

Clean Energy Transition Market Mechanisms

Final Recommendation Overview

April 2023



CLEAN ENERGY BUYERS ALLIANCE
Customer-Driven Clean Energy For All



BAIN & COMPANY 

Project evaluated feasibility of voluntary market mechanism to accelerate US corporate buyers' adoption of BTM-aligned clean energy projects

OVERVIEW

Our objective

Explore the potential design, viability of, and path forward for market mechanisms (e.g., tradeable BTM certificate) to accelerate adoption of BTM clean energy projects in US

Key project questions

- What is the interest / demand for BTM clean energy among key stakeholders (e.g., buyers, developers)?
- What are current models that could inform the development of market mechanisms to encourage BTM clean energy?
- What are the requirements, strengths, and weaknesses of potential solutions to encourage BTM adoption?
- What do the solutions look like in practice? What are the next steps to advance these solutions?

January kick-off

- Kick-off the project scope and introduce the supporting working team
- Outline key questions and primary research approach

February meeting

- Review potential market mechanism models
- Discuss emerging perspectives of stakeholder priorities from primary research

March meeting

- Share stakeholder interest, priorities, and requirements as informed by primary research
- Introduce emerging recommendation on solutions

April meeting

- Share final, multi-lever recommendation to accelerate BTM adoption among corporate buyers
- Detail the roadmap and path forward

Used four key inputs to understand the perspectives of different US clean energy stakeholder groups and shape our final recommendation

OVERVIEW



Energy customer survey

Key CEBA & non-CEBA stakeholders that lead clean energy procurement within large corps

Total N = 80

- Understand and quantify **interest for clean energy**
- Understand **interest in clean energy with BTM attributes** and which attributes are **most important**
- Understand current market **barriers** in the procurement of BTM outcomes
- Test concepts for different **potential solutions** to inform potential path forward



Energy developer survey

Key CEBA & non-CEBA stakeholders in development & supply of clean energy

Total N = 41

- Understand current trends in **clean energy demand of customers**
- Understand current market **barriers** to develop clean energy (especially with BTM attributes)
- Understand **how BTM outcomes are currently assessed** and delivered by developers today
- Test concepts for different **potential solutions** to inform potential path forward



1:1 discussions

Stakeholder discussions with mostly CEBA member buyers, developers, service providers, and others

Total N = 31

- Understand current trends and motivations in **clean energy procurement** in the United States
- Understand current **headwinds and tailwinds** to develop clean energy (especially with BTM attributes)
- Test concepts for different **potential solutions** and stakeholder interest to inform potential path forward



Analog

Various standards and certification programs in clean energy space and other adjacent industries

- Understand **existing analogs** that could inform the development of a BTM-focused market mechanism
- Understand the **key inputs** to build toward a BTM-focused market mechanism
- Estimate the **capital requirements** to stand up an independent certifying body for BTM attributes

Project and subsequent recommendation focused on specific segment of clean energy industry – primarily, new clean project development in US

OVERVIEW

Primary target Impacted Area

Geography

US	EMEA	APAC	Latin America
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Clean energy type

Wind	Solar	Biomass	Hydro	Nuclear	Fossil Fuels
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Audience

Corporate C&I buyers	Developers	Government agencies / policy makers	Residential users	Investors / lenders	Other nonprofits / NGOs in clean energy	Utilities
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Procurement method

PPA	vPPA	REC	Community / distributed solar	Onsite	Offsite	Green power programs
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Clean energy project type

New	Existing
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Note: C&I represents "Commercial and Industrial."

Final recommendation

For next 1-2 years, recommend advancing three distinct paths – voluntary solutions, awareness building, and policy solutions

Multi-lever recommendation will help accelerate BTM adoption among corporate buyers, developers, and other stakeholders

Tradeable BTM certificate, which would create market for clean energy projects with BTM attributes, not currently feasible but should be revisited in future after BTM standard in place

Recommendation

Owner

Voluntary solutions



Confirm **phasing of different BTM attributes**, and focus on defining the Phase 1 attributes and the value they provide to buyers and developers

CEBA BTM

Through the BTM WG, finalize and publish the **voluntary RFP guidelines** to provide tactical, pragmatic guidance for buyers to start incorporating into current processes

CEBA BTM

Retain organization (via RFP process) to develop an **industry-accepted BTM standard** for US stakeholders with path to fund and launch by EOY 2024

CEBA mobilizes a standard development org (*TBD*); TNC & others can support

Awareness building



Drive broader buyer & developer awareness of BTM attributes through a new **award to spotlight and reward BTM-centric projects** (e.g., TNC- or EPA-led ‘BTM Project of the Year’)

TNC & other industry orgs with existing award platforms

Use other tools / channels (e.g., **publications, conferences, targeted 1:1 outreach**) to socialize and promote BTM attributes to wider audience beyond CEBA

CEBA, TNC, CEBA BTM

With BTM WG members leading by example, drive awareness of and **promote BTM objectives with internal customer stakeholders** (i.e., finance, govt. relations)

CEBA BTM & other customers

Policy solutions



Invest time in **targeting a set of key states** where policy teams can engage in state-specific campaigns, focused on incorporating BTM attributes into new legislation

TNC

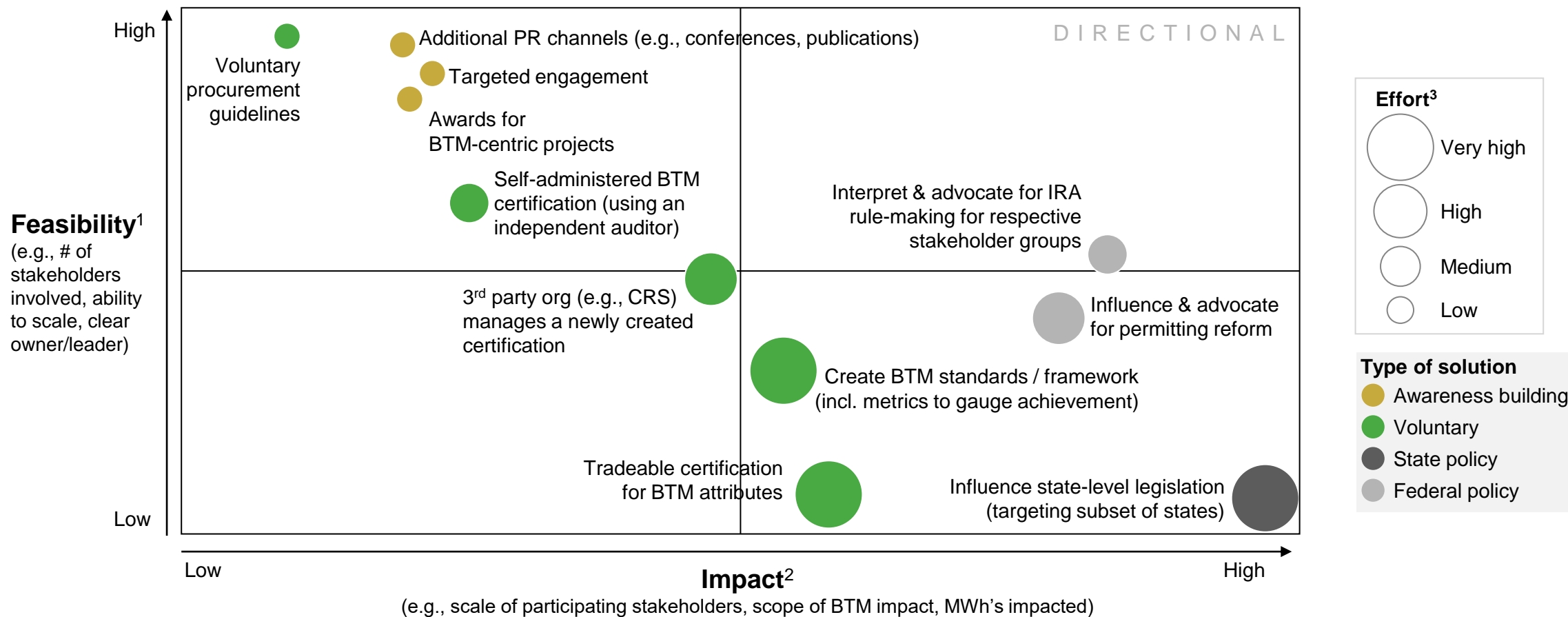
Build US federal momentum by helping translate for buyers & developers the **implications of IRA and permitting reform** on BTM-centric clean energy; engage more deeply in federal advocacy if organizational interest

CEBA & TNC

Path forward will be multi-dimensional to create the highest overall impact

RECOMMENDATION

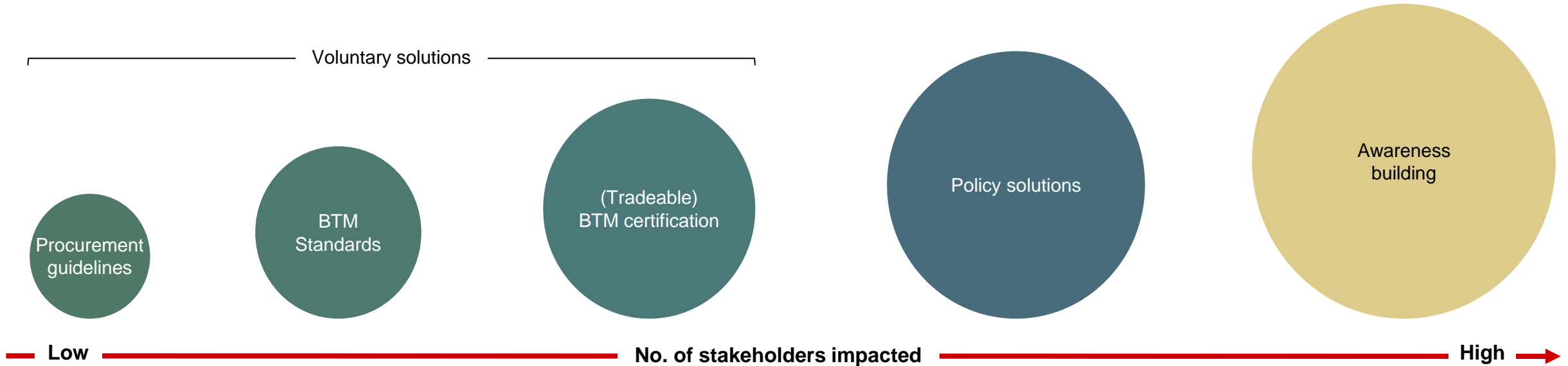
Four types of solutions – assessed by their relative expected feasibility and impact



Note: Detailed table of underlying feasibility & impact criteria included in Appendix. ¹Qualitative feasibility criteria: cost relative to stakeholders' WTP, ability to scale, solution funding needs, # of different stakeholder types required to launch, clear owner/leader; ²Qualitative impact criteria: scale of stakeholders participating, scope of BTM impact, MWh's impacted, voluntary vs. required, perceived gap/need to improve; ³Effort: relative time and resources needed to develop/launch/operate
Source: Market participant interviews; Lit search.

Targeting multiple solutions will allow us to maximize our reach to corporate buyers and other key stakeholders, extending awareness and impact as much as possible

RECOMMENDATION



- Creates universal language between buyers / developers
- Only some Pioneers likely to opt in given highly voluntary solution

- Will allow buyers to set recognizable goals
- Pioneers and some pragmatists likely to adopt BTM standards, many developers will follow

- A fungible BTM certification will help increase adoption significantly
- Most developers and all types of buyers likely to leverage tradeable BTM certification

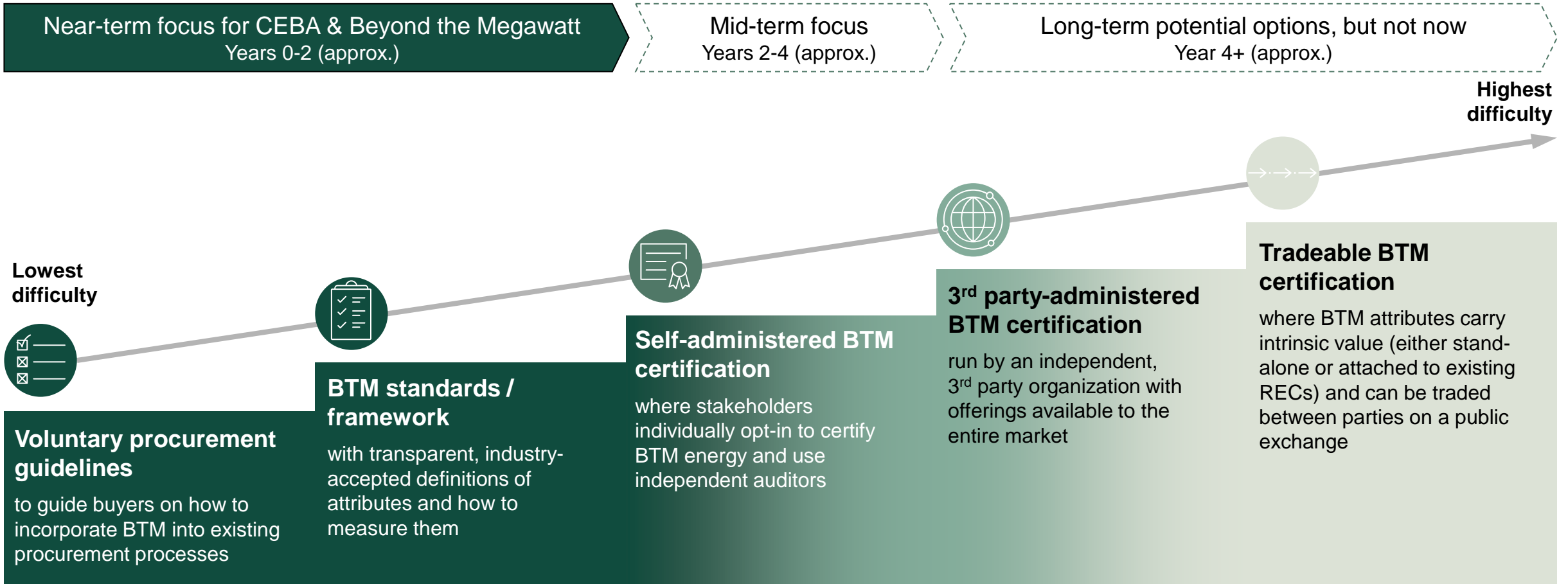
- Policies that require or incentivize BTM attributes will nudge all buyers and developers to adopt BTM
- Policy solutions may create incentives for investors to promote BTM as well

- Raised awareness will increase public sentiment for adoption of BTM principles
- Potential to impact all types of stakeholders with right design and channels (investors, policymakers, buyers, developers, other non-profits/community orgs.)

Industry is early in its evolution to create a market built around a tradeable BTM certificate – this remains only a long-term option

VOLUNTARY

Spectrum / evolution of voluntary solutions



Example / Analog

“More than a MW” procurement matrix

EO100, MiQ standard

Carbon audits

MiQ certification

US REC registries

In near-term, focus on accelerating delivery of RFP guidelines and then defining BTM standards for US buyers and developers

VOLUNTARY

Voluntary procurement guidelines

Guidance document with questions and a scoring rubric for buyers to incorporate BTM attributes in RFP solicitations



BTM standards / framework

US industry-wide standard & framework that defines key criteria and metrics to evaluate BTM impact of a clean energy project



Benefits

- **Clarity for buyers and developers** on how to assess and measure BTM attributes during procurement
- **New reference materials** for buyers to use in procurement process

- Output is a clearly defined, stakeholder-aligned BTM standard that **enables stakeholders to “check the box” on BTM attainment**
- **Improves visibility around BTM attributes** and thus the opportunity to disseminate impact stories and other public messaging

Challenges

- **Voluntary-only guidelines may not be adopted** by key buyer decision makers at scale
- BTM frameworks likely **inconsistently applied** by stakeholders

- Standard building is a **time- and resource-intensive** endeavor
- **Tradeoffs will need to be made** in order to garner wide-spread alignment on the finalized set of standards and metrics

PATH FORWARD

Finalize the RFP procurement guidelines in 2023, being mindful of attributes that are most critical to buyers and developers; share best practices from C&I players that have pursued BTM attributes

Confirm how the BTM standard will be pursued (e.g., who will own the standard, develop the standard, fund the development) and aim to finish within the next ~12-18 months

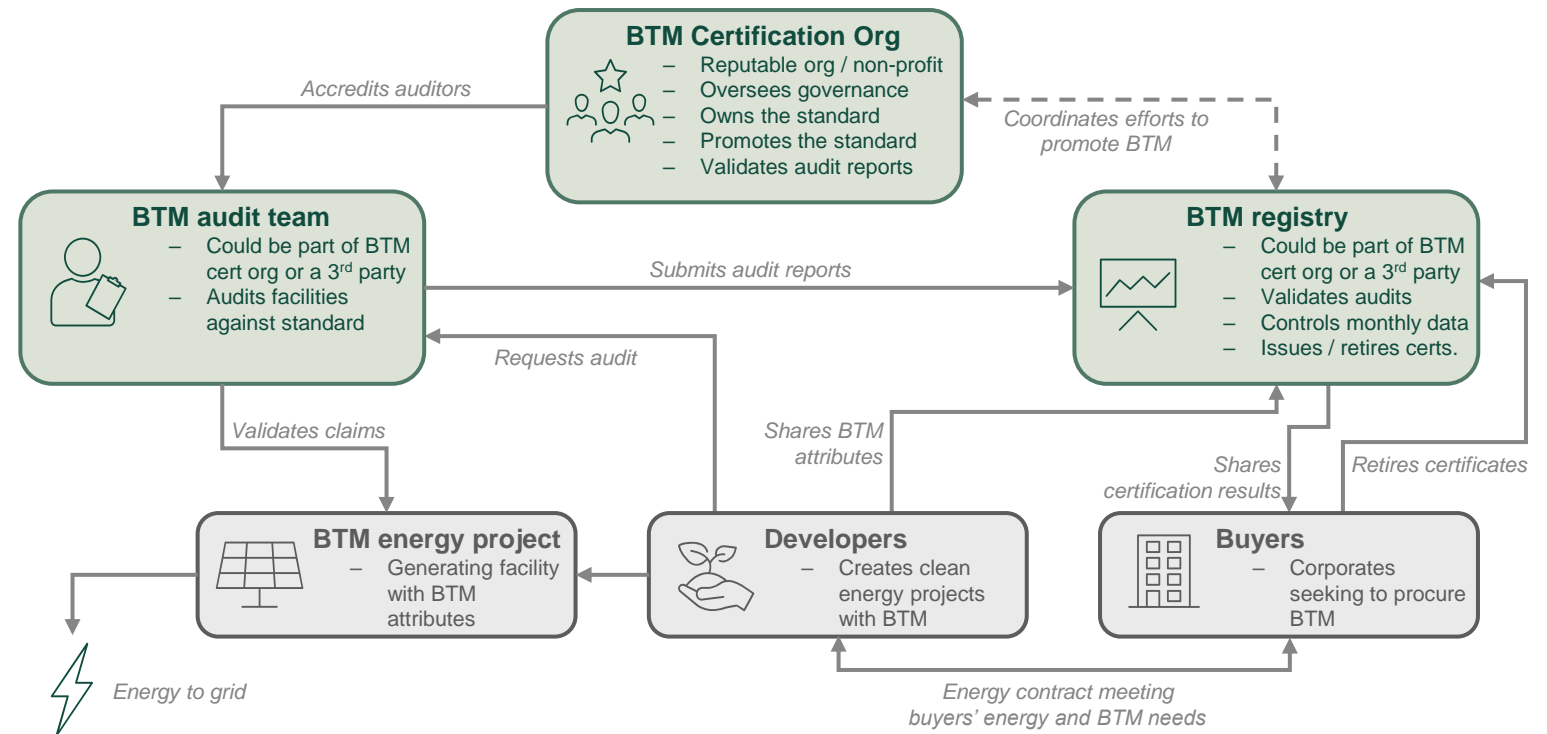
Based on interest today, a (tradeable) 3rd party-administered BTM certificate remains a long-term objective; if pursued, it would require partnerships with established orgs

VOLUNTARY

Meeting certain conditions can signal market readiness for a certification

Standing up and establishing net new certification org., audit team, & registry partnerships is the key foundation to tradeable BTM certificate program

- ❑ Industry-accepted BTM standard in place with stakeholder traction
- ❑ Increased buyer awareness of BTM attributes (e.g., active usage of voluntary RFP guidelines)
- ❑ Buyer / developer interest in highlighting BTM attributes in clean energy projects
- ❑ Developer willingness to participate in BTM audits
- ❑ Low-cost to add BTM audits to existing procurement process



Denotes net new BTM-specific developments – compared to today – to facilitate voluntary solution

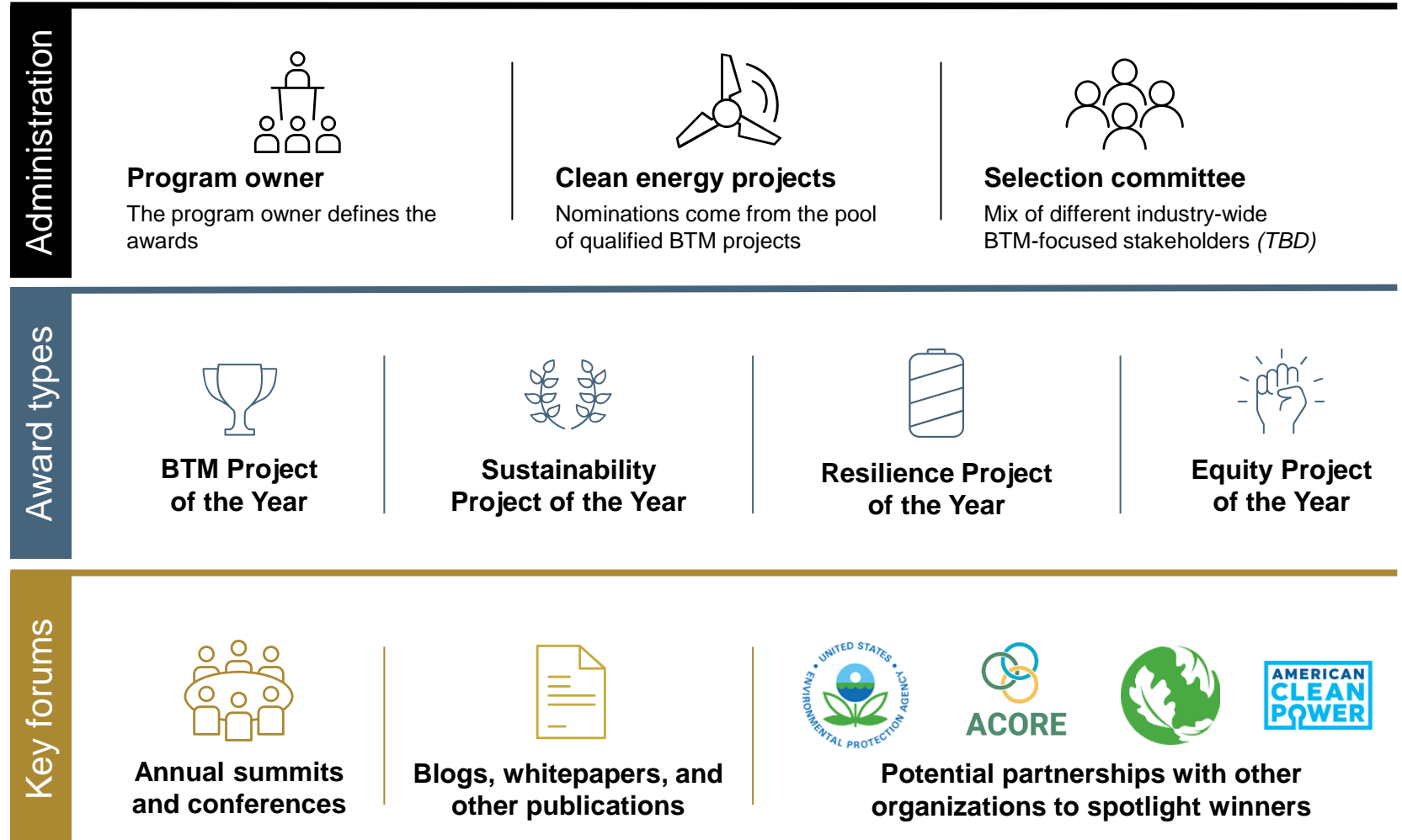
Building awareness in the US industry with a BTM-focused award program that rewards clean energy projects can provide a positive, external incentive for stakeholders

AWARENESS

Value of awareness building

- Many buyers, especially non-CEBA members, are **unaware of BTM attributes today**, and specifically how to procure clean energy with BTM
- Lack of broad buyer awareness of BTM attributes means **developers are unlikely to proactively invest in BTM** without clear buyer demand
- Increasing awareness among as many buyers, developers, & other stakeholders as possible can **create momentum for incorporating BTM into clean energy**
- Increasing widespread awareness can also drive **external market pressure from customers, investors, and even employees**, spurring buyers to action

Overview of proposed BTM Project Awards



Using other awareness tools like industry conferences, publications, and targeted stakeholder engagement also critical to reach a diverse audience

AWARENESS



Industry conferences and conventions



Whitepapers and publications



Targeted stakeholder engagement (TNC / CEBA-led and customer-led)

Overview

Promote BTM awareness to diverse stakeholders through info sessions at industry conferences

Author / co-author publications that provide data supporting BTM's value proposition

TNC / CEBA-led engagement

Target stakeholders with large US energy consumption to highlight impact of including BTM attributes

Customer-led engagement

Customer-led awareness building to internal decision-makers and influence other buyers

Example activity

Engage with utilities and utility commissioners at annual NARUC conference

Highlight how stakeholders can prioritize BTM attributes via financial incentives through IRA

Tap into CEBA membership and focus on connecting with energy procurement teams

BTM WG members host internal meetings to share BTM Principles with treasury, PR & gov't relations leaders

Key near-term efforts



Provide BTM WG updates at upcoming Spring & Fall Summits

Support the development and release of the BTM WG publication

Share findings with procurement teams of wider CEBA membership

Prepare / distribute promotional material on BTM initiative that members could use internally



Find spots to introduce the work of the BTM WG to TNC gatherings

Support the development of the BTM WG publication and disseminate widely

Set up 1:1 meetings with US Government procurement teams (e.g., DOD, DOE)

Share BTM project findings with interested corporations

Note: NARUC represents the National Association of Regulatory Utility Commissioners; IRA represents the recently passed Inflation Reduction Act // Source: Lit. search

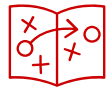
From a policy lens, pursuing multi-state approach can build momentum that can be redirected back into federal efforts where the broadest impact can be achieved

POLICY

State policy efforts can be effective – we can begin with a set of key states and consider many policy levers to pull



While the impact created at the individual state-level may be smaller than more ambitious federal advocacy efforts, a **targeted, multi-state campaign can have nearly the same effect**



Giving localized policy teams a menu of policy levers will allow them to advocate in the most effective way, **calibrating their efforts to what will be most impactful on a state-by-state basis**

Federal policy efforts will need to first focus on understanding how the new laws will be implemented by executive agencies



With the formal Inflation Reduction Act rule-making comment period closed, focus on **understanding the provisions of the law and spreading awareness on how the law will impact BTM projects**



Agencies will soon release their plans for complying with permitting reform; **the new guidance can be incorporated into state policy efforts**, helping stakeholders understand the reform's implications

General policy approach:



Create list of states to engage



See how federal policy flows through agencies and states



Advocate for policy levers appropriate to state



When possible, influence federal policy

Potential next steps :



At the TNC Division level, **pull state-level policy levers** across select target states – incorporating federal guidance and action plans when available

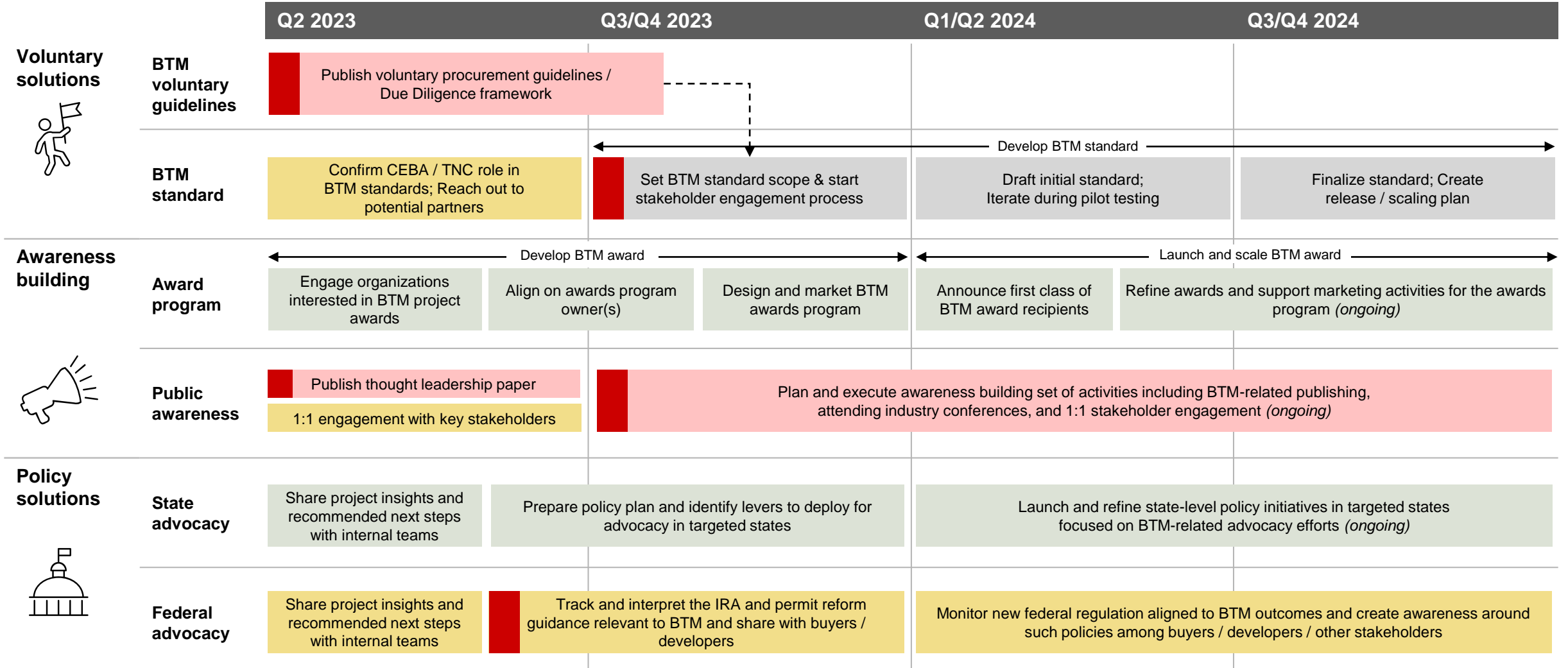


Incorporate implications of upcoming federal-level changes as they emerge into BTM WG discussions and prioritization of specific attributes

Advancing BTM over the next ~1-2 years will require both CEBA and TNC to engage in parallel efforts across voluntary, awareness building, and policy solutions

NEXT STEPS

Primary owner(s): TNC and CEBA | TNC | CEBA | CEBA BTM WG | Other stakeholder(s) / NON-EXHAUSTIVE





Near-term action items

NEXT STEPS

/ PRELIMINARY

Next steps

BTM WG	<input type="checkbox"/> Focus additional BTM WG monthly sessions on dialogue around project recommendations / insights <ul style="list-style-type: none"> – Session (without Bain in room) on implications of the work – Session on federal IRA, Permitting Reform policy implications – Session on open discussion of what this research means for their companies & action steps 	
Policy	<input checked="" type="checkbox"/> Set up internal discussion with policy team to share project scope, insights, and policy-related recommendations	
	<input type="checkbox"/> Conduct follow-ups with internal policy teams based on interest to incorporate BTM into priority list	
Voluntary	<input type="checkbox"/> Identify states that CEBA / TNC could partner together to drive adoption at state / local-level (e.g., Texas)	
	<input type="checkbox"/> Brainstorm list of potential ecosystem partners to support BTM standard (standard developers, sponsors / owners, funders) <ul style="list-style-type: none"> – Use to inform decision on CEBA's role in next steps & potential RFP process 	
	<input type="checkbox"/> Make decision on if CEBA will serve as initiator, sponsor, and/or owner of BTM standard	
Awareness	<input type="checkbox"/> Internally decide (with TNC) at what point you would like to revisit topic of a tradeable BTM certificate <ul style="list-style-type: none"> – Suggest revisiting question in ~1 year after RFP guidelines published, standards in development 	
	<input type="checkbox"/> Map out awareness building calendar of CEBA (and TNC co-led) activities in 2023 / 2024	
	<input type="checkbox"/> Set communications & release plan for thought leadership publication	
	<input type="checkbox"/> Reach out to federal procurement contacts (i.e., DOD, DOE) to discuss public sector procurement opportunities	

Key: Collaboration opportunity with TNC



Near-term action items

NEXT STEPS

/ PRELIMINARY

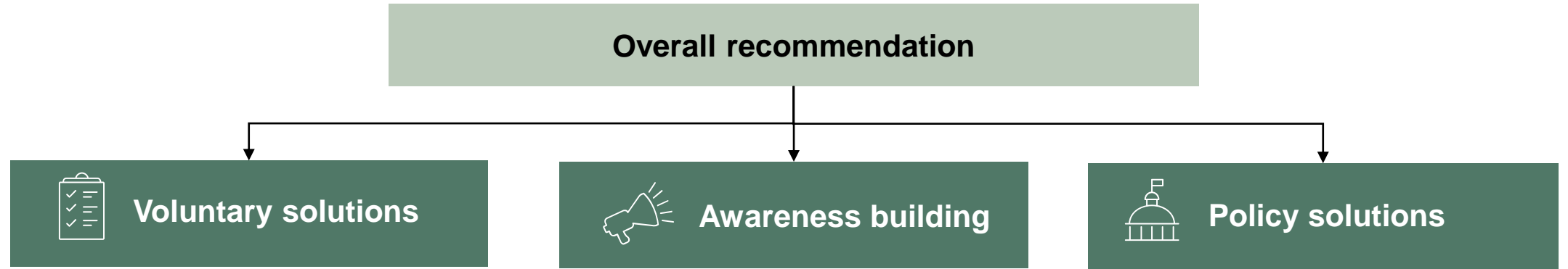
Next steps

WG	<input type="checkbox"/> Contribute to design of future monthly sessions by spotlighting TNC action items from project	
Policy	<input type="checkbox"/> Set up internal discussion with policy team to follow-up on final policy-related recommendations	
	<input type="checkbox"/> Make internal outreach list for state division leaders that may be most receptive to discussing potential policy movement	
	<input type="checkbox"/> Identify states that CEBA / TNC could partner together to drive adoption at state / local-level (e.g., Texas)	
Voluntary	<input type="checkbox"/> Brainstorm list of potential ecosystem partners to support BTM standard (standard developers, sponsors/owners, funders) – Use to inform decision on TNC’s role in next steps & potential RFP process	
	<input type="checkbox"/> Make decision on role TNC to play in development of BTM standard (support org, funding, etc.)	
	<input type="checkbox"/> Internally decide (with CEBA) at what point you would like to revisit topic of a tradeable BTM certificate – Suggest revisiting question in ~1 year after RFP guidelines published, standards in development	
Awareness	<input type="checkbox"/> Map out awareness building calendar of TNC (and CEBA co-led) activities in 2023 / 2024	
	<input type="checkbox"/> Review draft thought leadership publication & support build-out of communications plan	
	<input type="checkbox"/> Reach out to federal procurement contacts (i.e., DOD, DOE) to discuss public sector procurement opportunities	

Key: Collaboration opportunity with CEBA

Supporting materials provide more detail for each pillar of recommendation

NEXT STEPS



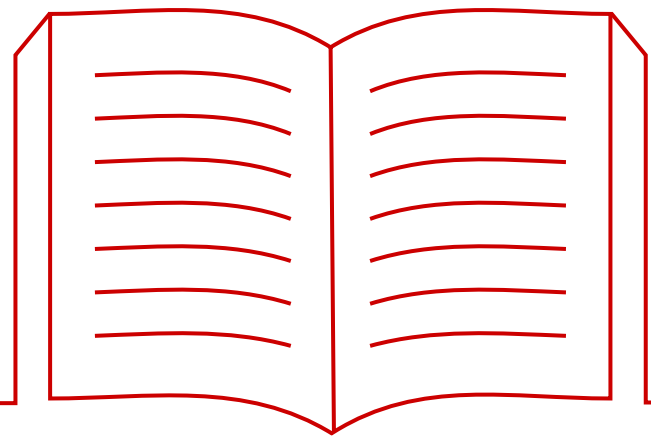
Summary of key topics

- Overall recommendation
- Primary insights from surveys
- Evolution of voluntary solutions (5 phases)
- Near-term solutions (next ~2 yrs)
 - Voluntary RFP guidelines
 - BTM Standards
- Mid- & long-term focus (> 2yrs)
 - Self-administered certification
 - 3rd party-administered certification
 - Tradeable certification
- Next steps

- Overall recommendation
- Primary focus: BTM award program
- Secondary focus: conferences, publications, and targeted engagement

- Overall recommendation
- State policy strategy
 - Key states to focus policy efforts on
 - Key policy levers
- Federal policy strategy
 - Inflation Reduction Act
 - Permitting Reform
 - Next steps

Appendix



Investor perspective: In the absence of financial incentives or legal mandates, investors are not likely to require BTM attributes from developers

APPENDIX

/ PRELIMINARY

Investors can influence developers through two types of investments

- 1 Construction capital:** Capital to finance construction of the renewable energy project
 - Can take form of loans, bonds, and equity
 - Often require that developers have a plan to leverage available tax credits to reduce capital requirements
- 2 Tax equity investments:** Investments to swap tax credits with equity/cashflow
 - Typically, developers don't have enough taxable income in a year to take advantage of tax credits. They partner with large banks (who have enough income to use the credits) to swap their tax credit for equity investment
 - Tax equity investment decisions are typically made closer to CoD¹, but can be earlier if construction capital is contingent upon securing tax equity investment
 - There is more demand for tax equity investments than supply, so tax equity investors hold a decent influence over clean energy developers

However, investors have low appetite for BTM today

- Investors focus most on financial return and risk profile of project investment; **BTM** attributes are **seen as 'window dressing'**
- Investors do, however, perform a **diligence to ensure project meets reliability and legal standards**. BTM components included in such a diligence:
 - Local community resistance
 - Adverse biodiversity impacts
 - Usage of pre-approved supplier for quality and legal reasons (e.g., compliance with Uyghur Forced Labor Prevention Act)
- Investors are **unlikely to add incremental focus on BTM attributes** unless it has financial impact (e.g., easier to raise capital) or mandated by law

Actions to influence investors



Educate / raise awareness

- Increasing awareness among as many stakeholders as possible can **create a positive momentum** for incorporating BTM
- This can influence investors via **external pressure**



Policy solutions

- Federal legislations can create **incentives or mandates** for investors to consider BTM
- **Example:** IRA's energy communities related incentives have influenced investors to give preferences to projects that can leverage those tax benefits

Note: ¹CoD stands for Commercial Operation Date; this is typically when a new project is connected to the rest of the grid.
Source: Market participant interviews

Definitions of Feasibility, Impact, and Effort Criteria

APPENDIX

	Criteria	Description	
Feasibility	1	Cost relative to stakeholders' WTP	Allows developers to recover cost in terms of additional premium charged to customers
	2	Ability to scale	Adaptability to different regions and systems (e.g., legislative, operational) across the US and beyond
	3	Solution funding needs	Dependence on outside funding from government, corporations, donors, and others
	4	Number of different stakeholder types required to launch solution	Reliance on high stakeholder participation and buy-in for development
	5	Clear owner / leader	Centrally coordinated operations by a reputable, non-governmental organization
Impact	1	Scale of participating stakeholders	Dependence on high volume of stakeholder participation for project to scale and drive critical outcomes
	2	Scope of BTM impact	Coverage of BTM guidelines in driving outcomes
	3	MWh's impacted	Ability to affect large portion of delivered MWh's
	4	Voluntary vs required solution	Developer autonomy and ability to adopt
	5	Perceived gap / need to improve	Real need and demand in the broader market
Effort	1	Relative time and resources needed to develop/launch/operate	Overall estimation of time and resources need to implement solution

Near-term focus for BTM community should be on accelerating delivery of RFP guidelines and starting to define BTM standards

	Voluntary procurement guidelines	BTM standards / framework	Self-administered BTM certification	3 rd party-administered BTM certification	Tradeable BTM certification
Description	<i>Detailed document with guidance on how to include BTM attributes in RFP solicitations (includes questions and clear scoring criteria / options)</i>	<i>A US, industry-wide “3-pillar” BTM standard & framework that defines the key criteria and the metrics to evaluate the BTM attributes associated with a clean energy project</i>	<i>A voluntary self-assessment effort by stakeholders where they contract with a trusted auditor to evaluate the BTM attributes of a clean energy project against defined BTM standard</i>	<i>An independent third-party organization that owns, maintains, and administers a BTM certification process</i>	<i>A marketable BTM certification that carries intrinsic value and allows buyers and sellers to trade in BTM attributes on a public exchange; potential to be captured as part of RECs</i>
Benefits	<ul style="list-style-type: none"> Clarity for buyers and developers on how to assess and measure BTM attributes during procurement process New reference materials for buyers to use in procurement process 	<ul style="list-style-type: none"> Output is a stakeholder-aligned, pragmatic (i.e., shorter) set of metrics Enables BTM stakeholders to “check the box” on BTM attainment Improves visibility around BTM attributes and thus the opportunity to disseminate impact stories and other public messaging about impact 	<ul style="list-style-type: none"> Assurance around realization of BTM outcomes and the ability to receive feedback from an auditor on how to improve BTM attainment The ability to make audited claims about BTM attributes Acts as a powerful marketing tool that stakeholders can use to validate the BTM attributes of their clean energy 	<ul style="list-style-type: none"> Greater assurance than self-administered given certification by trusted, market-recognized 3rd party Efficiency driven by singular 3rd party ownership of the standard vs. assigning internal resources to hire auditors 	<ul style="list-style-type: none"> Creates a tradeable asset with clear associated value, spurring further interest and development in BTM projects Ease of participation (by buyers and sellers) in some or all BTM outcomes as attributes become more “liquid” in the trading market
Challenges	<ul style="list-style-type: none"> Voluntary-only guidelines may not be adopted by key buyer decision makers at scale BTM frameworks likely inconsistently applied by stakeholders 	<ul style="list-style-type: none"> Standard building is a time and resource-intensive endeavor Tradeoffs will need to be made in order to garner wide-spread alignment on the finalized set of standards and metrics 	<ul style="list-style-type: none"> Inherent variability in the rigor applied by different auditors, especially since the standard is not owned by the auditors Operating inefficiencies in using non-specialized, 3rd party auditors Self-assessment will likely occur only if enough buyers place high value in demonstrating BTM attributes (e.g., it creates PR benefits) 	<ul style="list-style-type: none"> Finding the right organization to manage and own the BTM certification and securing the start-up / development funding to ensure success Operating a certification organization is costly and will require dedicated investment until demand for BTM attributes improves 	<ul style="list-style-type: none"> Transactions are managed by an exchange, adding stakeholders and complexity to the already onerous process of energy procurement The most successful trading markets are typically regulated and must comply with regulatory guidance; legislative stakeholders may be involved, slowing processes Consistency of buyer WTP for BTM attributes may not improve in the coming years (despite growing interest), reducing liquidity

Source: Market participant interviews; Survey; Lit. search