A Smarter Grid Costs Less: How Advanced Transmission Technologies Support Energy Affordability

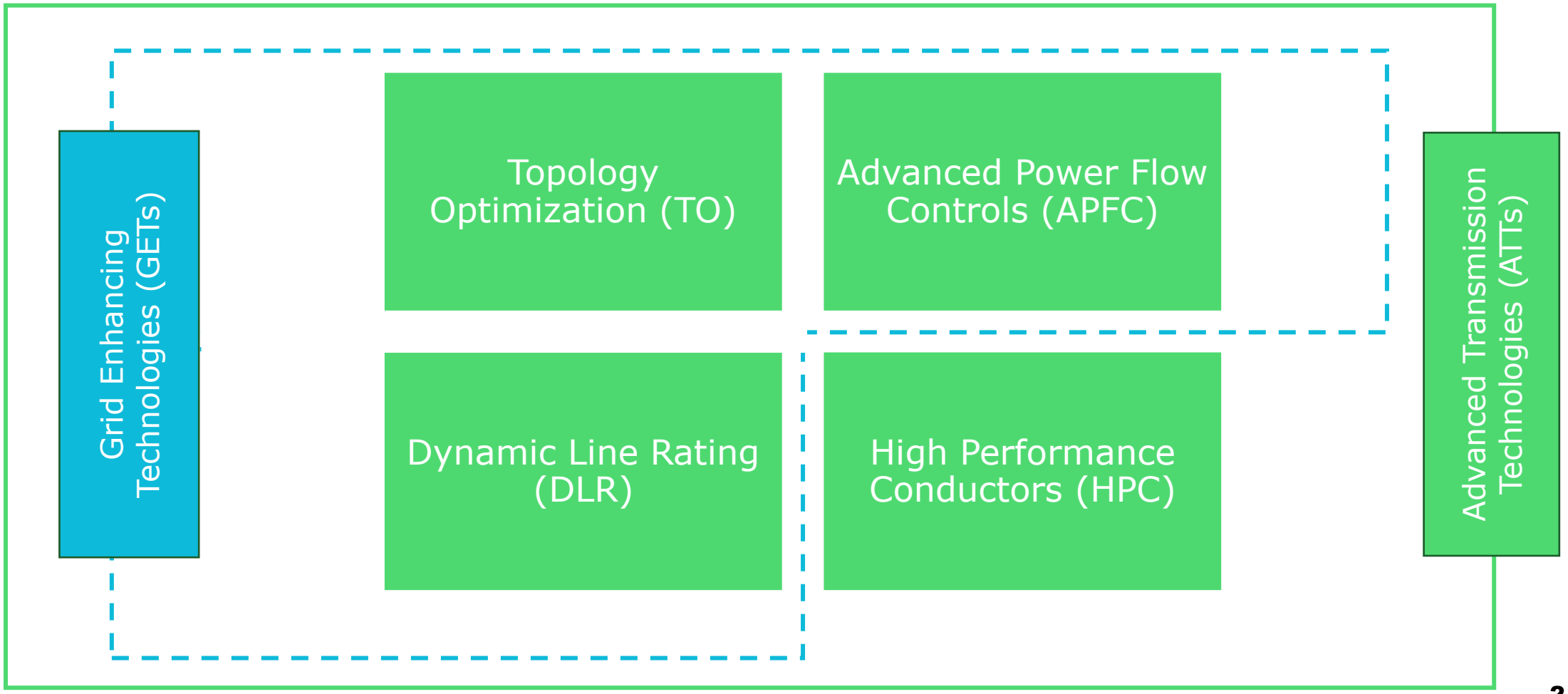
Alisa Fox, Director of Grid Campaigns, ACORE

Fox@acore.org

What are ATTs? Are they GETs?

ACORE

ATTs are infrastructure, hardware, and software options that cost-effectively increase the capacity and resilience of the transmission grid.



Understanding ATTs using a traffic analogy

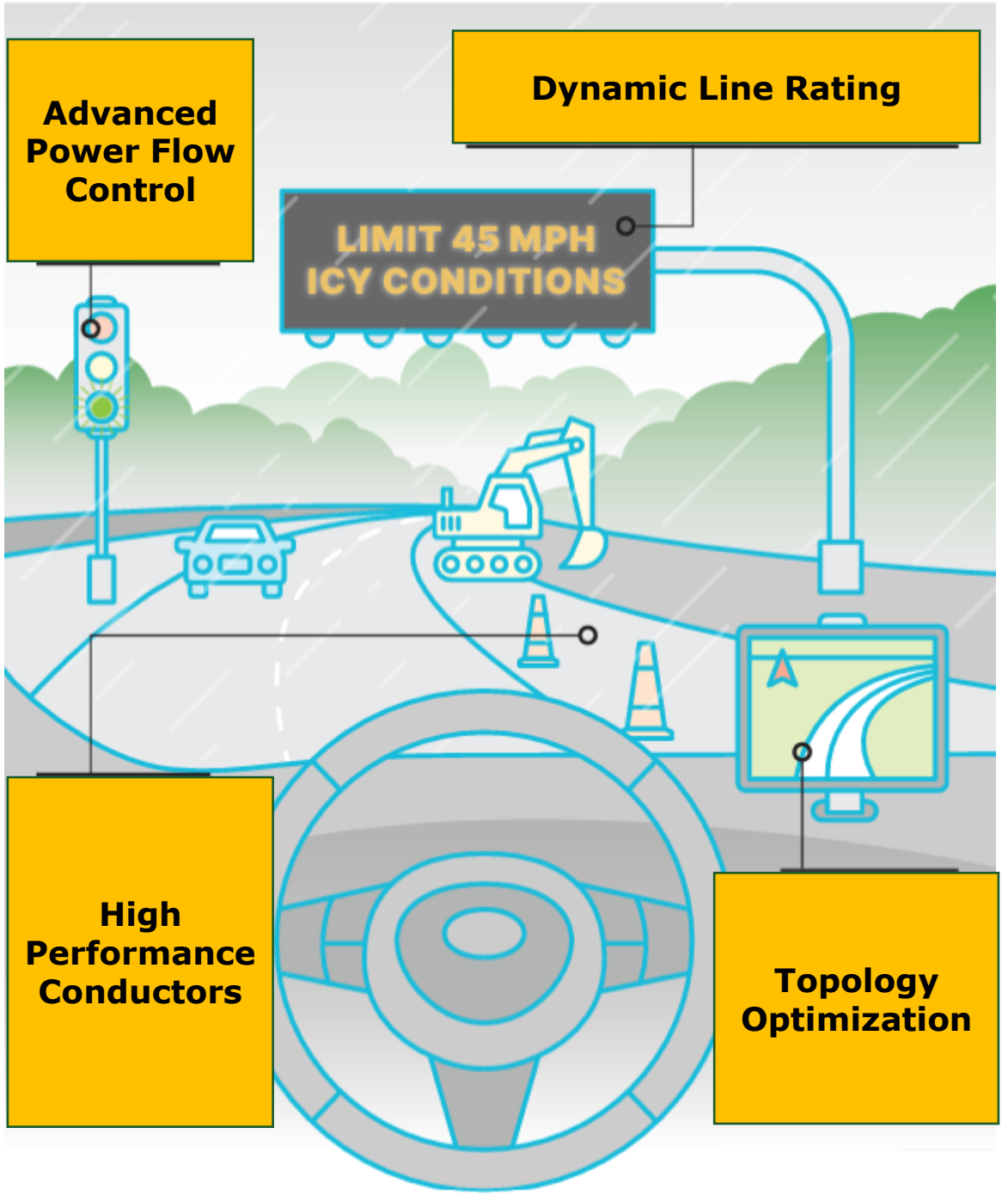
APFC redirects power from overloaded to underutilized circuits

DLR measures and calculate the true carrying capacity of transmission lines.

HPC carry at least twice the amount of electricity, with less line loss and thermal sag

TO is software that finds ideal grid configurations to avoid constraints

Scan QR code for full explainer



ATTs are cheaper, faster, and can unlock significant capacity, but new transmission is still needed

Technology	Cost	Additional Capacity Unlocked	Timeframe for deployment
Reconductoring with HPC	$600K-$1M per mile	50-110%	18-36 months
Dynamic line rating	$45K-$50K per mile	-8 to 40%	3-9 months
Advanced power flow control	$200K to $800K per MVAr	20-30%	12-24 months
Topology optimization	Project specific	25-50% lower congestion cost	0-12 months
New transmission	$2M-$6.5M per mile	Goes beyond what ATTs can do	7-10 years

Source: BNEF and The Business Council for Sustainable Energy

ATTs can save consumers money in many ways

Reduce congestion: GETs can reduce grid congestion by 40%+, which would have saved $4-8 billion per year in the last five years[1].

Unlock low-cost power generation: The production cost savings by adding more renewables to the grid more quickly for GETs alone is estimated at $5B annually[2]

Improve efficiency: HPCs can reduce annual transmission losses by 20%+, generating over $2.2 billion in annual consumer savings[3].

Lower upfront cost: Reconductoring with HPCs is often less than half the cost of new transmission[4]. GETs are often a fraction of the cost.

1:Building-a-Better-Grid-How-Grid-Enhancing-Technologies-Complement-Transmission-Buildouts.pdf
2.Unlocking the Queue with Grid-enhancing technoloiges
3. HPC Playbook
4. 2035 and Beyond: Reconductoring

Rethinking whether energy affordability = lowest upfront cost

HPCs may cost more than standard conductors, but still are more cost effective according to our analysis of 8 real transmission projects

Incremental Cost	Incremental cost of HPCs range from 1 to 8% of total project cost.
Benefit to cost ratio	B/C ratio's range from 1 to 7.3, counting only line losses.
Simple Payback	Payback periods range from 1.3 to 10.0 years, for investments expected to operate for 30-plus years.

Scan QR Code to be notified when report is released

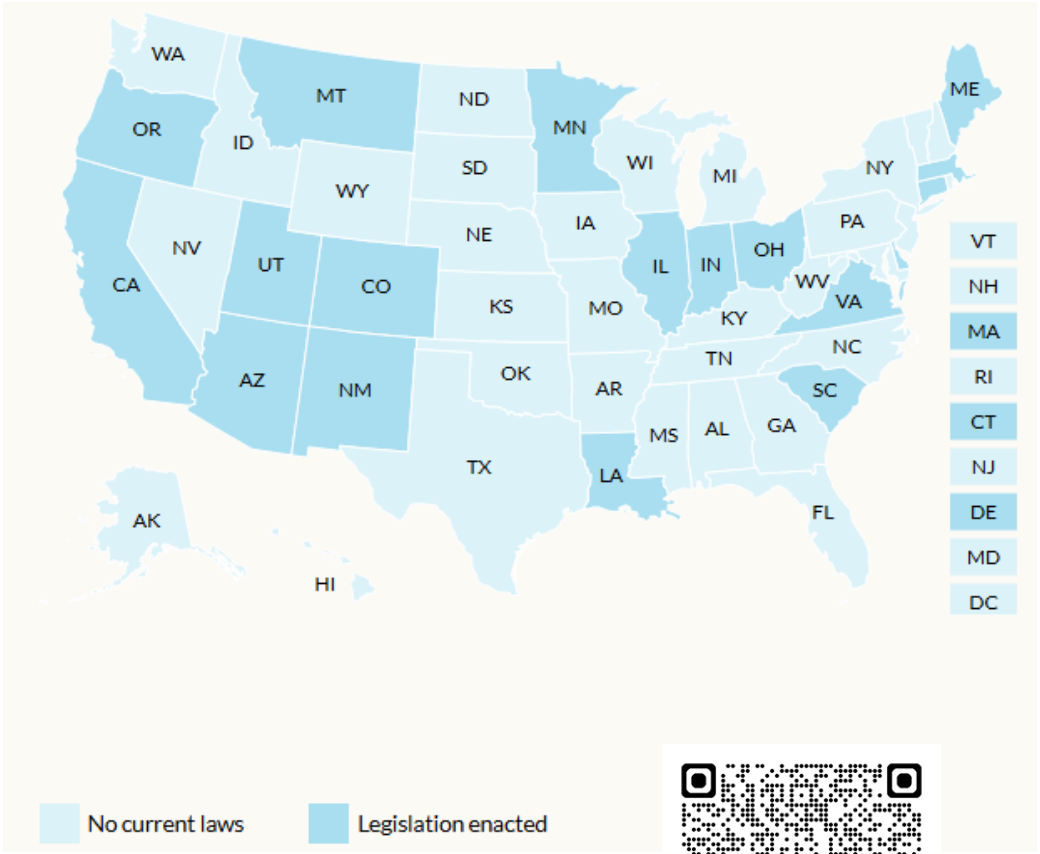
Why aren't there more ATTs deployed in the US?

ACORE

- Utility Incentive Misalignment
- Risk Adverse or Lack of Familiarity
- Lack of Evaluation & Consistent Methodology
- Full Benefits Not Valued

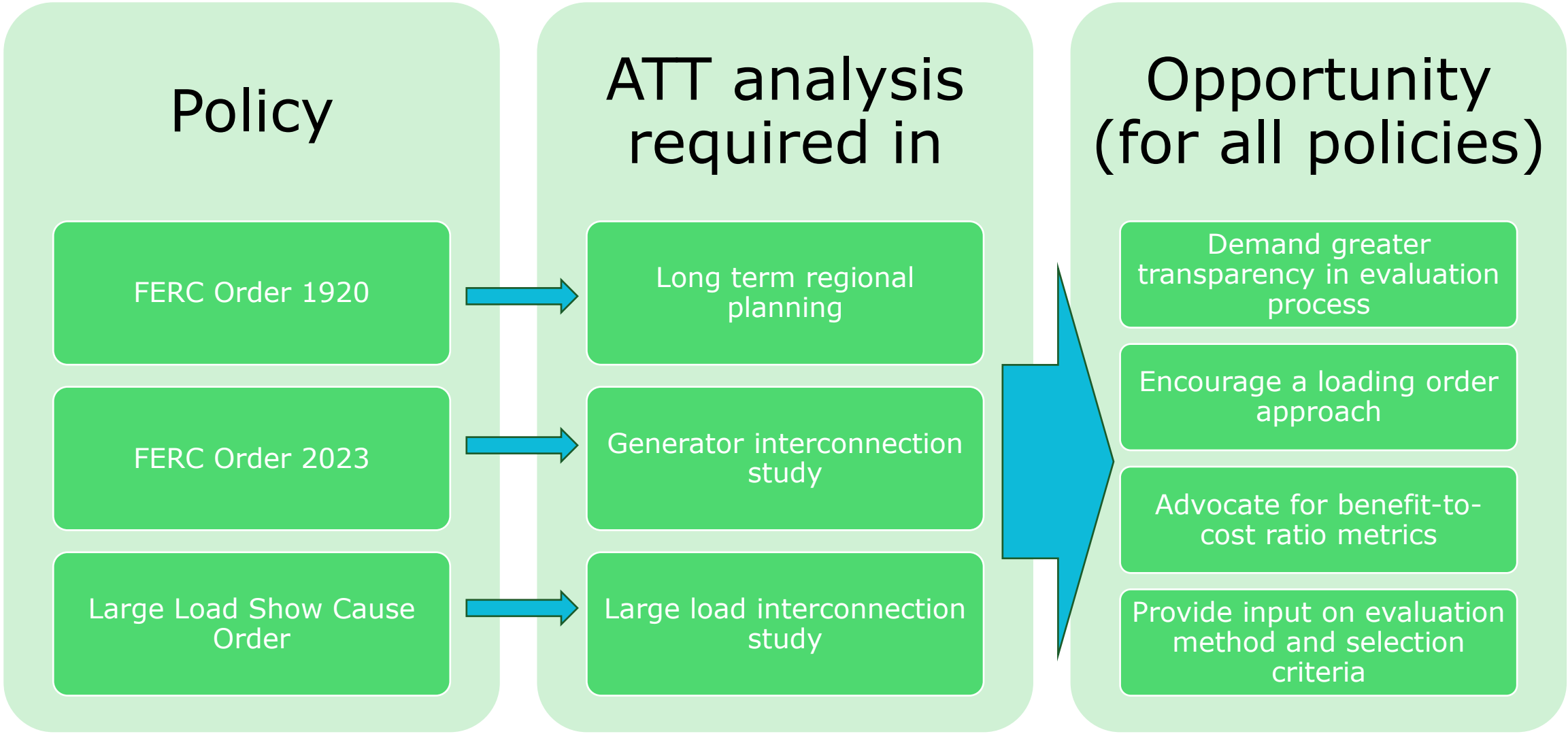
Consumer advocates can play a role in supporting ATT deployment

- Support implementation of state ATT Policy
- Clear evaluation methodology
- Transparent evaluation
- Shift away from least upfront cost to greatest net benefit or best benefit to cost ratio



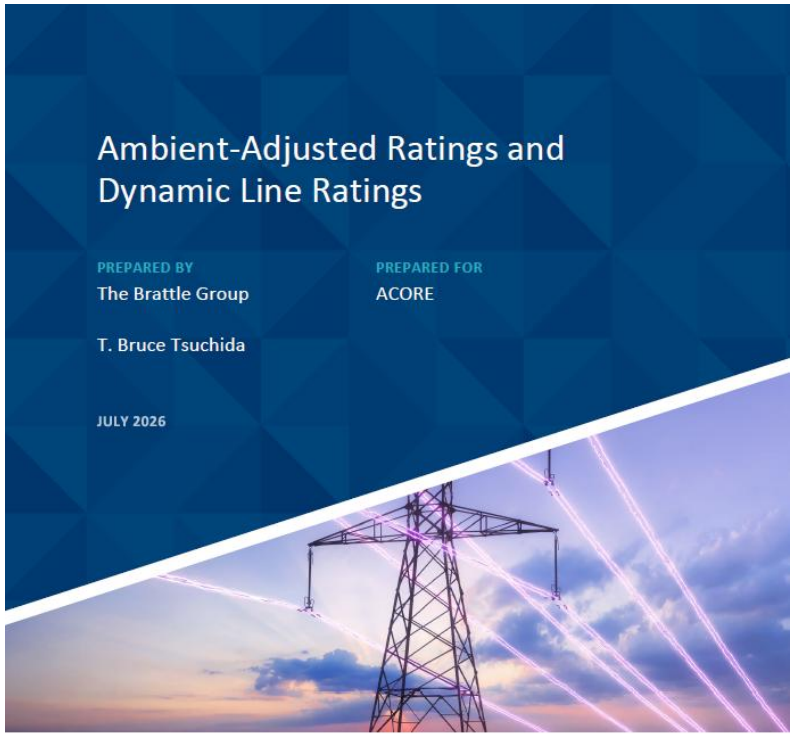
Source: Pew

There are multiple federal/regional opportunities



FERC could make DLR required where economical

Description:	DLR ANOPR Would require DLR installation at certain wind speeds on congested lines
Status:	Stuck at ANOPR supplemental comment phase for two years. No announced timeline for a NOPR
Opportunity:	Encourage FERC to move this policy forward. **Reach out if this is of interest!**



Brattle

ACORE
AMERICAN COUNCIL ON RENEWABLE ENERGY

Scan QR code for report

Thank you!

Alisa Fox, Fox@ACORE.org