Choosing metrics for national and sectoral emissions baselines

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Outline of presentation

- Why baseline metrics matter
- Characteristics of baseline metrics
- Examples of baseline metrics in practice
- Conclusions and questions for discussion

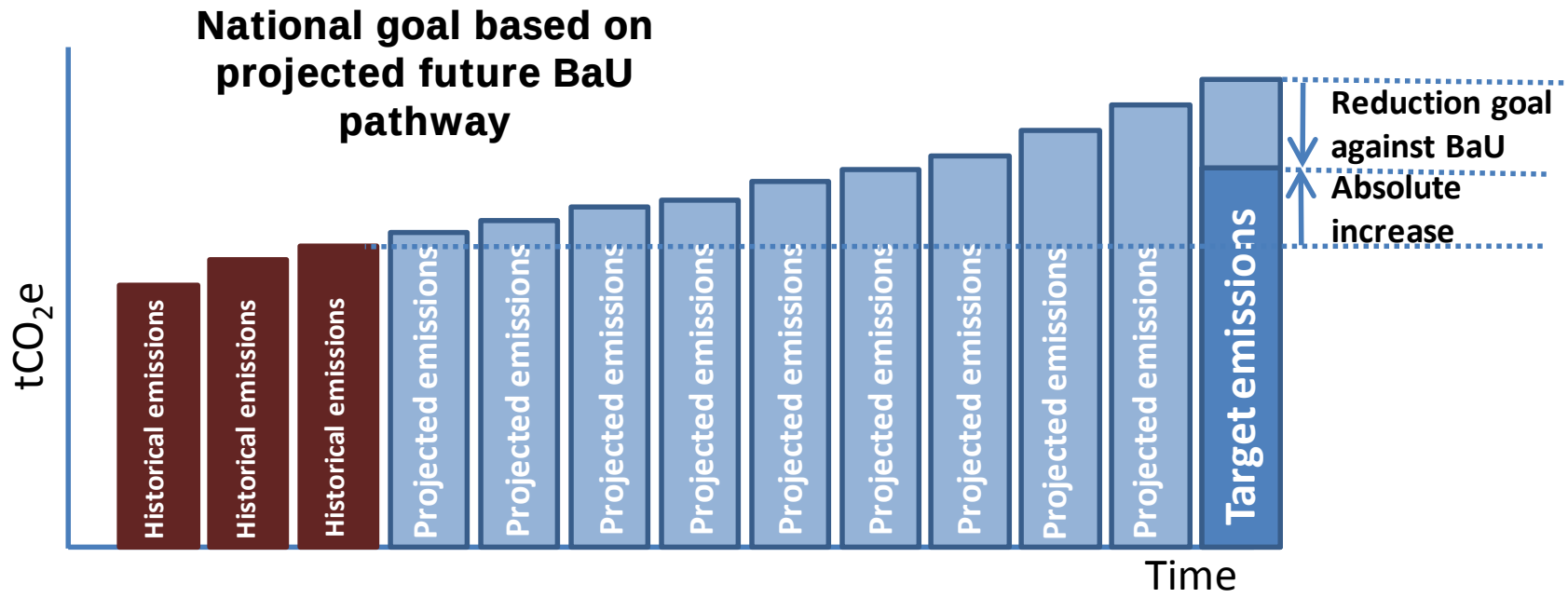
Why baseline metrics matter

- Baselines are integral to setting targets and measuring performance
- Baselines can be ‘business as usual’ scenarios, but not always
- Metrics describe how the baseline is calculated and how actions are measured against it
- Metrics are important for understanding national pledges and for designing appropriate policies to help achieve them

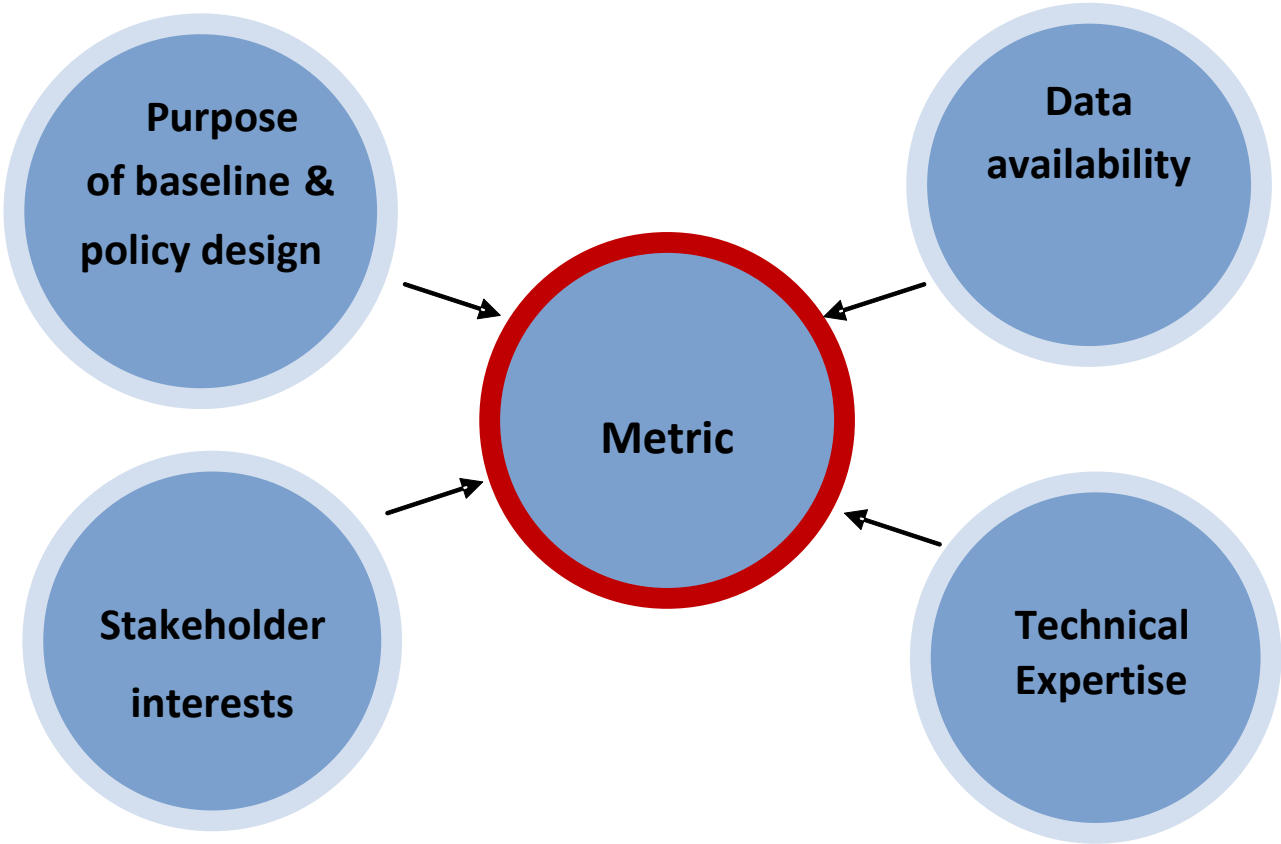
Characteristics of metrics

- **Fixed (absolute) metrics:** generally measured in tCO_2 (or tCO_2e)
- **Relative (intensity) metrics:** generally measured in tCO_2 per unit of output
- **Indirect metrics**: a quantifiable metric that impacts GHG emissions but is measured in a different unit quantity... % penetration of a technology, MW of renewable energy capacity installed, m^3 of forest stock, etc etc

Choice of metric doesn't predispose an outcome



What's in a metric?



Challenges of different metrics

- **Fixed metrics:** strong data required; technical capability for monitoring; stakeholder engagement if fixed targets are used
- **Relative metrics:** less onerous data requirements (but activity data required for accurate baselines). No guarantee of total emission reductions
- **Indirect metrics:** proxy metrics don't measure GHGs, so CONVERSION can be challenging: eg % technology penetration to tCO_2 reduced

Baseline metrics in the EU ETS

Phases I and II

- Cap setting: fixed metric
- Allocation process: fixed metric

+ clarity on pathway to meeting fixed target

- sensitive to data quality (phase I), macroeconomic change (phase II)

Phase III

- Cap setting: fixed metric
- Allocation process: benchmarks (relative metric)

+ mixed metrics allow fixed target combined with allocation system that favours good performers

- complex benchmark process

Baseline metrics in India 'Perform, Achieve and Trade' scheme

- **Energy efficiency scheme** (not GHG)
- **Overall scheme target:** fixed metric
- **Individual site baselines:** relative metrics
- **Sites grouped on physical characteristics:** indirect metric

\+ Mixed metrics allow for fair target-setting

\- Complex process, too soon to assess

Converting indirect metrics

- Proxy metrics can avoid the need for emissions or activity data
- Conversion is only needed if a non-GHG metric needs to be accounted for in GHG goals, or in a baseline-and-credit system

Context	Target metric	Baseline metric	Conversion
NAMA described as xMW renewable energy (RE)	MW installed	MW installed	No conversion
Using installed RE capacity to qualify for GHG credits	tCO_2 reduced	MW installed	Depends on technology performance (MWh metric would be easier)
Penetration of industrial energy-efficient technology to qualify for GHG credits	tCO_2 reduced	% of installations employing technology	Uncertainty due to variable site-specific performance
REDD action	tCO_2 avoided	Forest area or volume	Complex

Conclusions

- Whatever the metric and scope, baseline accuracy is important for meeting goals
- Baseline purpose and metric depend on country, sector and political context
- Fixed metrics can lead to absolute reductions, but effectiveness of all baselines depends on assumptions – not metric
- Relative metrics often used where aim is to improve emissions performance, without focusing on absolute reductions
- Technology metrics could be ‘stepping stone’ to encourage action and improve data where capacity and data are lacking
- Effective policy measures may involve more than one metric, but a metric does not predispose an outcome

Questions for discussion

- When to use direct, fixed GHG metrics, and when other types of baseline metrics?
- Can metrics be used to distinguish GHG mitigation activities from other, external, factors?
- Can relative and/or technology metrics provide a useful means to establish baselines (and targets) in sectors where activity and emissions data availability is poor?
- Can indirect metrics be used in baselines for measuring the performance of and/or crediting NAMAs?
- When could technology metrics be appropriate, and how to account for uncertainty in conversion to GHG reductions?