Draft PMR Technical Note #5
Options and Guidance for the Development of Baselines

PMR Workshop #6, Barcelona – May 26, 2013
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Overview of Presentation

1. Background
2. Feedback and Response on Prior Draft
3. Document Structure and Core Concepts
4. Discussion Questions
In the context of this document, a baseline is:

◆ “a scenario that describes expected or desired greenhouse gas emissions levels and that can be used as a basis for determining the amount of emissions reductions achieved as the result of a crediting, trading, or other mechanism.”

◆ a key aspect of market-based instruments pursued by PMR Implementing Countries
Tools for developing baseline scenarios
Goal of document is to:

- Assist users in finding appropriate methods for practical and credible baselines, building on existing work to date

- Support PMR Implementing Countries that are considering the establishment of new mechanisms where baselines play a central role
Background and Status of Document

May 2012:
PMR workshop; Technical Note #3 (Nuts and Bolts of Baseline Setting)

Sep /Oct 2012:
Draft outline; Baselines Working Group call; presented @ PA4 (Sydney)

Feb/Mar 2013:
First Draft; Baselines Working Group Meeting and update @ PA 5 (Washington), oral/written feedback

May 2013:
Second Draft; circulated to Baselines Working Group; presented @ PA 6

Collect Feedback
Revise Document
Conduct Example Analyses
### Feedback and Revisions since the First Draft (1)

<table>
<thead>
<tr>
<th>Topics/Issues</th>
<th>Feedback</th>
<th>Revisions</th>
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</table>
| **Purpose / User**            | • Clarify audience  
• Focus on options as much as guidance  
• Reduce immediate focus on case studies                                                                                             | • Focus on PMR pilots, but also broader audience  
• Now more of an options document, with guidance on how to use in various contexts                                                   |
| **Applicability of guidance** | • Make the guidance useful in broader set of contexts than (scaled-up) crediting                                                        | • Now broadly applicable to crediting, trading, and non-market mechanism (e.g. results-based finance)                                       |
| **Building on existing work** | • Don’t reinvent wheel                                                                                                                  | • Overlaps with other work noted and referenced (CDM standardized baselines, EU ETS benchmarks, GHG Protocol)                            |
| **Format of document**        | • Make information more accessible and digestible  
• Enhance logical flow  
• Minimize jargon                                                                                                                     | • Several tables and charts added to direct users to key issues, examples, and other materials  
• Executive Summary and Glossary added; terminology streamlined                                                                        |
| **Principles**                | • Refer more to UNFCCC text and CDM work to date  
• Clarify conservativeness, its practice, and relationship to net mitigation benefit; use of multiple baseline scenarios               | • Done                                                                                                                                 |
| **Scale of mechanism**        | • Show progression among scale of mechanisms and baselines, with pros/cons and examples                                                 | • Added discussion in Part I                                                                                                                |
| **Scope and coverage**        | • Clarify role in mechanism design vs. baseline development  
• Consider level of heterogeneity, existing statistical systems  
• Emphasize broad segments of the economy                                                                                              | • Added step on defining scope & coverage  
• Oriented towards broad segments  
• Clarified heterogeneity and baseline metric considerations                                                                             |
### Feedback and Revisions (2)

<table>
<thead>
<tr>
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</table>
| **Approach to development of baseline** | • Emphasize multiplicity of options, role of data availability and quality, national circumstances, development objectives  
• Clarify pros/cons of relying on historical data vs. future projections | • Considerable elaboration of options in both Part I and II  
• Clarified pros and cons of projection methods |
| **Importance of BAU scenario** | • Emphasize BAU, which is necessary for any mechanism  
• Clarify relationship between BAU and crediting baseline  
• Elaborate benchmark approaches | • Guidance begins with focus on BAU  
• Typology of 3 baseline types makes BAU clearer and required first step  
• Benchmark approaches elaborated in separate section |
| **Existing policies and mechanisms** | • Elaborate on options for treatment, and challenges | • Done |
| **Relationship to national baselines** | • Clarify potential applicability and limitations of national baselines for guiding mechanism baselines; consider development plans as well | • Added discussion in Part I, references to national baseline work |
| **Additionality** | • Further clarification on distinction and complementarity between baseline and additionality | • Sections added on additionality; text revised |
| **Absolute baselines** | • Elaborate challenges involved relative to intensity-based | • Done |
| **Highlight trade-offs** | • Discuss when and how to address | • Trade-offs more actively discussed (e.g. principles in Sec 3) |
| **Examples** | • Add more examples covering various sectors  
• Consider example that follows all steps | • More diverse examples added  
• Fuller case studies to be added later |
Part I: Context, Concepts, and Considerations

Core Concepts:

- Baselines are key element in safeguarding environmental integrity and, where relevant, achieving mitigation benefit
- Treatment of existing and planned policies is important & challenging
- Three types of baselines (BAU, performance standard, and net mitigation) can be usefully distinguished for methodological purposes, even if objectives may overlap
- International agreements (e.g. under FVA/NMM), GHG accounting principles (e.g. practicality, transparency), and technical considerations (e.g. data availability, quality) should guide baseline setting
- Guidance Users will need to balance trade-offs among potentially competing considerations and principles
How to apply document in various contexts

*Shading connotes what is often referred to as a “scaled-up” mechanism*

<table>
<thead>
<tr>
<th>Context/ Mechanism</th>
<th>Potential uses of baseline</th>
<th>Credits (or allowances) awarded based on performance of:</th>
<th>Baselines established based on the performance of:</th>
<th>Applications and Status</th>
<th>How to use this guidance....</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Crediting</strong></td>
<td>Determine number of credits to issue</td>
<td>Projects</td>
<td>Project-specific conditions</td>
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<td></td>
<td>Estimate net mitigation benefit</td>
<td>Programs</td>
<td>Sectors or “groups of sources”</td>
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<tr>
<td></td>
<td></td>
<td>Policies (including some credited NAMAs)</td>
<td>Programs or “groups of sources”</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Sectors or “groups of sources”</td>
<td>Sectors or “groups of sources”</td>
<td></td>
<td></td>
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<tr>
<td><strong>Trading</strong></td>
<td>Set targets</td>
<td>Sectors or “groups of sources”</td>
<td>Sectors or “groups of sources”, BAT standards, or national targets</td>
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<tr>
<td></td>
<td>Distribute allowances</td>
<td></td>
<td></td>
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<tr>
<td><strong>Results-based Finance</strong></td>
<td>Estimate mitigation benefit</td>
<td>Any of the above</td>
<td>Any of the above</td>
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<tr>
<td></td>
<td>Allocate finance</td>
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Trimmed-down version of Table 1
## Baseline Types and Applications

<table>
<thead>
<tr>
<th>Baseline type</th>
<th>Methodological Options</th>
<th>Role in: Crediting</th>
<th>Trading</th>
<th>Non-Market Mechanism</th>
</tr>
</thead>
</table>
| **Business-as-usual (BAU)**   | • Simple projection  
  • Model-based projection  
  • Comparison group approach | Used or crediting in many traditional programs (with conservatism). Important to estimate in any mechanism. | Used to estimate the emission reductions resulting from meeting the cap | Used to estimate emission reductions attributable to actions.                        |
| **Performance standard**      | • Performance benchmarking (top X%)  
  • Practice or technology standard | Used for some standardized baseline methodologies.                                | Used to distribute allowances, often specific to emissions-intensive, trade-exposed industries. | Could be used if minimum levels of emissions performance are desired.                |
| **Net mitigation** (or “ambitious”) | • Mitigation analysis  
  • Model-based projections  
  • Downscaling nat. targets | Option to achieve net decrease. Often referred to as a crediting threshold.        | Used to set the target or cap.                                         | May be implicit here                                                                   |

*Types of baselines may overlap in practice*
PART II: The Baseline Development Process

Step 1: Define the coverage, scope, and time period of the baseline (Sec 5)

Step 2: Identify appropriate metrics for quantifying baseline GHG emissions (Sec 6)

Step 3: Develop one or more BAU baseline scenarios (Section 7)

Step 4: Develop additional baseline scenarios, as appropriate (Section 8)

Step 5: Consider baseline period and updating policies (Section 9)

Step 6: Evaluate and select a baseline (Section 10)
Step 0: Establish Institutional & Stakeholder Process

◆ Key to ensuring credibility, acceptance, and effectiveness
◆ Depends on national circumstances and nature of mechanism
◆ Review and approval may benefit from:
  ▪ Public stakeholder review
  ▪ Engagement and consultation with affected sources, industries, sectors, companies, and organizations
  ▪ Domestic and international peer review
Guidance Users should:

- Define the coverage and scope, and time period, of the baseline
- Decide upon metrics that will be used to quantify baseline activity data and GHG intensity
- Assign values for baseline GHG intensity/emissions based on assumptions about future conditions
- Consider developing multiple BAU scenarios
- Consider policies for updating baselines
### Step 3: Selecting a Method

#### Simple Projection Methods

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
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<tbody>
<tr>
<td>• Relatively straightforward</td>
<td>• May not adequately reflect the underlying drivers of change in activity levels or GHG intensities</td>
</tr>
<tr>
<td>• Lower cost than other methods</td>
<td>• May not be appropriate where future conditions or drivers may differ markedly or in unexpected ways from the past</td>
</tr>
<tr>
<td>• Can be relatively transparent</td>
<td>• Credibility depends on sound understanding of the sector and sophistication of assumptions used</td>
</tr>
<tr>
<td>• Can be more flexible with respect to data and capacity constraints</td>
<td>• Can be equally credible and/or conservative as more complex models in some situations</td>
</tr>
<tr>
<td>• Can be equally credible and/or conservative as more complex models in some situations</td>
<td></td>
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#### Simulation Modeling Approaches

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
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<tbody>
<tr>
<td>• Can predict future trends more precisely by taking into account more detailed economic, technological, and other factor.</td>
<td>• May be less transparent than other approaches, due to complexity</td>
</tr>
<tr>
<td>• Can control for multiple variables that might affect targeted GHG emissions</td>
<td>• May be costly and resource intensive</td>
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<td></td>
<td>• May be subject to the same “cons” as simple projection methods</td>
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#### Use of Comparison Groups

<table>
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<tr>
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<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Can be used to calibrate a baseline scenario based on actual measurements of representative conditions</td>
<td>• May be data intensive and costly</td>
</tr>
<tr>
<td>• Useful where activity measured to estimate emissions is not the sole driver of emissions</td>
<td>• Validity depends on identifying comparable “control” groups for monitoring</td>
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<tr>
<td>• Can help ensure environmental integrity by avoiding the counting of apparent reductions not attributable to activities</td>
<td>• Suitable comparison groups may be difficult to identify in practice</td>
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<tr>
<td></td>
<td>• Requires making ex post adjustments to, or determinations of, baseline activity data or emission factors</td>
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Step 4: Additional (Non-BAU) Baseline Scenarios

- **Performance Standard Baselines**
  - Can be based on either: (1) statistical analysis of the emission rates of baseline technologies; or (2) the emission rate of a single generic reference technology

- **Net Mitigation Baselines**
  - May be determined by marginal abatement costs and potentials; performance standards; national emission reduction pledges; other factors

- **Both should be below a (conservative) BAU baseline, significantly in the case of net mitigation baseline**
How much more specific guidance can be provided? …without a clearly specified mechanism design? E.g. on:

- addressing additionality and safeguarding environmental integrity
- treatment of policies and measures
- accounting for uncertainties
- boundary between conservative BAU and net mitigation baseline in practice

Is there agreement on what can be termed “best practice” in baselines?
Thanks for your attention!
Autonomous Bassline Generator