony controls.
6. Issue the external engagement go or no go decisions on the dates stated in this directive.
7. Convene the Day 30 gate review and record ADVANCE, HOLD or REJECT for each workstream.

Executive Authorization Record

This record converts the execution draft into accountable operational authority. Until the fields below are completed and entered in the governed decision register, this document authorizes preparation and controlled nonproduction mobilization only.

Authorization field	Entry
Decision	Approve / Approve with conditions / Hold / Reject
Authorized scope	_____
Reserved conditions	_____
Authorized by	Dr. Oliver E. Jones
Capacity	Knowledge Governor and Executive Sponsor
Decision reference	_____
Signature	_____

Authorization field	Entry
Date	

Source Register

Reference	Source	Link
R1	NIST Post Quantum Cryptography	Open source
R2	NCCoE Migration to Post Quantum Cryptography	Open source
R3	DOE Quantum Algorithm Competition for Grid Resilience	Open source
R4	NSF Project Triad	Open source
R5	DARPA Quantum Benchmarking Initiative	Open source
R6	DARPA QBI Stage A 2026 opportunity	Open source
R7	SIOS PR 218 PQC Phase IV governance gate	Open source
R8	SIOS PR 285 CVI DPOT and PQC hybrid evidence control plane	Open source
R9	SIOS post quantum governance policy	Open source
R10	SIOS PQC provider commissioning runbook	Open source

Implementation Statement

SET-Q-001 establishes the operating boundary for SourceEnergy Technologies to lead quantum ready energy infrastructure. Leadership will be measured by verified security migration, reproducible energy results, safe field operation, accountable approvals and commercially useful deployments. The program shall preserve the doctrine that observation, inference, recommendation, authorization and execution are separate states.