

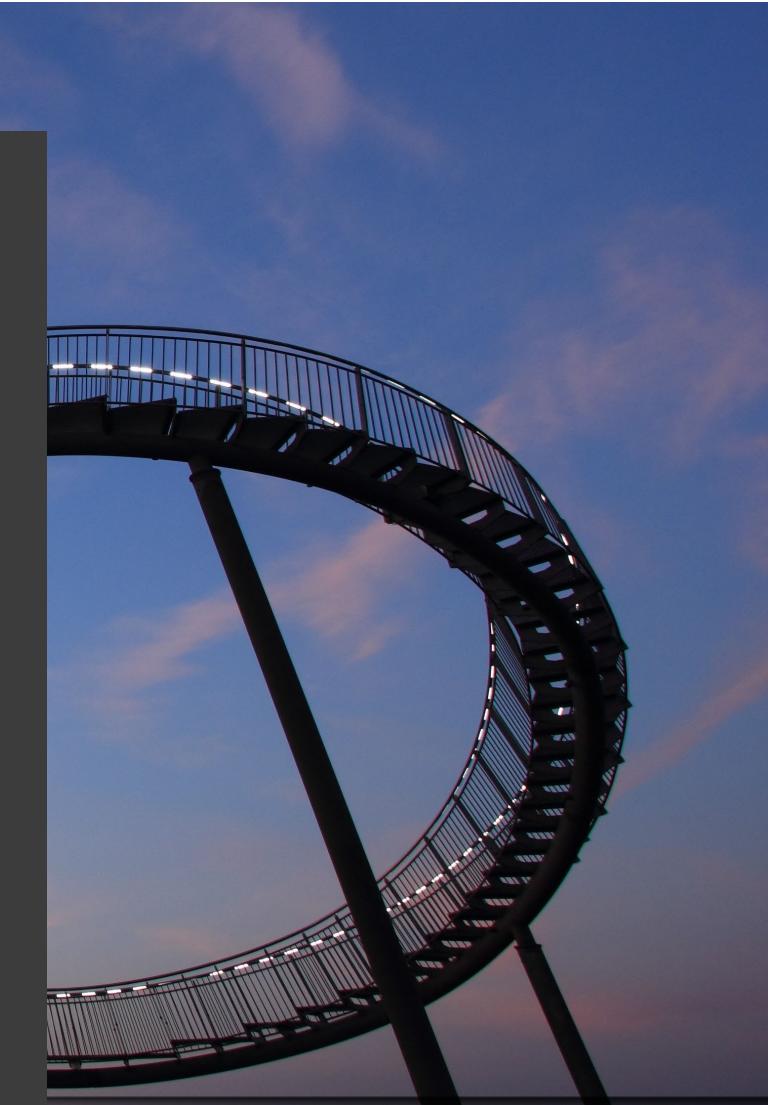


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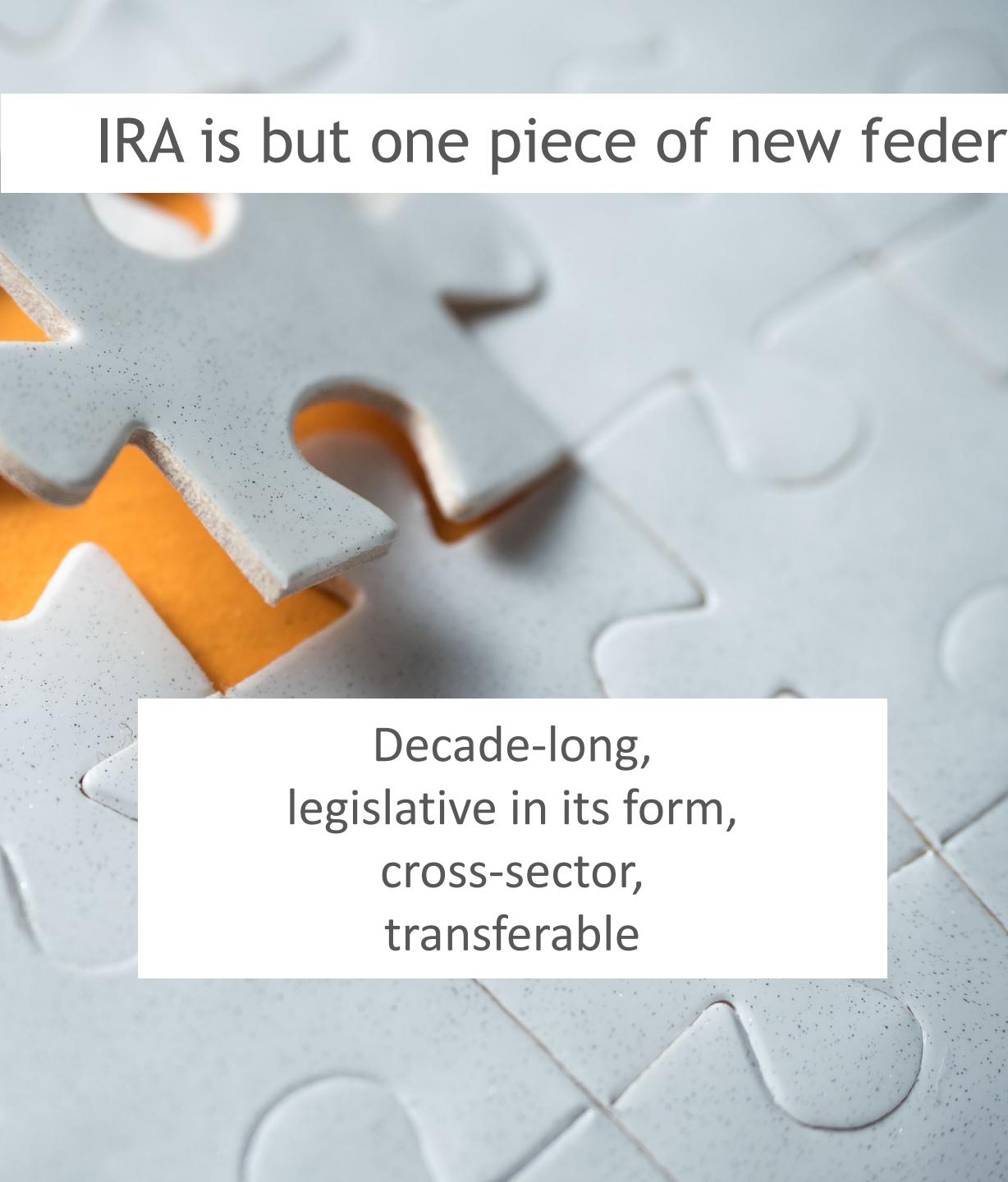
Making Sense of Opportunities in the IRA

Nathan Niese, Partner & Associate Director

2023



IRA is but one piece of new federal climate & energy policy in US



Decade-long,
legislative in its form,
cross-sector,
transferable

Inflation Reduction Act, but also...

Infrastructure Investment and Jobs Act

Defense Production Act

CHIPS Act

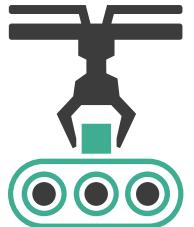
...and more

Three main elements to IRA for batteries



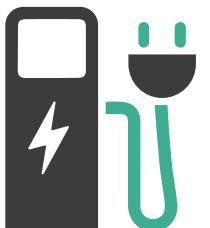
Demand side tax incentives

e.g., point of sale for passenger and commercial vehicles, new and used



Production tax incentives

e.g., on \$/kWh or percent cost-add for cells, packs, active materials, critical minerals, and green hydrogen



Investment tax incentives

e.g., for greenfield and brownfield manufacturing projects as well as ESS and EV charging stations



Impact will be far-reaching and fast-acting



Accelerates customer adoption



Expands participation



Makes business cases for new projects
more attractive to investors



Incentivizes regionalization



Emphasizes an equity focus



The headlines alone don't do the size of available investment justice



The headline

The New York Times

7 Key Provisions in the Climate Deal

The \$369 billion climate and tax bill would affect every aspect of U.S. energy production, with incentives for producers and consumers to move away from fossil fuels.

versus

The reality / upside

Up to **\$600B** possible for battery supply chain alone (incl. downstream)¹

1. When account for forgone income from government taxation

How do OEM strategies change?

PRODUCT

Model year
launch plan

Cost-for value
positioning

Green H2
vehicles

CUSTOMER

(Re)-pricing
and financing

Commercial
vehicle bus.
models

Downstream
ecosystem
participation

Dealer
support
models

OPS

Material
sourcing

Network (re)-
optimization

Scope 1 & 2
acceleration

Upstream
battery
integration

Long-term
partnership
advantage

IRA-optimized value chains

PRODUCT

Model year launch plan

*How would
accelerating launch of
qualifying models
affect profits?*

Cost-for value positioning

*How would changing
trim to hit cost
window affect profits?*

Green H2 vehicles

*How will green H2
credits improve
margins?*

CUSTOMER

(Re)-pricing and financing

*How does re-pricing
affect market share?*

Commercial veh. business models

How can re-classifying
vehicles grow vehicle
profits?

Downstream ecosystem participation

What are profits from
integrating charging
infrastructure?

Dealer support models

How can OEMs
qualitatively support
dealers?

OPS

Material sourcing

What is the cost of
materials at risk in
non-free trade zone
countries?

Network (re)- optimization

How could you
recapture costs at risk
by shifting supplier
operations?

Scope 1 & 2 acceleration

How do credits lower
abatement costs?

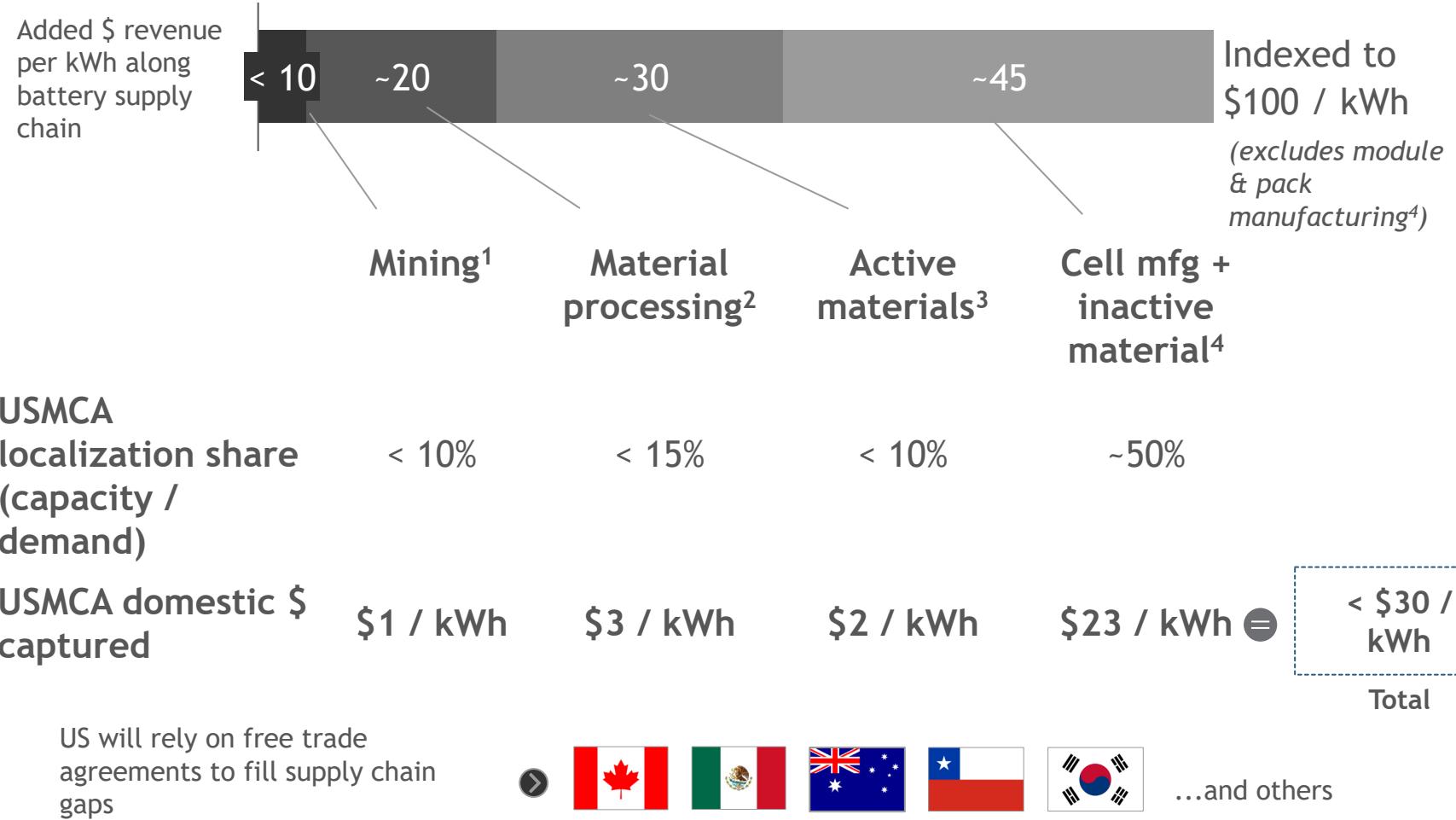
Upstream battery integration

What are profits from
integrating battery
manufacturing?

Long-term partnership advantage

How can OEMs secure
competitive advantage
with contracts?

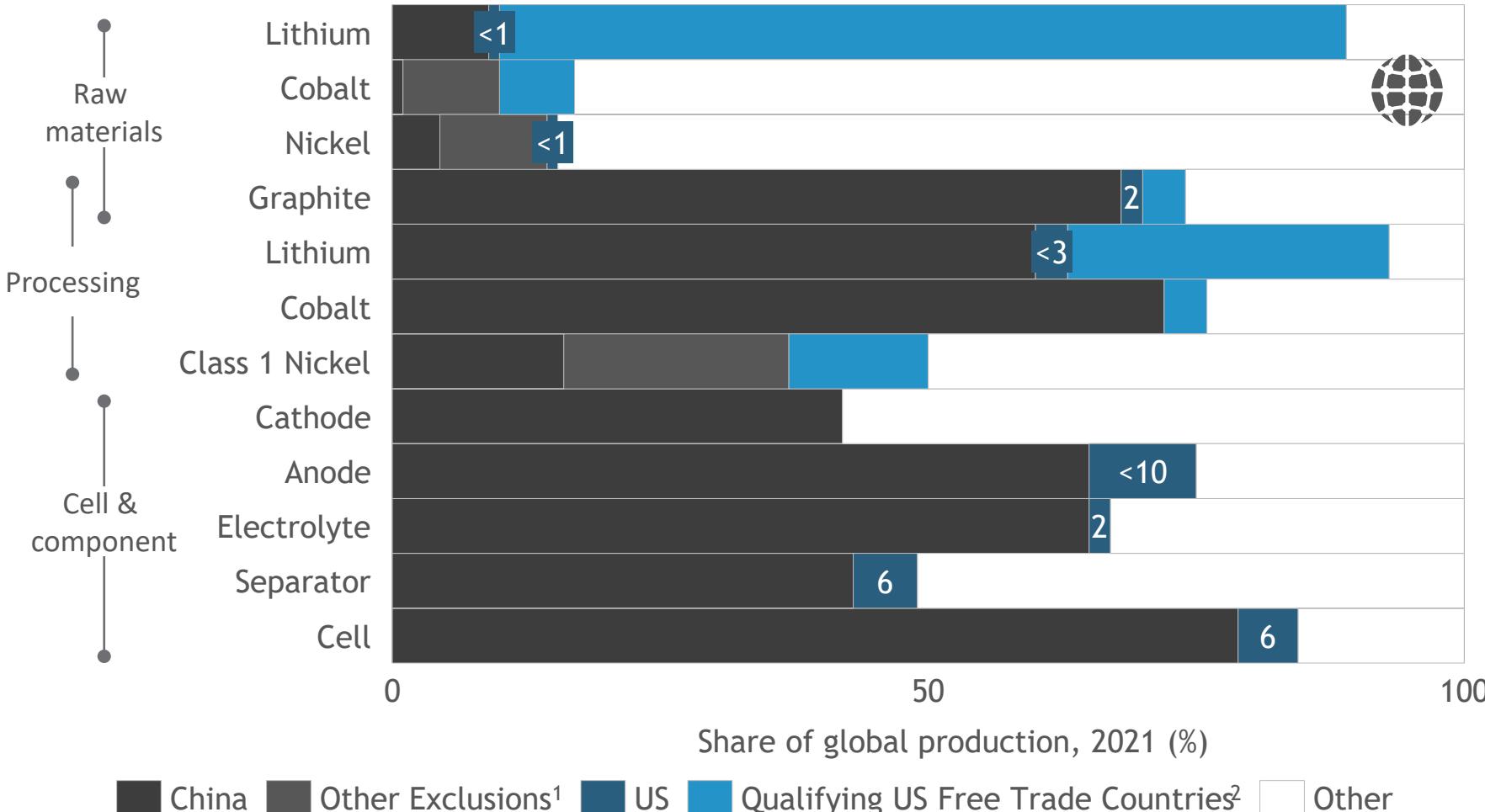
Starting point: Major gap versus domestic content requirements



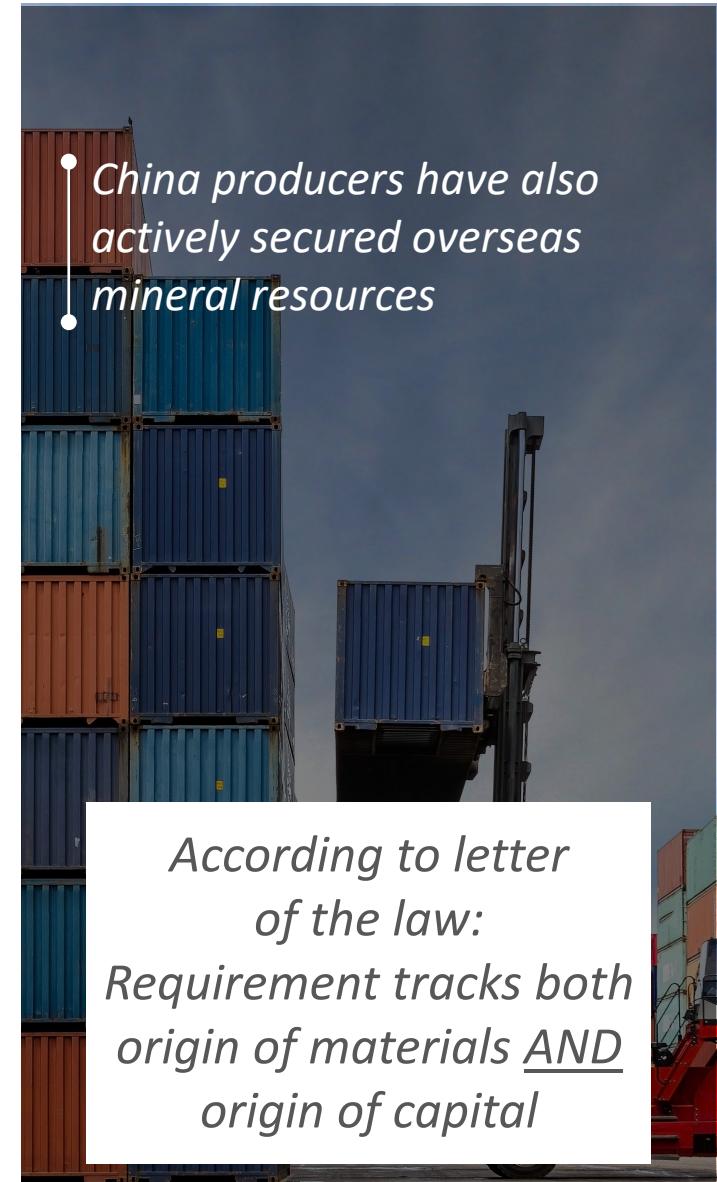
1. Includes Li, Ni, Co, and graphite ore 2. Includes intermediates, e.g., lithium carbonate 3. Includes anode and cathode powders plus electrolyte
4. Inactive material includes separator, housing, etc. Source: FCAB National Blueprint 2021-2030; BMI; BCG analysis

Auto: Excluded Entities clause is knockout criteria for many models

Nearly all roads lead through China today for battery materials

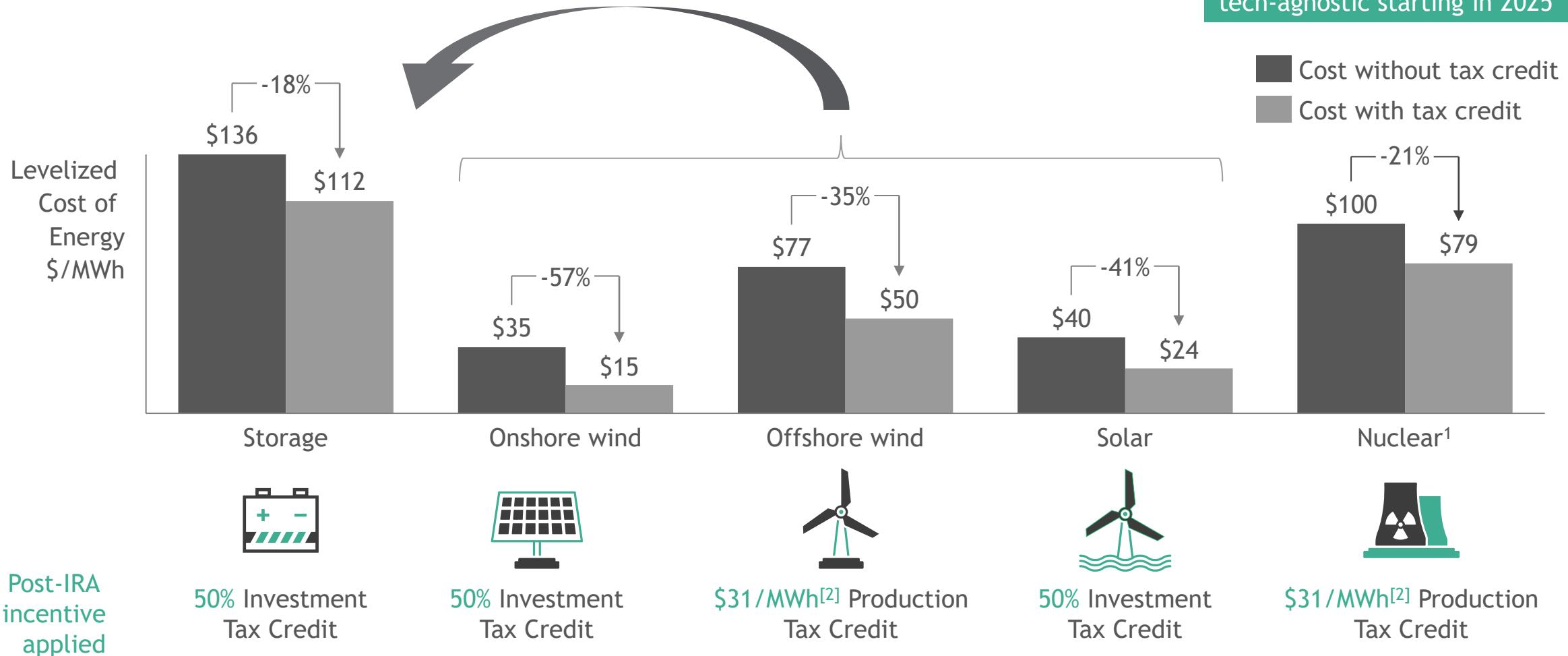


1. Russia, Cuba 2. For raw materials and processing, includes all countries where US has a free trade agreement. For cell & component, includes only North America. Source: US White House ("Building resilient supply chains..."), USGS, Industry Experts, BCG analysis



ESS: Incentives for renewables also an accelerator for energy storage deployment

Note: ITC and PTC are tech-agnostic starting in 2025



ESS: Expanded ITC has both direct and indirect impacts on business models

Section 48 ITC includes stackable bonuses

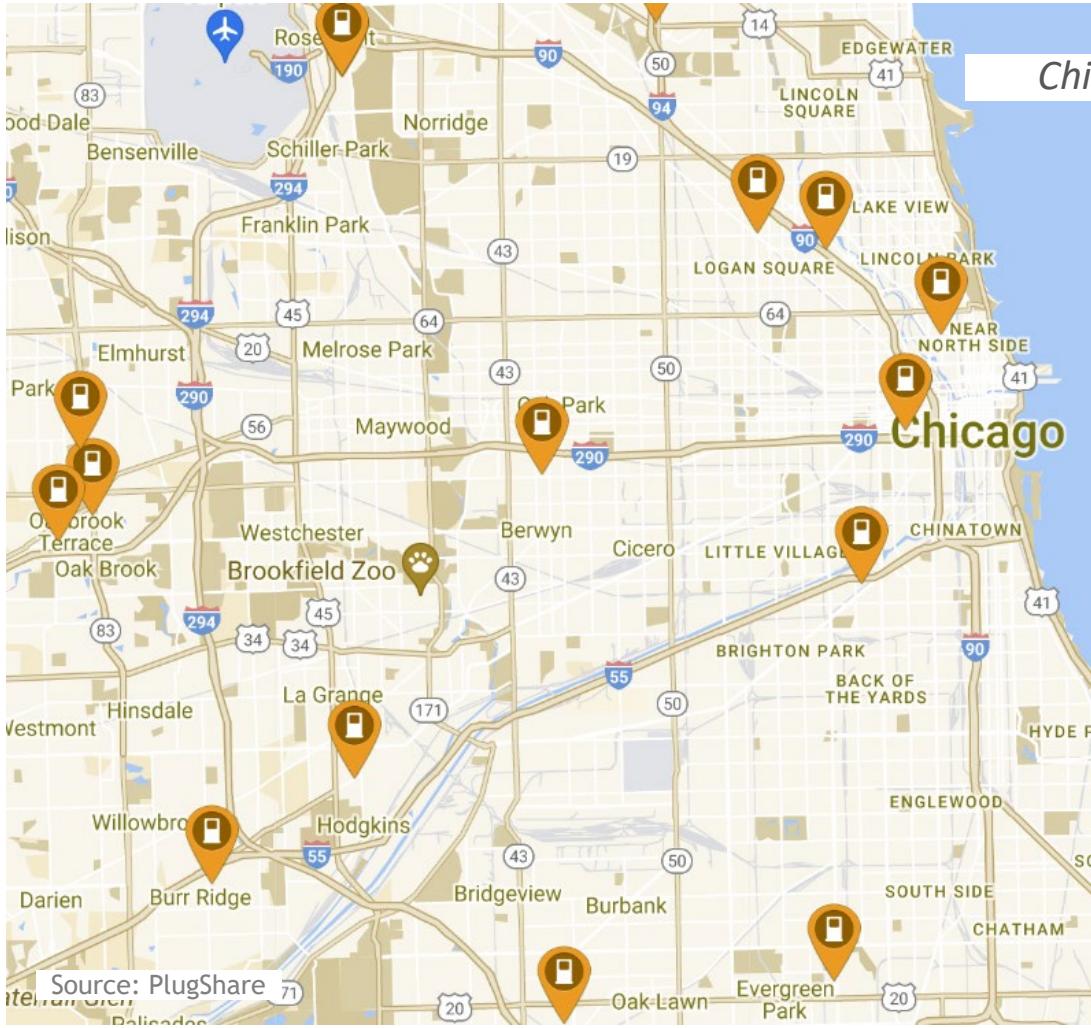
Provision	ITC (%)	Primary and secondary impacts
Base	6%	<ul style="list-style-type: none">• Standalone ESS now eligible• Interconnection costs also eligible
+ Labor requirements (prevailing wages and apprenticeship)	+24%	<ul style="list-style-type: none">• Increases estimated project costs (from negligible to 46% higher depending on region; analyses average 10-15% range¹)
+ Domestic content (steel & manufactured products)	up to +10%	<ul style="list-style-type: none">• Expected cost premium• Availability may be limited for certain components, esp. in near-term
+ Energy community	up to +10%	<ul style="list-style-type: none">• While location-based bonuses will attract certain projects, site selection decisions are likely to be driven by other strategic factors• Incentives may drive up real estate prices for qualifying parcels
+ Low-income community	up to +20%	
<i>Total</i>	<i>up to 70%</i>	

Note: Above tax credit bonus provisions applicable to both ITC and PTC, except for "Low-income community" bonus which is ITC-only

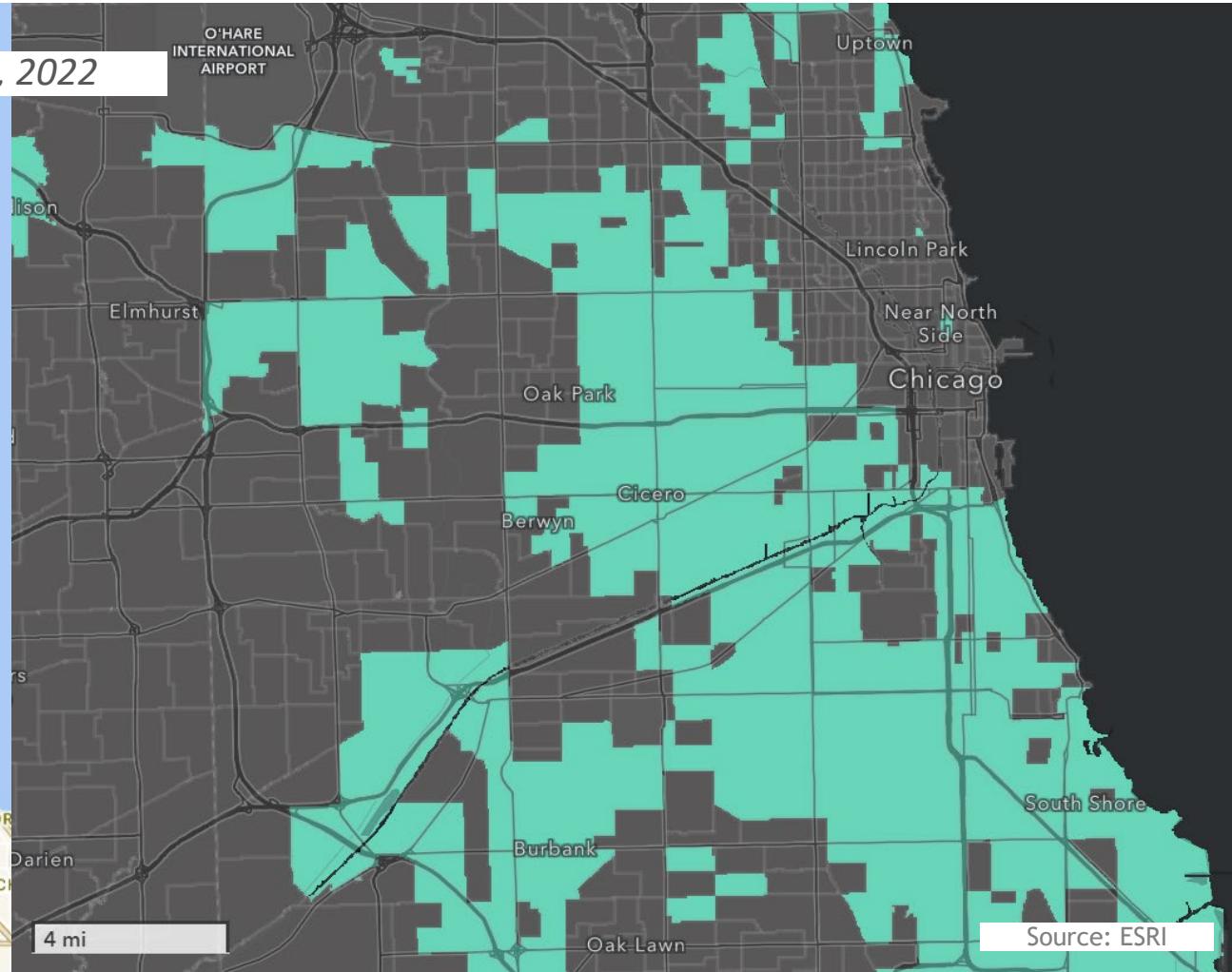
1. [LA Times](#) Sources: [ICF](#), UtilityDrive, [InfoLink](#), [SEIA](#)

Charging: Few DCFC locations to date would have qualified for full Alternative Fuel Vehicle Refueling Property ITC (30C)

Public stations with >120 kW chargepoints



Qualifying census tracts



Another accelerant: Law's changes make incentives more accessible



Transferable

Simplifies project financing by allowing transferee to pay owner/developer cash for credit

Applies to ITC, PTC, and vehicle tax credits



Direct pay

Allows tax-exempt entities, e.g., state and local governments, to participate by receiving immediate

Geopolitical reactions: Europe, Korea, and other US-friendly nations in various states of uproar over IRA and are striking back

How the Inflation Reduction Act Will Drive Global Climate Action

Could Biden's Climate Agenda Trigger a New Trade War?

The European Union is crying foul over the Inflation Reduction Act, saying the billions in climate subsidies it offers create a trade imbalance.

White House says Biden will fix Inflation Reduction Act 'glitches,' address Europe's concerns without Congress

Europe has accused the Inflation Reduction Act of being 'protectionist'

EU announces new green proposals to rival Biden's Inflation Reduction Act

Canada to set up tax credits for clean tech, launch growth fund

Top U.S., Japanese trade officials discuss electric vehicle tax credits -U.S. statement

Act subverts international trade rules: China Daily editorial

Industry seeks many clarifications to implementation of provisions



Definition of qualifying countries in critical mineral sourcing requirements for clean vehicle tax credit (30D)

Clarification of "owned, controlled, and subject to ..." a foreign entity of concern in critical mineral sourcing requirement for clean vehicle tax credit (30D)

Clarification of MSRP cap calculation (e.g., base vs options) for clean vehicle tax credit (30D)

Clarification of labor requirements (e.g., application to offsite manufacturing of components) for ITC and PTC

Definition of "Made in the USA" requirement for ITC and PTC

... and many more

And major open questions as to how the Act reshapes energy transition



What will be the extent of US-China decoupling?

How will U.S. address new rate limiters (e.g., permitting, pack size)?

Will we see ESS projects intentionally delayed to qualify for post-2025 ITC credit (vs existing where no credit for standalone)?

What to expect post-2032 when funding ends and market has matured (e.g., competitiveness of U.S. producers)?

If/ when will we truly have an understanding of residual value of EVs and battery systems (given the clouding role of incentives)?

If/ how will federal agency rulings complement IRA and further accelerate the pathway to clean energy?

Will the incentives further strengthen large incumbents at the expense of smaller players / startups?

... and many more



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Thank you

