BASE

Baselines for **A**ccession **S**tates in **E**urope

Baseline Methodologies: Guidebook to developing baselines

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Methodologies Considered

- Project Specific Approaches
  - Investment Analysis/Financial Analysis
  - Control Group Methods
  - Scenario Analysis
- Multi-Project Approaches
  - Benchmarking
  - Least Cost Analysis / Marginal Approaches (Operating Margin / Build margin)

Project Component H0

- “Generation of heat to supply an existing heat demand”
- Limited options and variables to consider
- Multi-project baselines are not generally appropriate due to site differences
- Control groups could be used, but there may be difficulties in finding a suitable control
- The elimination of different project options by a scenario analysis or investment analysis are the preferred methods
- Where information on costs are readily available the investment analysis is preferred for simplicity & transparency

Project Component H+

- “A heat supply project that involves an increase in supply” (e.g. increased network connections)
- Where there are significant changes in the consumer base, these changes must be considered
- For new network connections a two step approach may need to be taken

  1. Define the baseline for existing customers
  2. Define the baseline for new customers

Project Component H+ (2)

- For existing customers the same approach will be taken as for H0
- For H± there is likely to be a large number of variables to consider (e.g. heat supply to individual customers)
- As for H0 a project specific approach is recommended
- Investment analyses could prove difficult because of the number of consumers in the project boundary and thus investment decisions
- Control groups or scenario analyses are recommended depending upon the availability and ease of use of a suitable control

Project Component H-

- “A heat supply project that involves a decrease in supply” (e.g. energy efficiency)
- These projects are very unlikely to result in emission reductions but have been considered for consistency
- The same two step approach would need to be taken as for H+
  1. Define the baseline for remaining customers
  2. Define the baseline for customers that leave the system

Project Component E0

- “Direct replacement of an existing electricity demand with new generation”
- Not applicable to the electricity grid but onsite use
- The system boundary would not include the grid
- Very similar in nature to H0
- Investment analysis recommended

Project Component E±

- “An electricity project that affects the supply of electricity into the grid”
- A baseline assessment needs to be made for the whole grid
- Project specific baselines become impossible as the number of plants becomes too great, this is particularly true for an IRR analysis
- Control groups and scenario analyses are possible but likely to be inaccurate
- A least cost analysis is possible where dispatch models exist
- National multi-project baselines should be developed for electricity sector projects

Project Component M -

- “a project that directly reduces methane emissions”
- Project specific approach is required due to variation in sites
- An investment analysis is preferred again for the same reasons that have been outlined for H0
- Control groups can be useful for landfill projects to assess when a country meets the requirements of the EU Landfill Directive

Summary of Recommended Methodologies

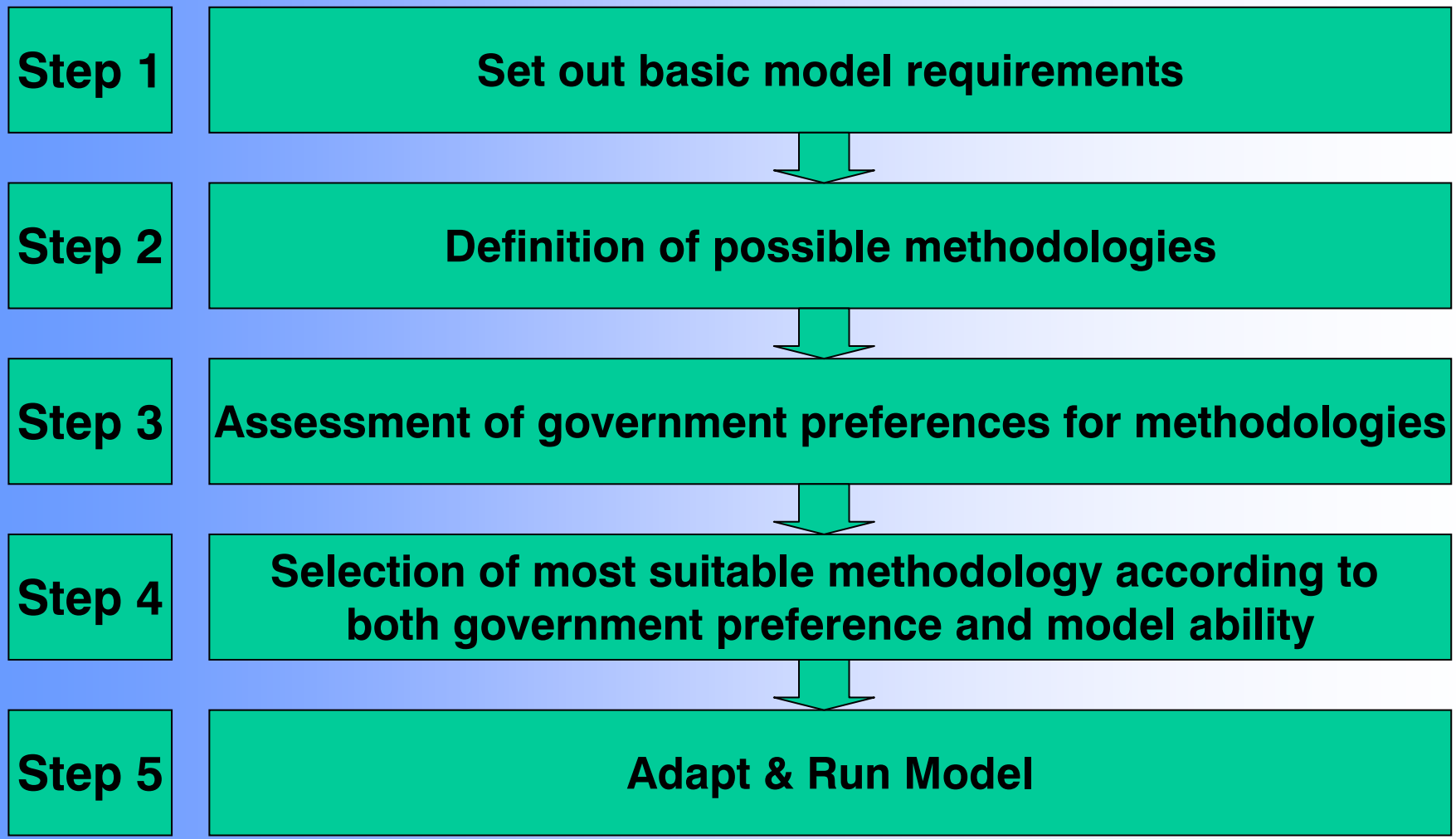
Project Component	Project specific			Multi-project
	Investment Analysis	Scenario Analysis	Control Group	
H0 (Heat Generator)	✓✓✓	✓✓	✓	✓
H± (Heat Loads)	✓	✓✓	✓✓	✓
E0 (Elec. Generator)	✗	✓	✓	✓✓✓
E ± (Elec. Grid/Loads)	✗	✓	✓	✓✓✓
M- (Methane reduction)	✓✓✓	✓✓	✓	✗

✓✓✓ Highly Recommended
✓✓ Recommended
✓ Possible
✗ Not recommended

Case Study Findings

- Running an IRR analysis for a BAU scenario is problematic and the use of NPV of costs and revenues may be used as an alternative
- Investment/financial analysis does not always give a realistic picture of the baseline and in many cases needs to be framed within a wider scenario analysis
- Control groups invariably incur high monitoring requirements
- Control group requires ex-poste evaluation

Methodology for National Baseline Definition



Step 1: Basic Requirements from the Models

- *Scenarios that include:*
  - Least cost developments plans
  - The national energy strategy
  - The national climate change strategy
  - National environmental requirements
  - European accession requirements
- *Projections that include:*
  - Yearly figures to 2012
  - Existing and new capacities in MW
  - Generation by plant in GWh
  - Plant load factors
  - CO2 emissions by plant and by technology

Step 2: Possible Methodologies

1. Average emissions rate (all plants)
2. Average emissions rate (excluding nuclear and hydro)
3. Average emissions for each load category

   "Benchmarks set for each load category"
4. Marginal plant only (Least cost dispatch analysis)

   "plants running at the margin (with the highest cost) will be the first to be replaced"
5. Operating margin/build margin (IEA/OECD)

   "The JI project is likely to affect the operation of existing and new plant in the short term (operating margin) as well as delay the implementation of new plant in the long term (build margin)"
6. Direct Assessment of each JI project within the model

   "Run the model with and without the JI project and calculate the difference in emissions that the model generates"

Government Preferences

	Czech Republic	Estonia	Hungary	Poland	Slovenia
1. Do you agree with the minimum requirements for models that have been set out in paper?	Yes	Yes	Yes	Yes (but do they conform with first track)	Yes
2. Which methodology do you think is best suited for your electricity sector? Please justify the reason for your choice, discussing the following criteria	Direct assessment of projects in GEMIS	GEMIS direct assessment possible	Direct assessment of projects in ENPEP	LCA preferred, averages would be considered	Direct assessment of projects in MESAP
3. Do you want to be able to assess the impact of a JI project on the electricity sector directly within the model? Or should the model just produce a baseline that can be used by project developers?	Useful for government to assess and verify proposals.	Yes, depending on project size and cost effectiveness	Yes	Not important, but would be useful.	Yes
4. Is emissions leakage through imports and exports important in the electricity sector? And should these be assessed in the model? What is the opinion of government on this?	Important to the Czech market. Included in GEMIS.	May need to be considered in light of Baltrel	?	Not important as levels of imports and exports is low	No
5. Should the baseline be fixed or revised each year?	Revised	fixed but it is recommended to revise them in 2005	Fixed dynamic	Fixed dynamic.	Fixed
6. If the baseline is fixed, how long should it be fixed for? (5 years, the project lifetime or until 2012?	2012	3-5 years	2012	2012	2012

National Baseline Conclusions

- Least cost dispatch is the preferred methodology of the BASE team
- However:
  - Dispatch models used by electricity companies are often inaccessible to government and developers
  - Electricity companies are not always prepared to have cost data published
  - Government seems to prefer to average emissions rates due to greater transparency and certainty over ERU transfers
  - Government seems to want to strike a balance between assessing all projects individually and having a national baseline that may be used for any project
- National baselines have been generated from the host country perspective

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