

ACEF 2016 – Session 17

Energy Savings Guarantee Schemes to Facilitate Investment in Industrial Energy Efficiency at Scale

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Vietnam's INDC

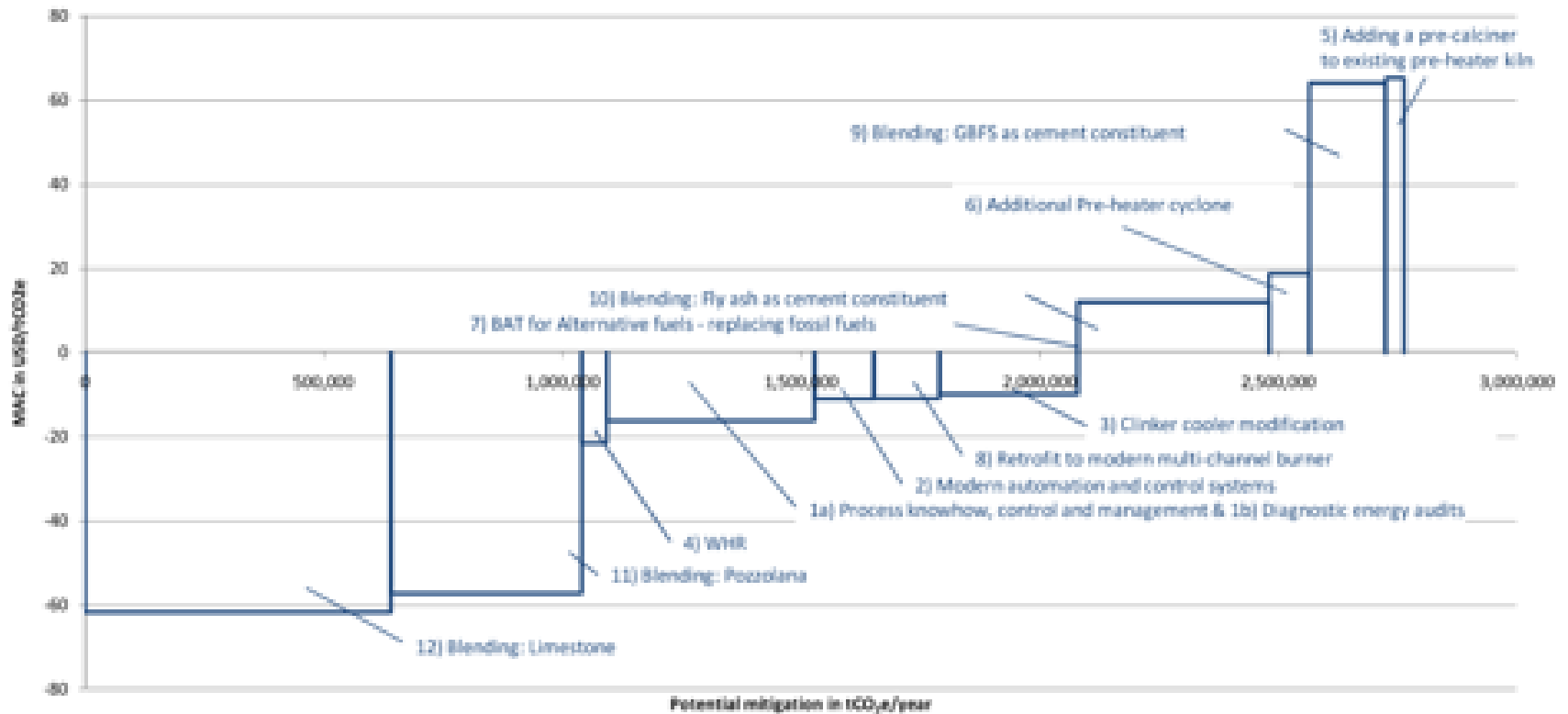
Business-As-Usual scenario	<p>Viet Nam's BAU scenario for GHG emissions was developed based on the assumption of economic growth in the absence of climate change policies. The BAU starts from 2010 (the latest year of the national GHG inventory) and includes the energy, agriculture, waste and LULUCF sectors.</p> <p>GHG emissions in 2010: 246.8 million tCO₂e</p> <p>Projections for 2020 and 2030 (not included <u>industrial processes</u>):</p> <ul style="list-style-type: none">- 2020: 474.1 million tCO₂e- 2030: 787.4 million tCO₂e
Unconditional contribution	<p>With domestic resources, by 2030 Viet Nam will reduce GHG emissions by 8% compared to BAU, in which:</p> <ul style="list-style-type: none">- Emission intensity per unit of GDP will be reduced by 20% compared to the 2010 levels;- Forest cover will increase to the level of 45%.
Conditional contribution	<p>The above-mentioned 8% contribution could be increased to 25% if international support is received through bilateral and multilateral cooperation, as well as through the implementation of new mechanisms under the Global Climate Agreement, in which emission intensity per unit of GDP will be reduced by 30% compared to 2010 levels.</p>

Vietnam Cement Industry Business as Usual

	2010	2020	2025	2030
Cement production	38 mt	105 mt	121 mt	126 mt
Carbon intensity	0.741 kg CO ₂ /kg cement			
Total CO ₂	41 mt	78 mt	90 mt	93 mt

Marginal Abatement Cost Curve for Cement Sector in Vietnam

Draft Marginal Abatement Cost Curve for the cement sector in Vietnam, 2030 - VN-BAU-1200



Mitigation Actions, Costs and Mitigation Potential

BATP-1200	Marginal Abatement Cost	Mitigation Potential	Cumulative Mitigation Potential 2020	Cumulative Mitigation Potential 2030	Initial Investment
	USD/tCO ₂ e	MtCO ₂ e/a	MtCO ₂ e	MtCO ₂ e	mil.USD
1a) Process knowhow, control and management 1b) Diagnostic energy audits	-16	0.81	1.15	1.11	8.00
2) Modern automation and control systems (TP3)	-11	0.12	0.24	1.87	1.00
3) Clinker cooler modification (TP4)	-10	0.29	0.58	4.34	28.60
4) WHR (TP5)	-22	0.19	0.36	2.89	186.24
5) Adding a pre-calciner to existing pre-heater kiln	65	0.04	0.07	0.57	66.00
6) Additional Pre-heater cyclone (TP6)	67	0.04	0.07	0.53	64.35
7) BAT for Alternative fuels - replacing fossil fuels (TP10)	-4	2.81	5.31	4.15	517.00
8) Retrofit to modern multi-channel burner (TP13)	-19	0.08	0.15	1.17	8.80
9) Blending: GBFS as cement constituent (TP21)	-38	0.66	1.24	9.86	2.40
10) Blending: Fly ash as cement constituent (TP24)	-39	1.64	3.11	24.64	5.76
11) Blending: Pozzolana (TP25)	-49	1.64	3.11	24.64	2.40
12) Blending: Limestone	-53	2.63	4.97	39.42	5.57

Vietnam Cement Industry Mitigation Scenario

	2010	2020	2025	2030
Cement production	38 mt	105 mt	121 mt	126 mt
Carbon intensity	0.741 kg CO ₂ /kg cement			
Total CO ₂	41 mt	78 mt	90 mt	93 mt
Mitigation Actions				
Carbon intensity	0.741	0.686	0.625	0.582
Total CO ₂	41	72	76	73
% redux	0	-7%	-16%	-21%

= Implementation of commercially attractive actions sufficient to reach INDC (domestic) goal of 20% carbon intensity reduction

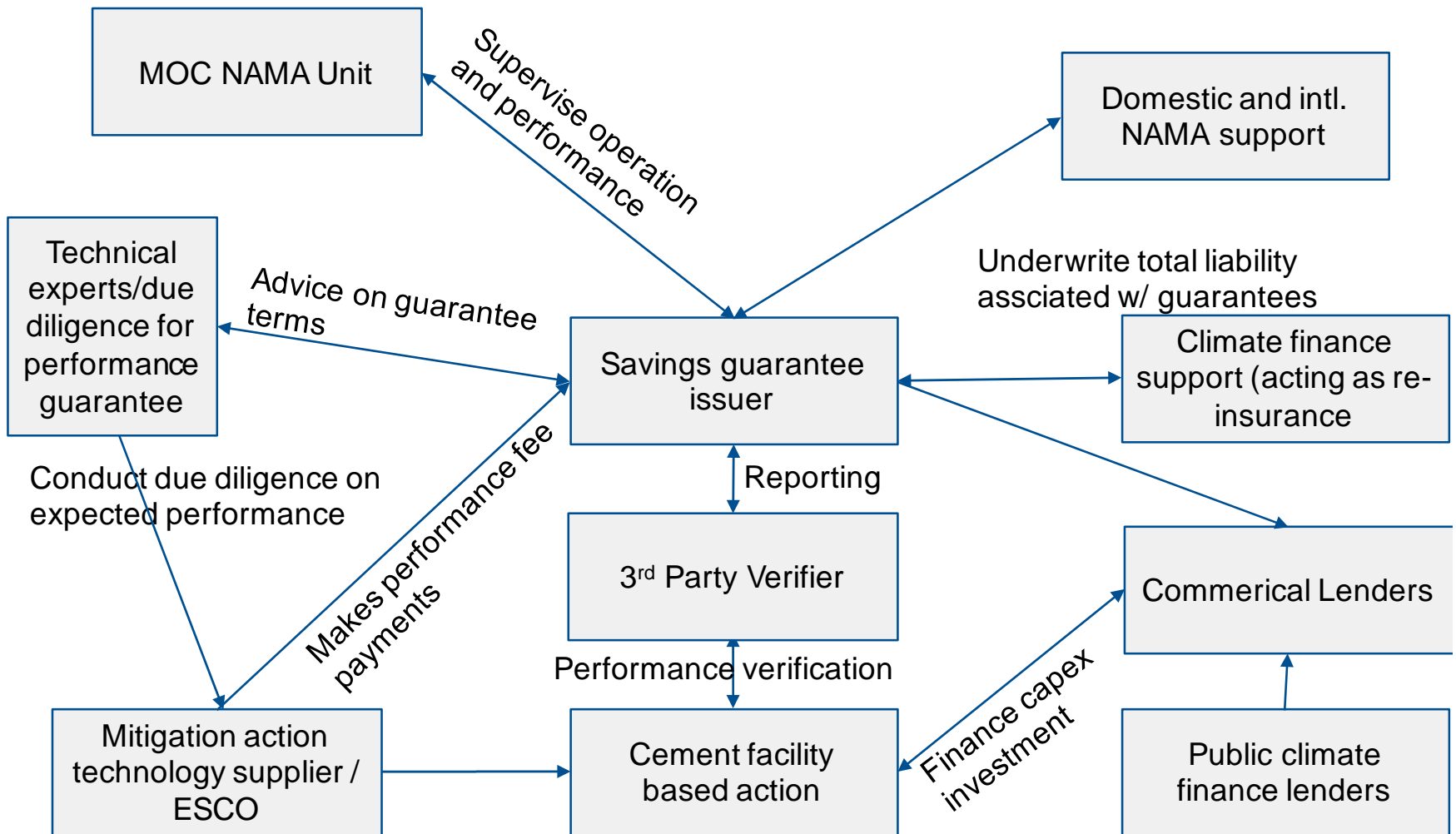
Barriers to Investing in Industrial Energy Saving Projects

Lenders/financiers have no experience/capacity to assess the certainty of financial returns (= capacity of the project to service a loan).

Facility owners lack technical capacity to evaluate the EE investment.

ESCOs have no access to external capital

Solution: Energy Savings Guarantee Scheme



Required size of the facility

Total capex investment (until 2030): 906 mil USD

Annual capex investment: 70 mil USD

Cost of guarantee in first 3years: 5-8% of capex

Cost of guarantee in later years: 2-3%

Size of Guarantee Fund: 210 mil USD (=3 years of investment)



Thank You

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