Improvements to the standard on sampling and surveys including best practice examples

Seventh CDM Roundtable

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Requirements by CDM Sampling Standard

Section VI - Validation and Verification of Sampling plans of Project Activities and PoAs

- The proposed sampling plans shall be validated by DOEs to determine whether they will provide parameter value estimates in an unbiased and reliable manner
- DOEs shall verify whether the project proponents have implemented the sampling effort and surveys according to the validated sampling plans
- When a sampling approach is applied by the project proponents, the DOE may use acceptance sampling
- In order to determine the size of the sample for field/onsite check, the DOE should specify in advance, using own professional judgment
  - Acceptable quality level or the Level of Assurance, i.e. the proportion of discrepancies between the PP sample records and the DOE sample records that are acceptable, e.g. 1%;
  - The proportion of discrepancies between the PP sample record and DOE sample records that are unacceptable, e.g. 10%

What is a field/onsite check?
A visit to the CME office or a visit to actual households?

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Sample size for sample for field/onsite check

- When applying statistical models to calculate a sample size that meets the sampling standard requirements
  - 5% chance that the DOE will wrongly reject the PPs records and
  - a 5% chance that the DOE will wrongly accept the PPs records

… the resulting sample size is typically at least 50-100 samples

- Models applied by financial auditors allow to also consider the reliability of the CME management system (e.g. robustness of reporting system and internal controls by CME) in the determination of the sample size, which typically results in lower sample sizes
- Nonetheless, the resulting sample size is typically at least 30 and this sample would apply to a random sample
- While it is possible that a DOE carries out a check of documentary evidence for a random sample of +30 households, it is in most cases not feasible to, within reasonable time, carry out a onsite check of a random sample of e.g. households

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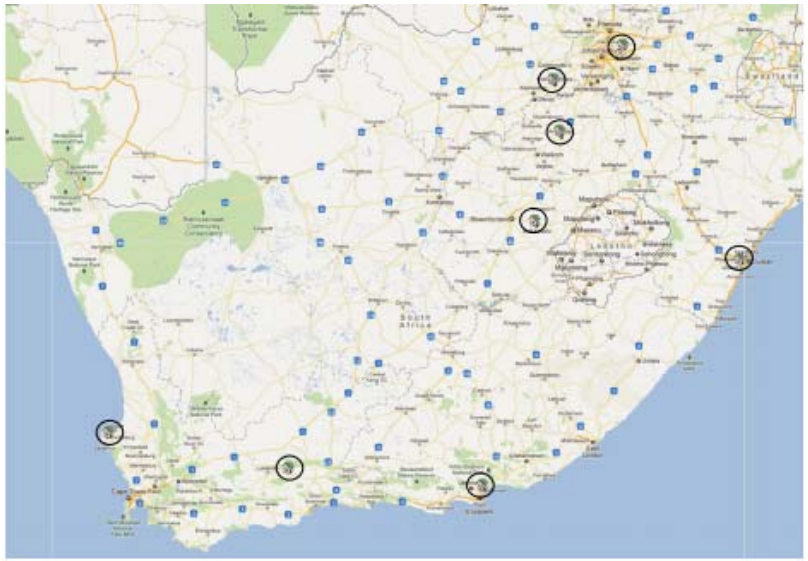
Example: Verification of Solar Water Heater CPA in Africa

- Verification of 14 112 tCO_2e for first CPA (monitoring period of 20 months)
- Implemented in 8 municipalities across the country
- CPA covers 59 000 house (only 38 974 are yet installed)
- Sampling plan by PP: A random sample of 590 sites (1 % of the installations)was selected and 590 houses where inspected and checked for functionality
- A visit by the DOE to random sample of the PPs sample would require several days and involve unreasonable travel
- DOE may spent up to three days for field/ onsite checks
  - 1-2 days at office of CME to audit CME management system and documentary evidence of a random sample of households
  - 1-2 days of onsite checks of households in 1-2 selected municipalities



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Verification approach for PoAs (with large number of units)

- Audit of the CME management system i.e.
  - robustness of system (how failure-proof is system)
  - competence / impartiality of persons collecting information (interviews with subcontractors, as necessary)
  - internal quality control processes by the CME
- Audit of documentary evidence kept by CME
  - check for a random sample of units (e.g. households) that there is documentary evidence for installation of equipment (e.g. purchase and installation record for solar water heater system) and performance of equipment (e.g. water temperature and flow measurement records)
  - apply acceptance tests for this sample, i.e. check that the information is internally consistent and information reported in the database is consistent with information reported on initial records (e.g. survey records)

DOE verifies that the CME's management system is sufficiently reliable to ensure that the system correctly reports the total number and operational characteristics of solar water heater systems.
DOE verifies, through sampling, that there is documentary evidence supporting the reported information.

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Verification approach for PoAs (with large number of units)

- Onsite check of a limited number of units (e.g. households)
  - Objective is not to verify reported data with an acceptance sample size that meets the 5% / 5% requirements in the sampling standard, but to identify possible systematic errors
  - Sample size will be determined based on how many onsite checks may be carried out within a reasonable time in a manner that ensures as much as possible randomness
  - A new sample will be selected at each verification, so that over the course of the crediting period a rather large sample is inspected
  - Due to the low sample size, only zero discrepancies between the CME sample record and DOE observation is acceptable
  - Any discrepancies will result in the DOE having to reject the data reported by the CME

DOE is not performing onsite checks to verify that 38 974 of solar water heater systems are installed.
However, DOE is performing onsite checks for a small sample (cluster sampling) to confirm that there are no systematic reporting errors which would question the reliability of the documentary evidence verified earlier

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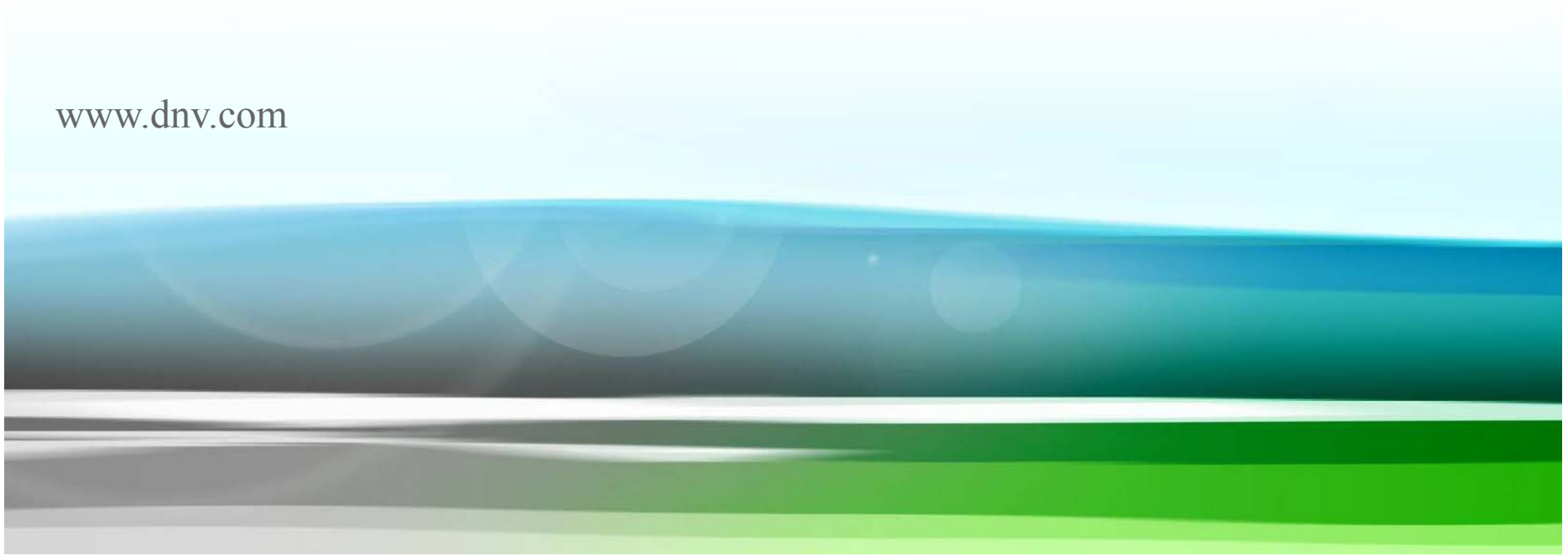

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