

Inception Workshop for Low Carbon Technology Assessment
~ Enabling Implementation of INDC/Paris Agreement in Vietnam~

“Indonesia’s Experience on Planning and Implementation of NAMAs in a MRV Manner”

Technology Needs Assessment and Technical Advice for Vietnam

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OUTLINE

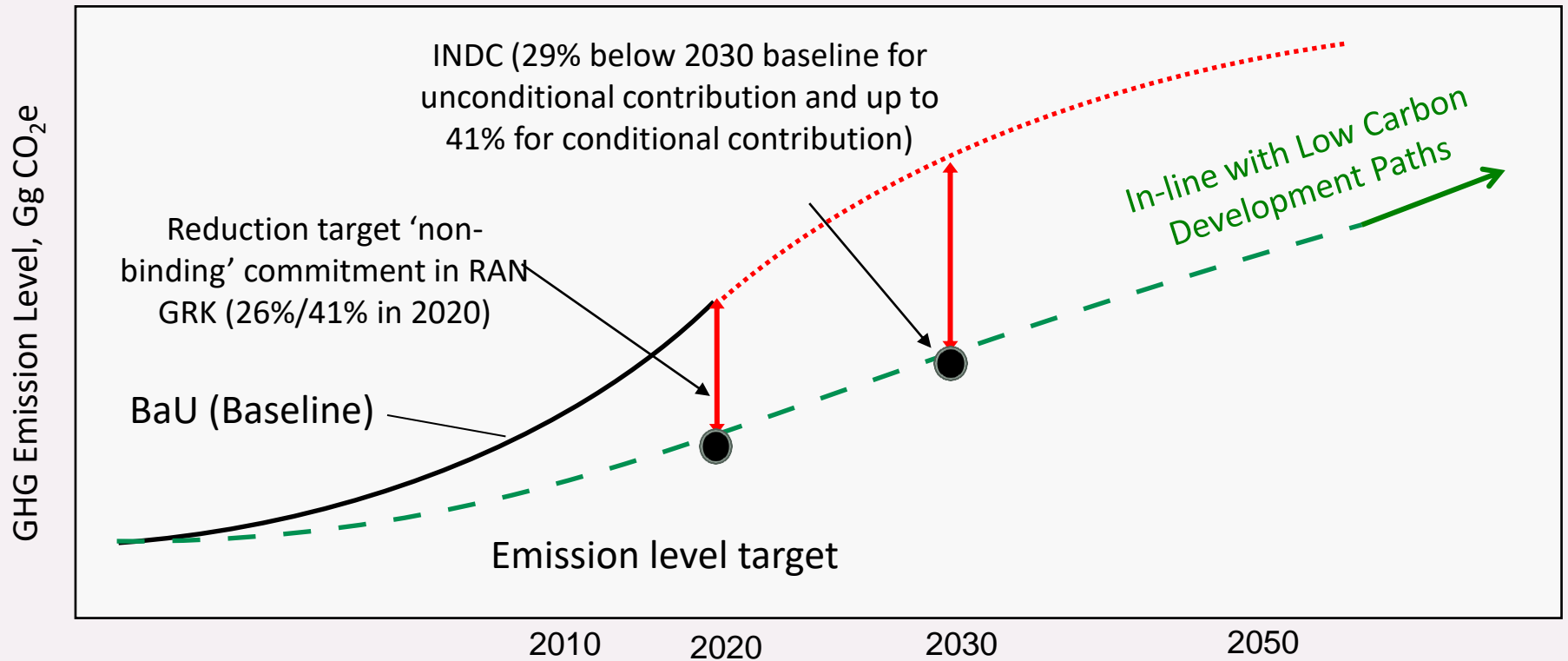
1. General Overview: Low Carbon Development, Mitigation Action Plan, and NAMAs/MRV in Indonesia
2. Indonesia Experiences in developing of Low Carbon Development Strategy in Energy Sector
3. Indonesia Experiences in NAMAs Development and Its MRV
 - NAMAs Framework and Institutional Settings
 - MRV System and Institutional Settings
 - NAMAs Development and the Need for Capacity Building
4. Challenge and opportunities
5. Lesson Learn

GENERAL OVERVIEW

LOW CARBON DEVELOPMENT, NAMAS, AND MRV

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GHG EMISSION SCENARIO OF INDONESIA

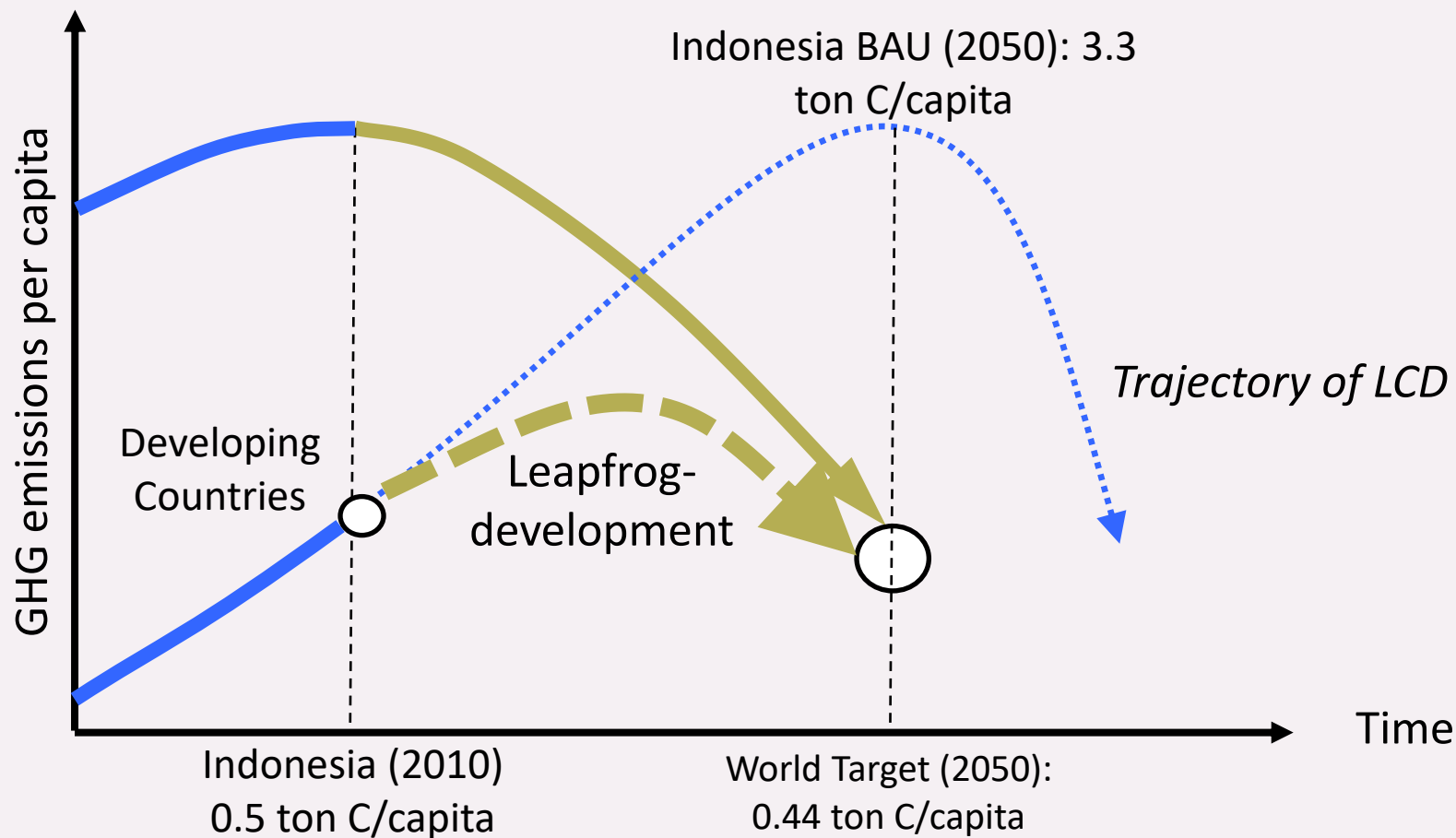


In response to climate change issues, the Government of Indonesia:

- announced “non binding commitment” (2009) to reduce GHG emissions 26% below the baseline 2020 with domestic budget and further up to 41% with international support. The GoI developed National GHG Mitigation Action Plan (RAN GRK)
- submitted Indonesia INDC to UNFCCC (2015) to contribute to global efforts in reducing GHG emission to meet global climate policy target so that global temperature should not exceed 2° C as accepted in the Paris Agreement [21st COP in Paris].

RAN GRK	Reduction (GT CO ₂ e)		Total (41 %)
	26%	15%	
Forestry & Peatland	0.672	0.367	1.039
Waste	0.048	0.030	0.078
Agriculture	0.008	0.003	0.011
Industry	0.001	0.004	0.005
Energy	0.038	0.018	0.056
Total	0.767	0.422	1.189

LCD is long term vision of economic development in a Low-Carbon way. Challenge for achieving LCD is now in a global mainstream, there is no turning back in this trend.



Indonesia energy sector 1.8 ton CO₂e (0.5 ton C)/capita (2010), under the BaU will be 5.6 ton CO₂e (1.52 ton C)/capita (2030) or 3.3 ton C/capita (2050)

THE BEGINNING OF NAMAS CONCEPT AND ITS MRV

.... “nationally appropriate mitigation actions (NAMAs) by developing countries in the context of sustainable development, supported and enabled by technology, financing and capacity building, in a MRV (measurable, reportable and verifiable) manner” ...

*(paragraph 1 (b)(ii)), Decision 1/CP.13, **Bali Action Plan**)*

Role of NAMAs in INDC/NDC and Low Carbon Development Path

Moving ahead with NAMAs in the context of Paris Agreement

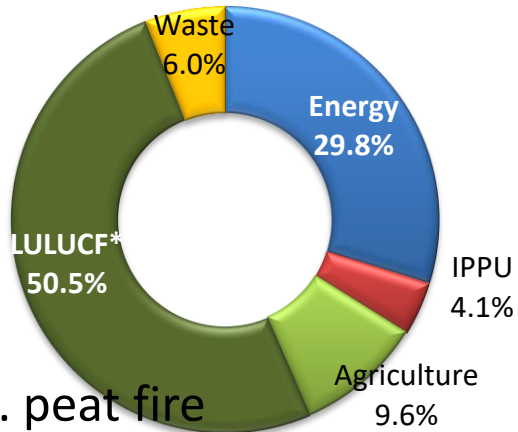
- Since 21st COP Paris, countries (90% of global GHGs) have submitted INDC/NDC
- NAMAs will be an important tool in implementing Paris agreement; INDC/NDC and NAMAs can be linked to help countries make progress to meet post-2020 targets:
 - engage stakeholders;
 - access international support and catalyze private investment;
 - assess and emphasize co-benefits;
 - conduct MRV; and
 - build an integrated cross-sectoral institutional framework to bridge the gap between ambition and action.
- National and highly visible nature of NDCs has potential to increase domestic buy-in for sectoral plans and individual bottom-up measures, including NAMAs.
- More emphasis on domestic NAMAs as countries seek recognition for their efforts to achieve their NDC and Low Carbon Development Plan; the GoI need to take a leading role in NAMA implementation to achieve the mitigation targets in their NDC as well as Low Carbon Development Plan.

INDONESIA EXPERIENCES IN DEVELOPING OF LOW CARBON DEVELOPMENT STRATEGY AND INDC/NDC

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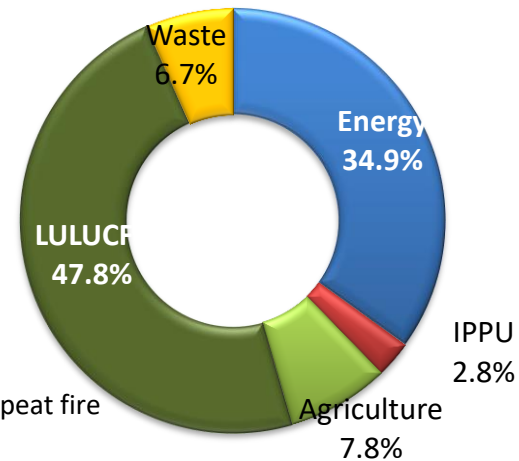
TREND OF INDONESIA GHG EMISSIONS

2000 - 1,001 million ton



*) incl. peat fire

2012 - 1,454 million ton



*) incl. peat fire

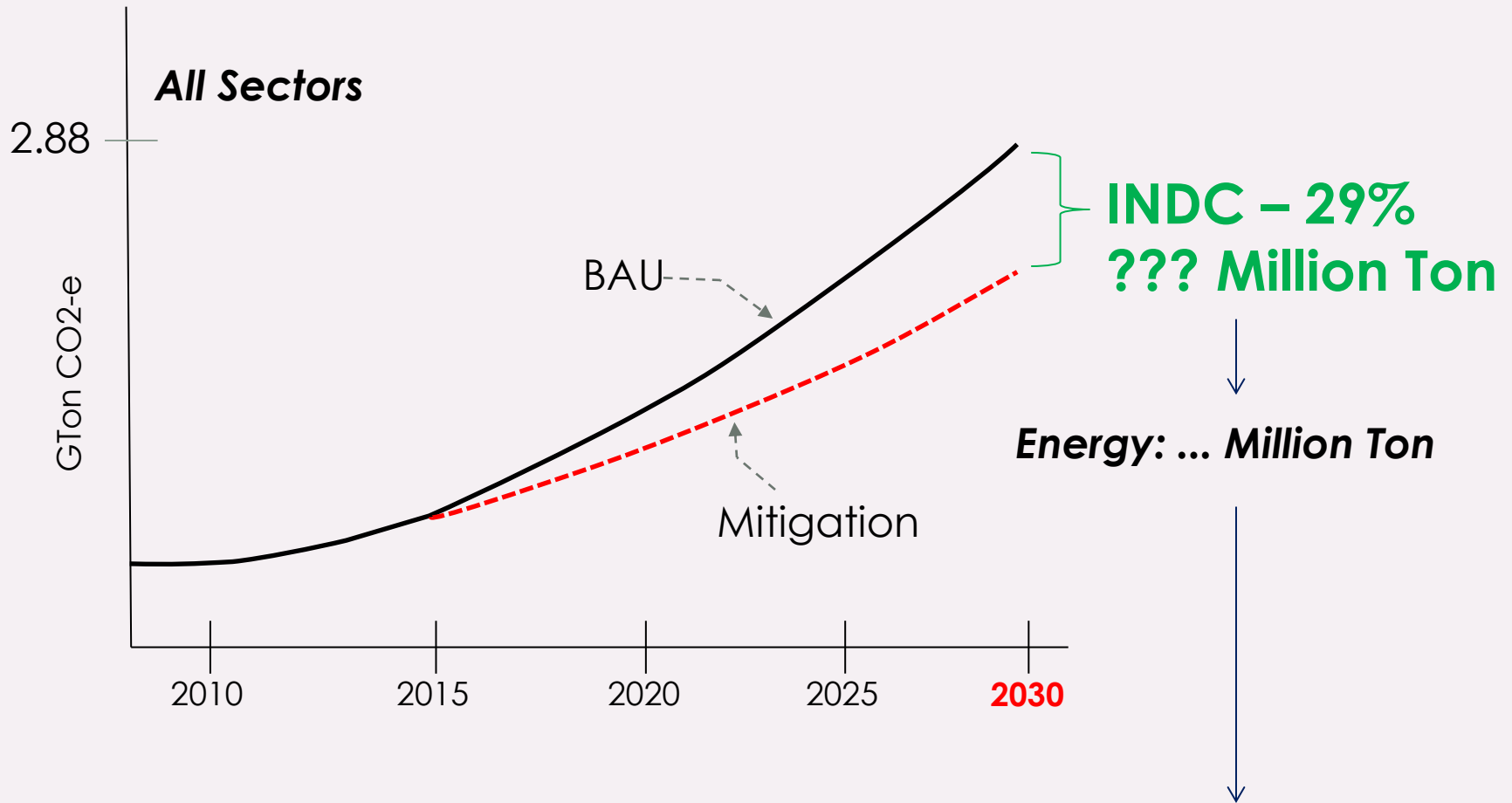
Sectors	Million ton CO2e		Percentage		Average annual growth
	2000	2012	2000	2012	
Energy	298	508	30	35	4.5% ←
IPPU	41	41	4	3	0.1%
Agriculture	96	113	10	8	1.3%
LULUCF *	505	695	51	48	2.7%
Waste	61	97	6	7	4.0%
Total	1,001	1,454			3.2%

*) including peat fire

Source: Draft Indonesia 1st BUR, 2015



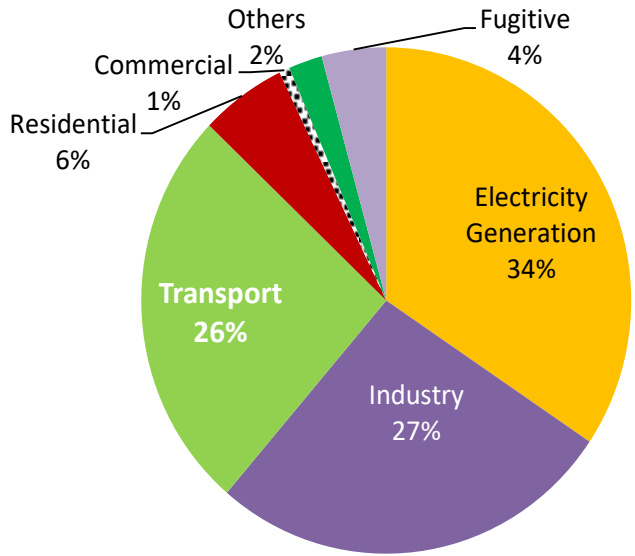
Indonesia INDC



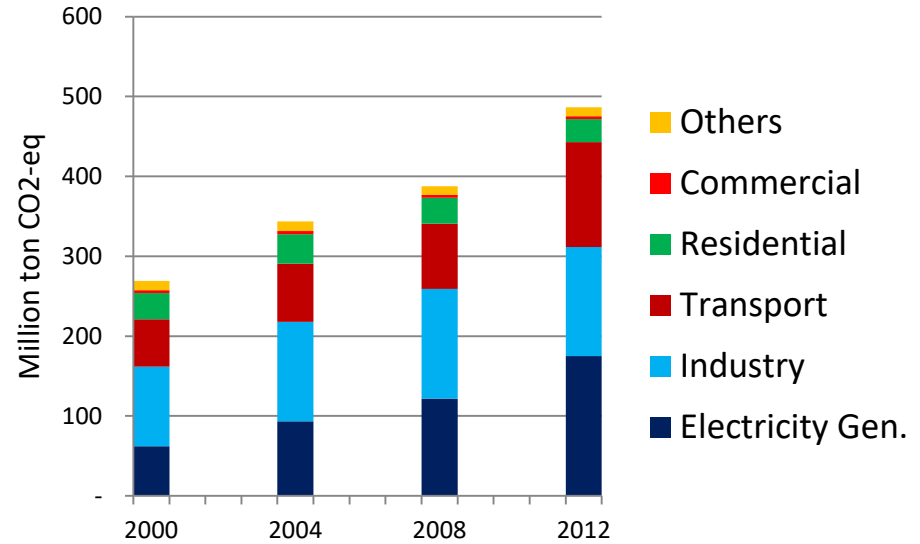
Still need delineation into specific projects and programs



Breakdown of Energy Related GHG Emissions



Energy 2012
508 mill ton

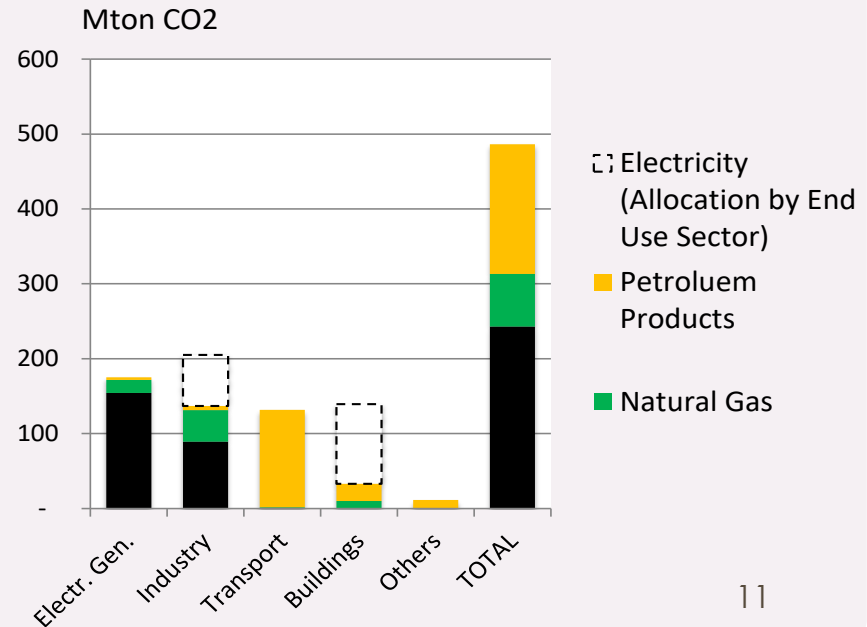


Combustion Emissions

Major sources: fossil (coal, oil and gas) used in power, industry, and transport.

End-use sector: 45% of GHG emission from fuel burning in industry.

Emissions from power is accounted by building (60%) and industry (40%) sectors.



ENERGY SECTOR

Power Mix Generation

Energy Type	Base Year 2010	RUPTL 2016-2025	Target Year 2030			
			BaU	CM1	CM2	KEN*
Coal	40%	50.3%	70.0%	50.3%	47.3%	44%
Oil	20%	0.6%	0.6%	0.4%	0.4%	-
Gas	24%	29.4%	26%	29.4%	29.4%	19%
Hydror	10%	10.4%	2.2%	10.5%	12.0%	9%
Geothermal	6%	8.0%	1.2%	8.0%	9.0%	13%
Biomassa	0.1%	-	0.01%	1.1%	1.1%	6.66%
Biofuels	-	-	-	0.2%	0.2%	6.53%
Other NRE	0.002%	1.1%	0.00%	0.00%	0.5%	2.35%
Import		0.05%				
Million TOE	15.2		7004	67.0	64.4	52.8

National Energy Policy

- NRE target is 23% in 2025
- Deployment of clean energy (efficient and low/zero carbon)

End User Energy Efficiency

Sector	% BAT Penetration		Increasing EE	Remrks
	CM1	CM2		
Industry	10%	20%	30%	<i>Direct Heat, electric motors, pumps</i>
Commercial	10%	20%	20-30%	AC, Elevator/Lift, Pumps,
Residential	10%	20%	10 - 30%	Electric Appliances



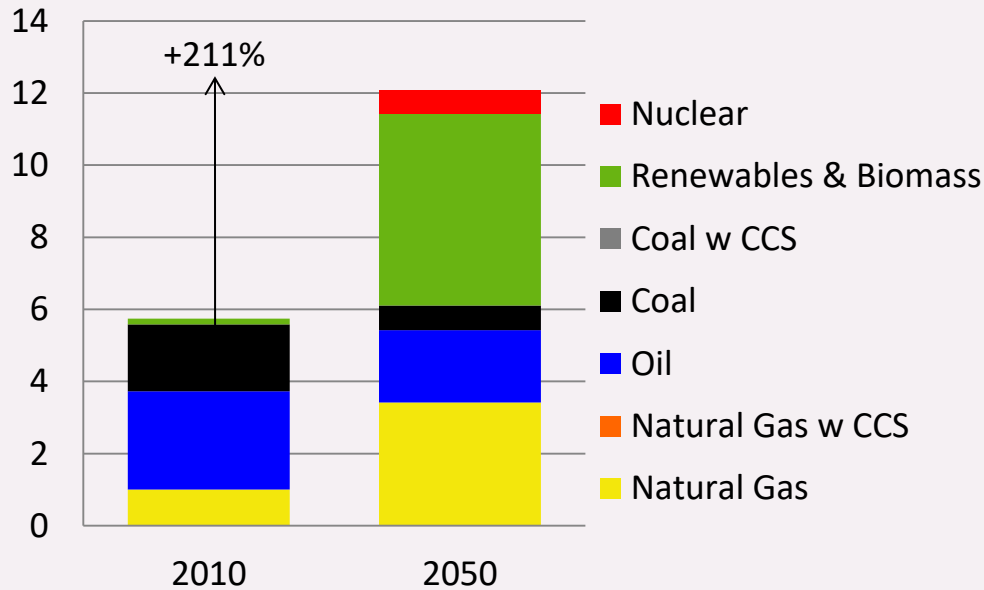
Sub-sector	Technology/fuel type	Unit	2010	2050
Commerce	Commercial floor space	Bm2	0.4	0.8
	Unit energy consumption	MJ/m2	460	650
Car (Personal and Taxi)	Share of EV in VKMT	%	0%	20%
	Share of Ethanol in PKM	%	0%	20%
Bus	Share of Electric in VKM	%	0%	5%
	Share of Biodiesel in VKM	%	0%	30%
Urban Rail	Share of Electric in PKM	%	0%	10%
	Share of Biodiesel in PKM	%	0%	20%
Air	Share of Biofuel in PKM	%	0%	20%
Freight Transport & Pipelines	Total Ton-kilometers (TTKM)	TTKM	0.45	1.2
	Share of Rail in TTKM	%	3%	10%
Freight Trucks	Share of TKM -Biodiesel	%	0%	30%
	Share of TKM - CNG	%	0%	20%
Freight Rail	Share of Electric in TKM	%	0%	20%
	Share of Biodiesel in TKM	%	0%	20%
Industry	Industry share of GDP	%	28%	18%
Iron and Steel Manufacturing	Physical Output	Million tons/yr	3.5	12
Cement Manufacturing	Physical Output	Million tons/yr	37	100
Small/Medium Manufacturing	Energy intensity	MJ/\$	23	18
Power Sector	Share of Coal	%	49%	2.00%
	Share of Fuel Oil	%	12%	1.00%
	Share of Natural gas	%	30%	7%
	Share of Nuclear	%	0.00%	16%
	Share of Hydropower	%	6%	20%
	Share of Wind-Offshore	%	0.00%	2%
	Share of Solar PV	%	0.00%	20%
	Share of Biomass	%	0.05%	12%
	Share of Geothermal	%	3.00%	18%
	Share of Biofuel	%	0.00%	2%

**Increasing
Efficiency BAT
2010 vs 2050**

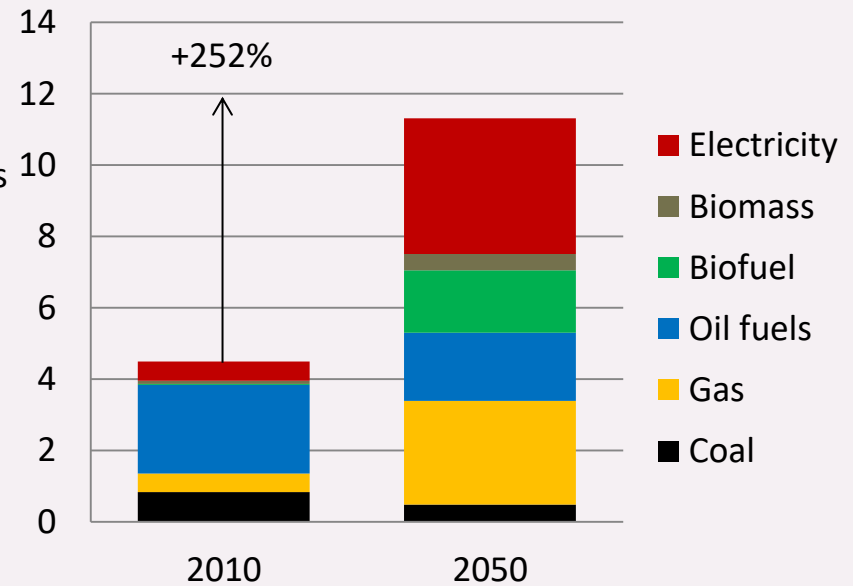
Energy pathways – Primary Energy

To achieve low carbon development through de-carbonization, Indonesia has to drastically change primary energy supply mix and final energy demand.

Primary Energy (EJ)



Final Energy (EJ)



Decarbonization of primary energy:

- Reduce share of coal
- Reduce oil consumption
- Increase the share of natural gas
- Significantly increase renewables
- Begin to deploy nuclear power plant.

Decarbonization of final energy :

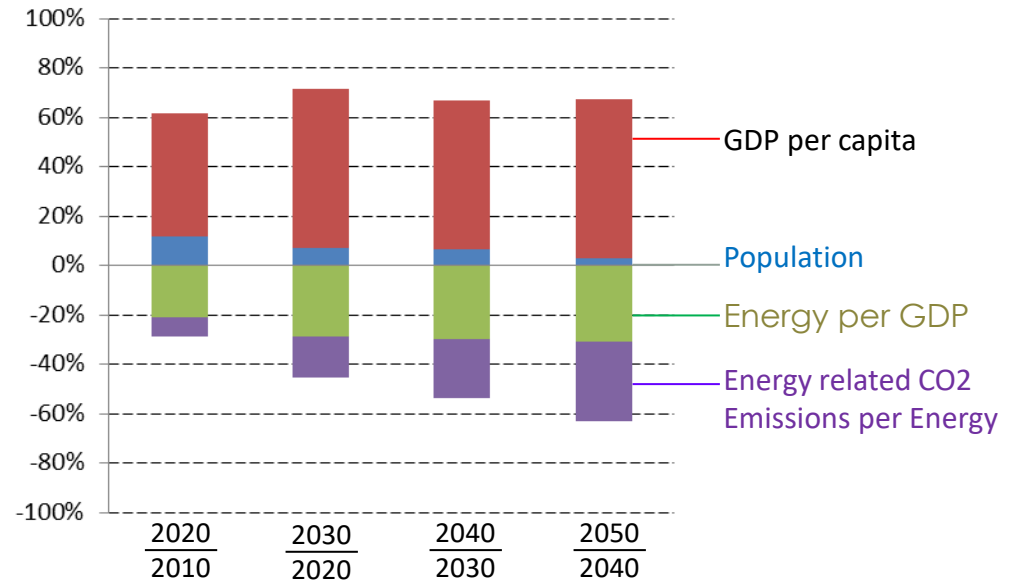
- Significantly increase share of electricity in of final energy (electrification of end-use)
- Substitute oil fuels by biofuels
- Increase the share of natural gas
- Significantly reduce coal in industry



Element of De-carbonization

Drastic change of primary energy and final energy mix is resulted from several measures.

De-carbonization is the combination of energy efficiency, low and zero-carbon emitting technologies, and change of economic structure.



Key elements:

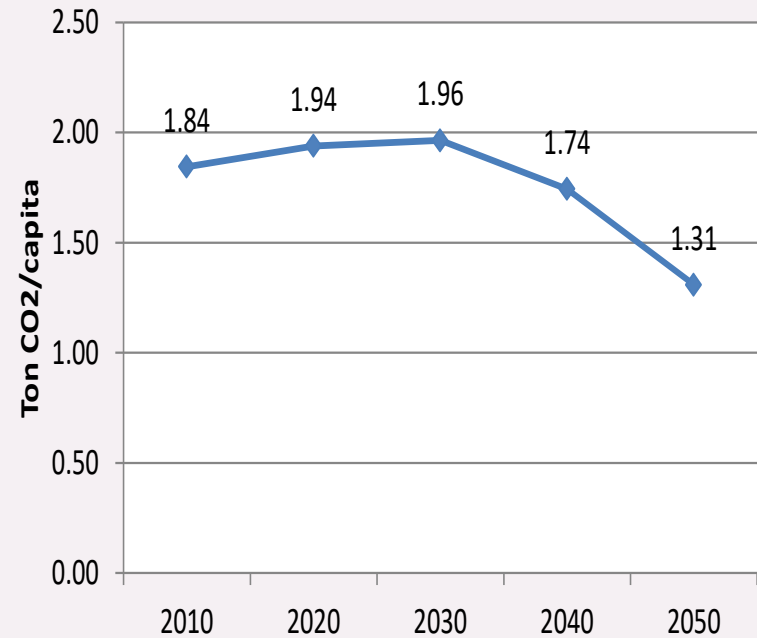
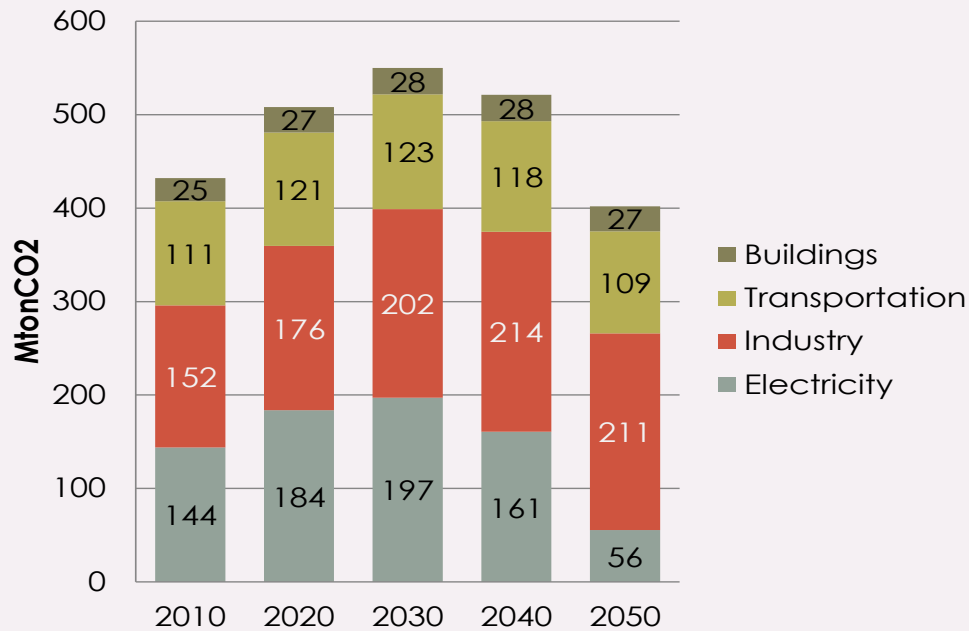
- Increase of energy efficiency in all sectors.
- Fuel switch to lower-carbon emitting energy sources (renewables)
- Replace on-site fuel combustion by electricity.
- Decarbonize electricity generation (massive deployment of RE for power)





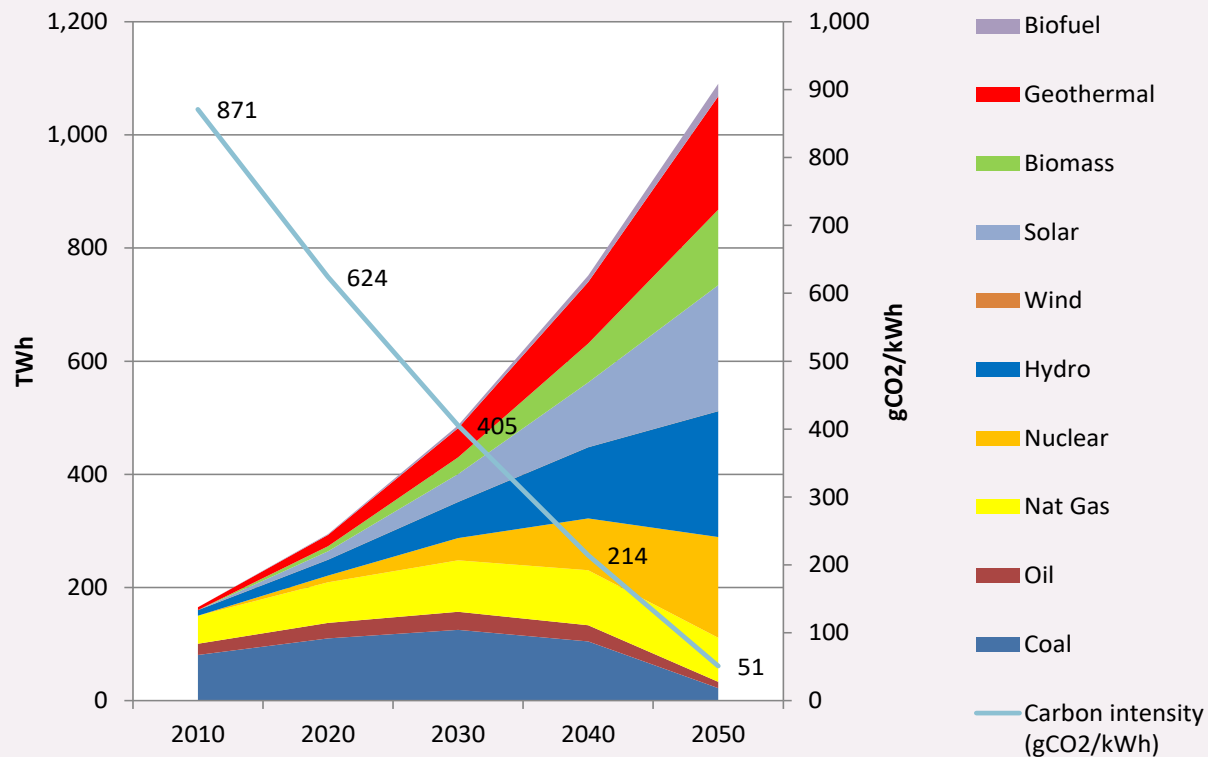
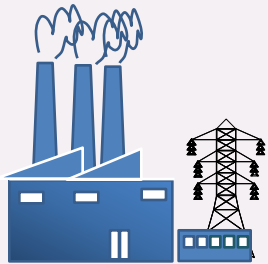
Results of Decarbonization

Emission by Sector



- Emission will first increase (economic development) and then decrease (results of decarbonization measures).
- Industry and transport are the main emitter in 2050.
- Significant decarbonization in power generation, 144 MtCO₂ (2010) to 56 MtCO₂ (2050).
- Industrial emission will remain to increase 152 MtCO₂ in 2010 to 211 MtCO₂ in 2050.
- Emission per capita will decrease from 1.84 ton CO₂ to 1.31 ton CO₂.

Power Generation



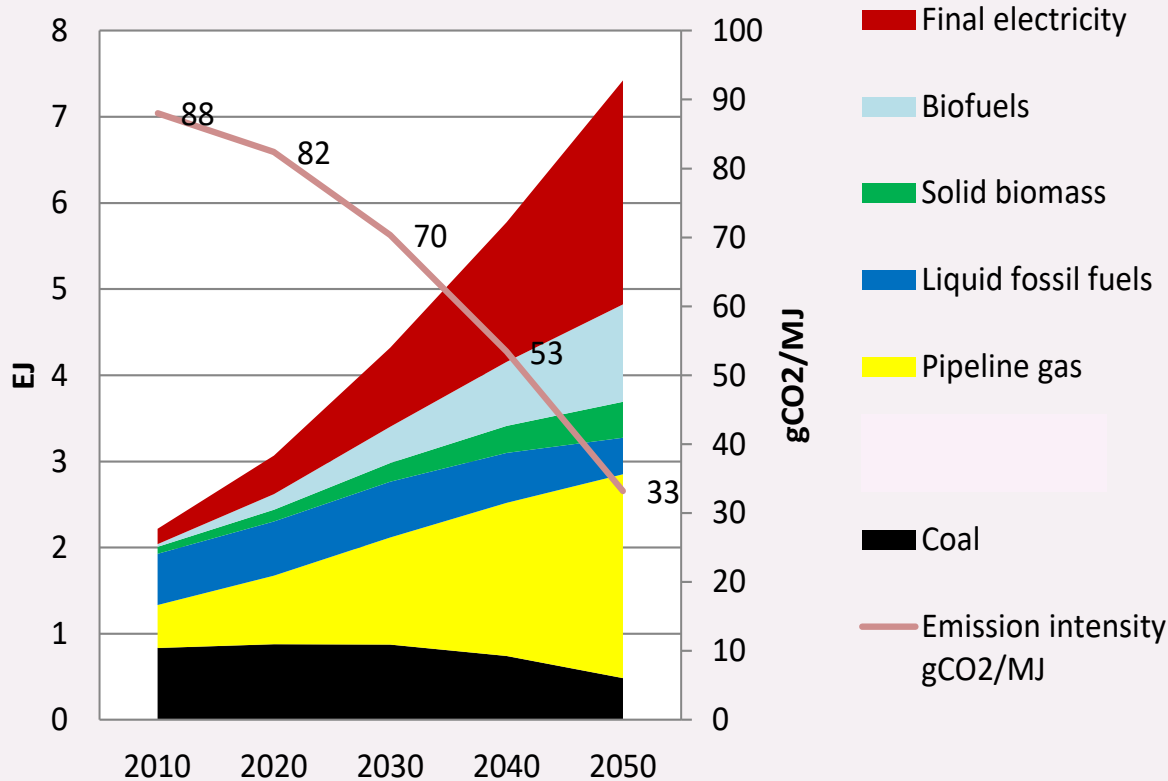
Demand of electricity will continue to increase due to improved wealth and electrification of end-use in building, industry, and transport.

Decarbonization strategy:

- Fuel switching to lower carbon-emitting fuels (coal to gas, oil to gas),
- Maximize renewable (solar, geothermal, hydropower, biofuels)
- Use of nuclear power
- Efficiency improvements di power plants.

Results: decrease of carbon intensity from 871 gCO₂/kWh to 51 gCO₂/kWh

Industry Sector

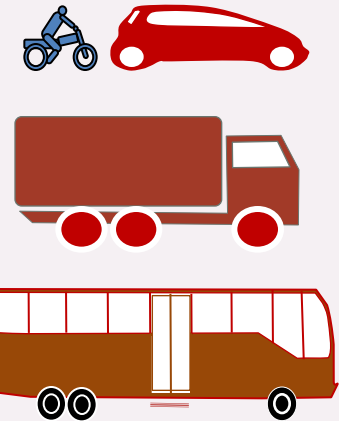
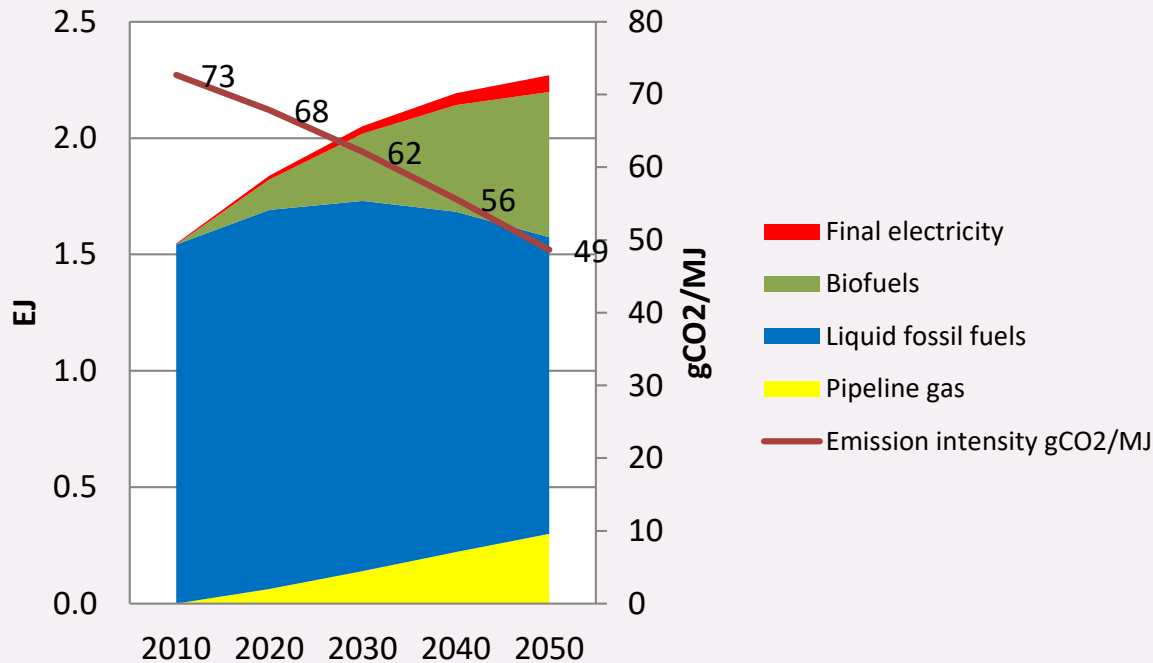


Component of decarbonization:

- Fuel switching to gas and bioenergy (solid biomass dan biofuel)
- Electrification of end uses di industry
- Reduction of coal

Results: decrease of carbon intensity in energy from 88 gCO₂/MJ to 33 gCO₂/MJ

Transport

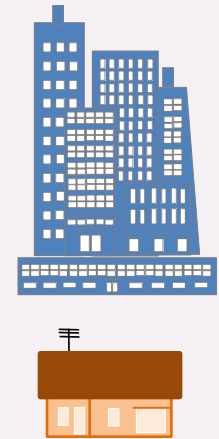
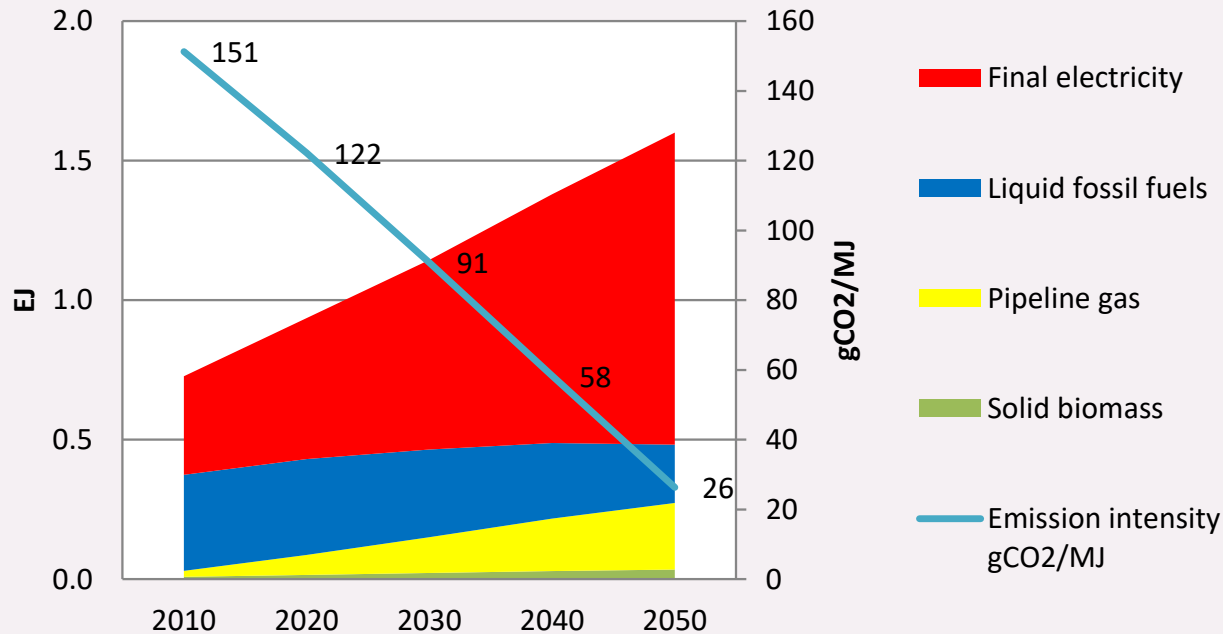


The decarbonization strategy:

- Modal shift to mass transport, electrification, fuel switching to gas and biofuels, more energy-efficient vehicles, shift of freight transport from road to railway.
- Personal vehicles decrease from 60% in 2010 to 40% in 2050.
- Share electric cars 30% in 2050

Results: reduction of carbon intensity in energy from 73 gCO₂/MJ to 49 gCO₂/MJ.

Building (Commerce and Residential)



Decarbonization strategy:

- Fuel switching to gas/LPG and increase electrification in end use
- Use of super-efficient energy devices

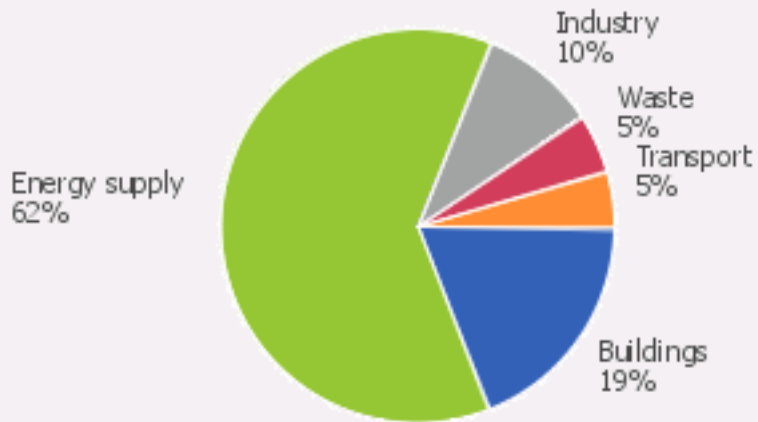
Residential sector: increase of per capita income will increase energy demand, however the increase is counterweighted by use of more efficient equipment

INDONESIA EXPERIENCES IN
THE DEVELOPMENT OF NAMAS AND ITS MRV

3

INDONESIA NAMAS DATABASE

Sectoral Distribution of NAMAs



- No. NAMAs Project
- 1 Cement Industry NAMA
- 2 Community Forest Partnership for Wood Biomass Based Energy (CFFBE)
- 3 Debottlenecking project finance for least cost renewables in Indonesia - DEEP NAMA
- 4 Green Chillers and Industrial Energy Efficiency Program in Indonesia
- 5 Efficient cooling and air conditioning in industry and business
- 6 RENAMA - Renewable Energy NAMA
- 7 Small & Medium scale renewable energy installations in North Sumatra
- 8 Smart Street Lighting Initiative (SSLI)
- 9 Vertically integrated NAMA for solid waste management
- 10 Solar PV Pilot Project in Government Buildings of DKI Jakarta
- 11 Sustainable Urban Transport Initiative (Policy NAMAs)
- 12 BRT Project in Greater Jakarta (Project NAMAs)
- 13 Used Cooking Oil Biodiesel for Commercial Buildings in Bogor City
- 14 Energy Efficiency Measures in City Hall/DPRD DKI Jakarta Office
- 15 Fertilizer Industry NAMA
- 16 Pulp and Paper Industry NAMA

Etc.

Most of the above NAMA Projects are under development except for Sustainable Urban Transport Initiative (Policy NAMAs), which is already submitted to UNFCCC

DEFINITION OF NAMAS

Currently there is no internationally agreed definition of NAMAs. Cancun Agreements (2011) refer to NAMAs in the following:

- 1/CP.16-48. *Agrees* developing country Parties will take nationally appropriate mitigation actions in the context of sustainable development, supported and enabled by technology, financing and capacity-building, aimed at achieving a deviation in emissions relative to ‘business as usual’ emissions in 2020;
- 1/CP.16-61. Also *decides* that internationally supported mitigation actions will be measured, reported and verified domestically and will be subject to international measurement, reporting and verification in accordance with guidelines to be developed under the Convention;

Some of the keywords that could be referred in NAMAs development: *In line with national development agenda, in support to sustainable development, reduction of GHG emission relative to BAU in 2020, can be MRVed*

Nationally Appropriate Mitigation Actions (NAMAs)

(IN THE CONTEXT UNFCCC)



- NAMAs is a set of policies/actions according to the needs of the nation/state and voluntarily carried out as part of the commitment of developing countries to reduce GHG levels with priority for sustainable development “



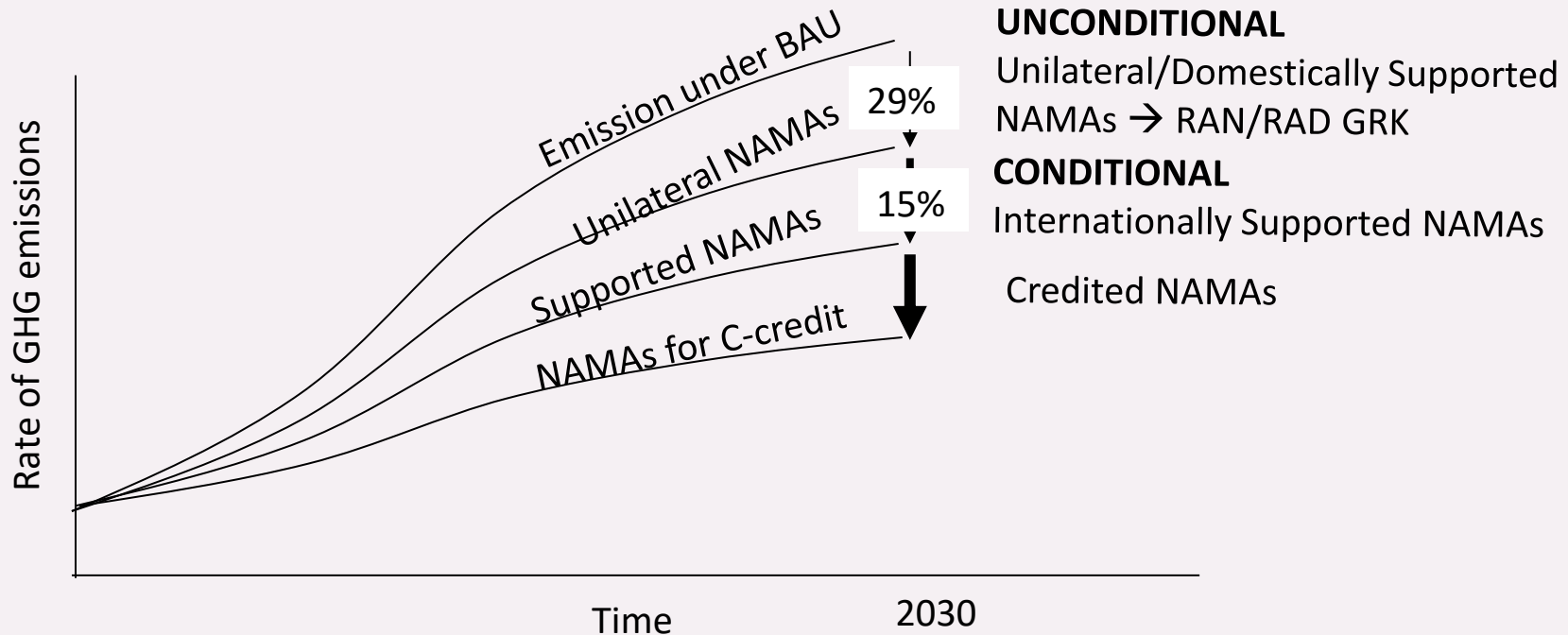
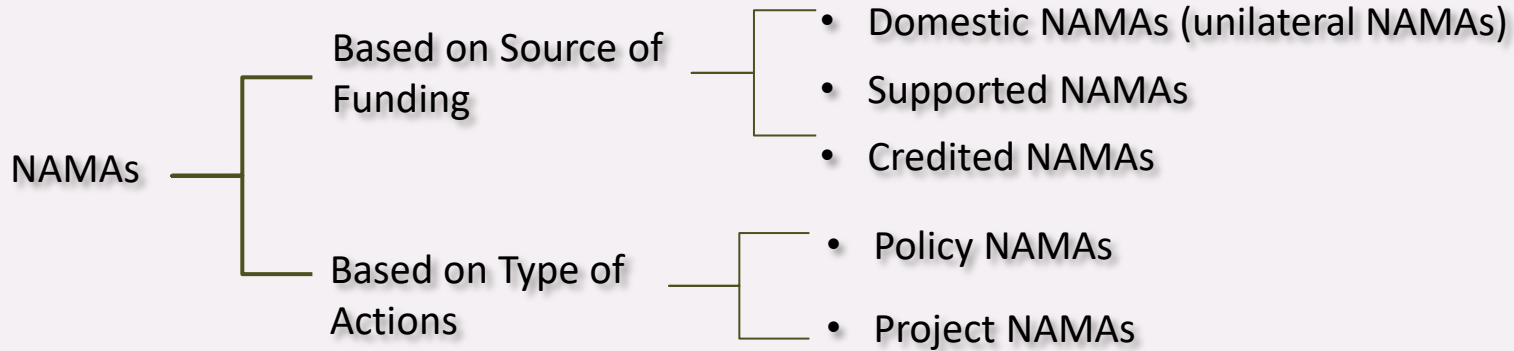
- NAMAs supports developing countries to lower GHG at a certain level under baseline conditions although not obliged to reduce GHG

- NAMAs support and align with sustainable development as interpreted by host country, and any existing Low Emissions Development Strategy.



- Since this is the case, and since NAMAs benefit from this alignment with existing policies and priorities, they will often be driven by priorities other than GHG reduction.
- NAMAs do not represent a legal obligation under UNFCCC.
- NAMAs are voluntary actions taken by developing countries to reduce GHG to levels below those of “business as usual” (BAU).

NAMAs (Nationally Appropriate Mitigation Actions)



CONCEPTS OF INDONESIAN NAMAS FRAMEWORK

Sectors coverage: land-based, transport, energy, waste and IPPU

NAMAs Category (unilateral/domestic, supported, credited)

Basic national criteria for NAMAs:

- Build upon national mitigation policy framework (inline with long/medium term national development plan), national/sub-national mitigation actions plan, etc.)
- Consistent with national development goals
- Address development benefits and co-benefits

Submission procedures

Financing (sources and mechanism)

Development of BaU baseline

CRITERIA OF INDONESIAN NAMA

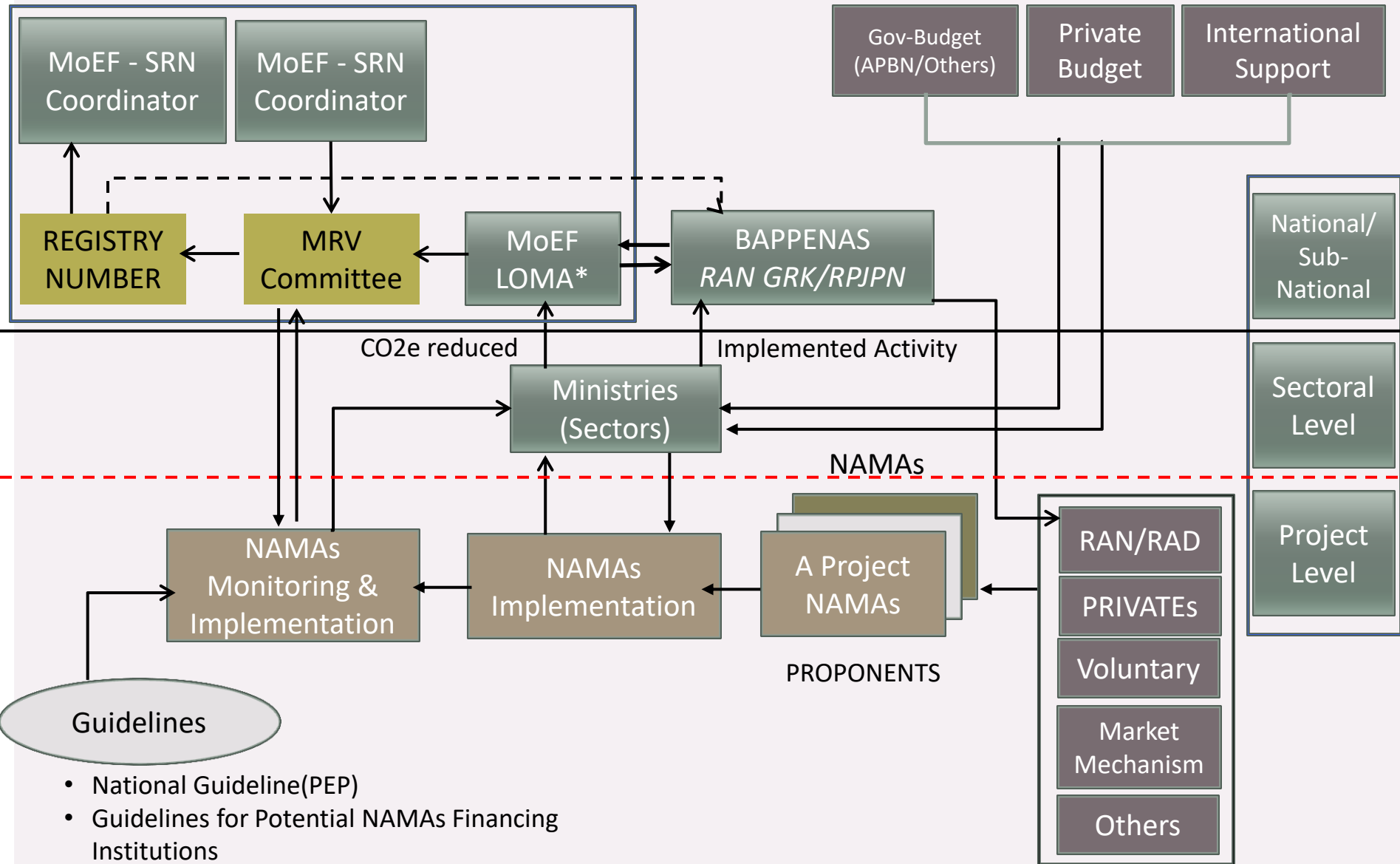
NAMAs Framework, Bappenas 2013

- NAMA has to demonstrate direct potential and indirect potential of GHG mitigation and its cost-effectiveness.
- NAMAs must be consistent or in line with national development objectives and complement to the existing sectoral policy or programs
- NAMAs has to be developed based on the framework of national mitigation policy (RPJPN, RPJMN, ICCSR, RAN/RAD-GRK) and linked to national development priority including national mitigation targets.
- NAMAs has to comply with government mechanism for monitoring, evaluation, and reporting (MER/PEP) for actions and policies under RAN/RAD.
- NAMAs must have high possibility for successful implementation and should have high potential for replications.
- NAMAs must demonstrate the impact of development including social aspects, economics, politics and environment.

	CRITERIA	Possible Indicators	GoI (Bappenas)	UNFCCC	LECB Ind
1	Funding	Clear budget plan (at least for the first year)	V	-	V
2	Conformity with SD Principles	- Environment - Economy - Social	V	V	V
3	Effectiveness of cost utilization	- Direct & indirect - Dollars per tonne CO2 avoided calculation - Technical & financial risk profile - Cost of MRV	V	V	V
4	Feasibility of implementation	- On-going - Planned for immediate implementation - Barriers to implementation (initial investment) - Awareness and acceptance - Lead time	V	V	V
5	In line national/regional strategies (commitment of Prov. & Kab/Kota)	- RPJPN, RPJMN, RPJMD (national/Regional Planning), RKD, RAN GRK, RAD-GRK, etc - liaison officers	V	V	V
6	Benefits/ co-benefits	Macroeconomic judgment (job creation, poverty alleviation, reg. income, etc.)	V	V	V
7	Data availability & quality	Cross-institutional knowledge sharing	V	-	V
8	Mitigation potential	- Direct emission impact - Baseline assumption - Transformational impacts - Replicability potential	V	V	V
9	Stakeholders involved	- Variety - Numbers	-	V	V
10	Power of leadership	- Existing pro-environmental policies - Good & sustainable support	-	-	V
11	Derived from RAN/RAD-GRK	-	V	V	V
12	Cross Sector				

INSTITUTIONAL SETTING FOR A NAMA PROJECT

National Registry System (SRN)



ROLE AND RESPONSIBILITY: “WHO IS DOING WHAT”

Ministry of Industry (BPIH LH)

- Responsible for fostering industries in climate change mitigation actions, including in the development of NAMAs (capacity building, socialization, promotion, etc.)
- Coordinate with relevant ministries/institutions regarding NAMAs
- Facilitate initiatives and coordinate activities for NAMA proposals from a number of industries to become one NAMA for a Group of Industry
- Develop guideline and determine criteria to assure that sustainable development benefits to the program/actions that will be a NAMA
- Develop incentive under their responsibility (i.e. scheme for Green Industry award) to support and encourage NAMAs and other mitigation actions
- Identify existing incentive schemes in relevant ministries/institutions that can be used for encouraging NAMA projects realization (i.e. low/soft loans for investment of energy efficient appliances/equipment)
- Communicate industrial NAMAs projects to MoEF and other stakeholders

Ministry of Environment and Forestry (MoEF)

- Monitoring, Recording, and Verifying the achievement of GHG emission reduction from a mitigation action and registry the NAMA projects
- Development and socialization of the guideline or methodologi for estimating GHG emission reduction from the NAMA projects
- As focal point climate change, responsible to communicate and to registry of the NAMA projects to UNFCCC

BAPPENAS (or leading institution for the new national NAMAs, if available)

- Socialization of guideline and facilitation/coordination for the submission of NAMA projects based on industry types in National NAMAs scheme

Industrial Association

- Develop and encourage initiatives and facilitate NAMA projects by type of industry (together with Mol)
- As a transmission channel or bridging facility for the relationship between Industries and Mol

Industry (particularly Champion Industry)

- Develop NAMA projects (start from identification, planning, implementation, monitoring, and reporting)
- Working together with other industries that has similar activities/products for “packaging” the NAMA by type of industry (will be coordinated by Mol and Industrial Association)

Other Ministries/Institutions

- Develop measures to encourage and support the NAMA implementation, i.e. developing EE standard (by MEMR)
- Develop threshold limit value and monitoring program such as Proper or other monitoring program by MoEF

Ministry of Finance (MOF) and Other Financing Institutions

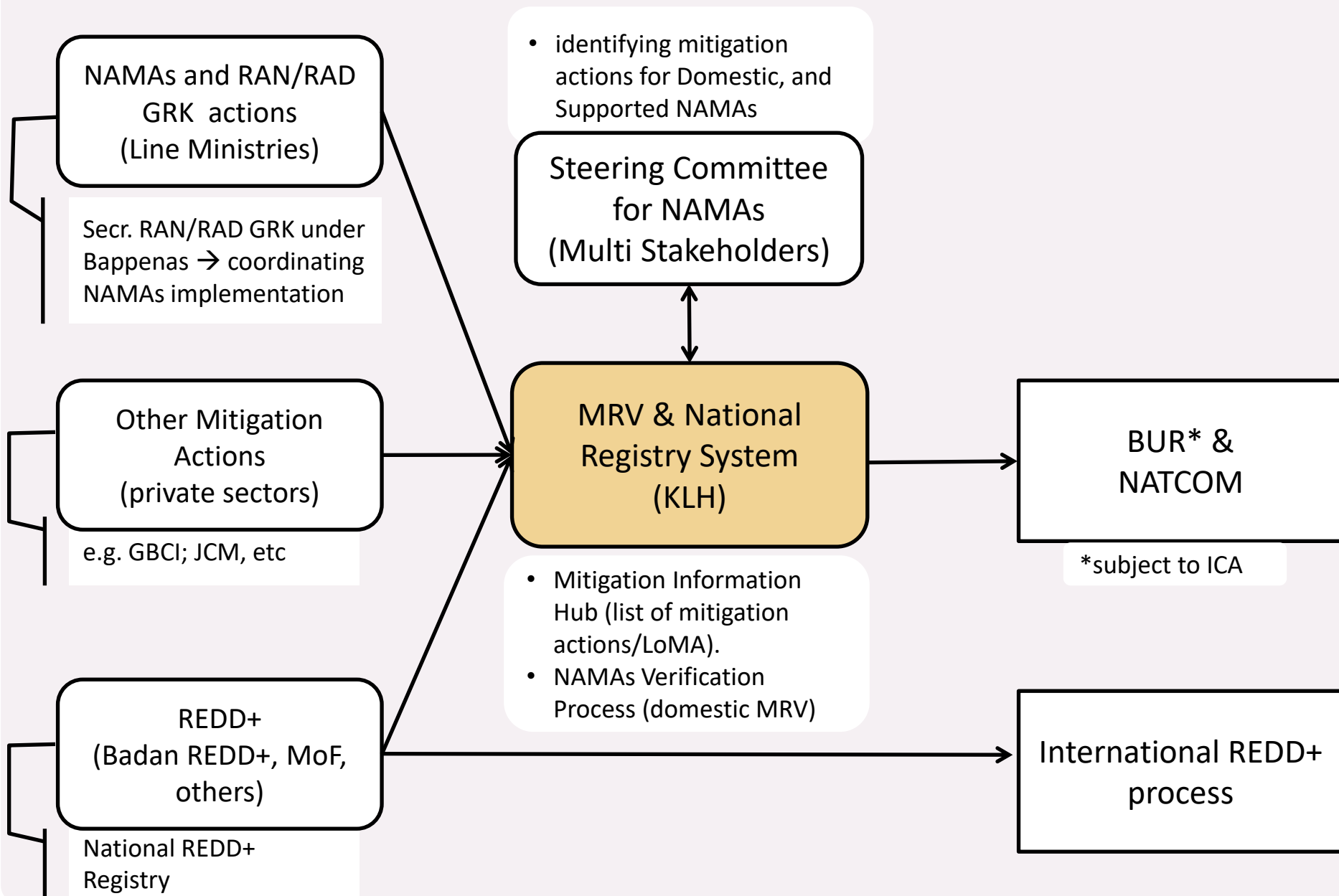
- Provide financing and/or financial access for international supports

Submission Procedure for NAMA

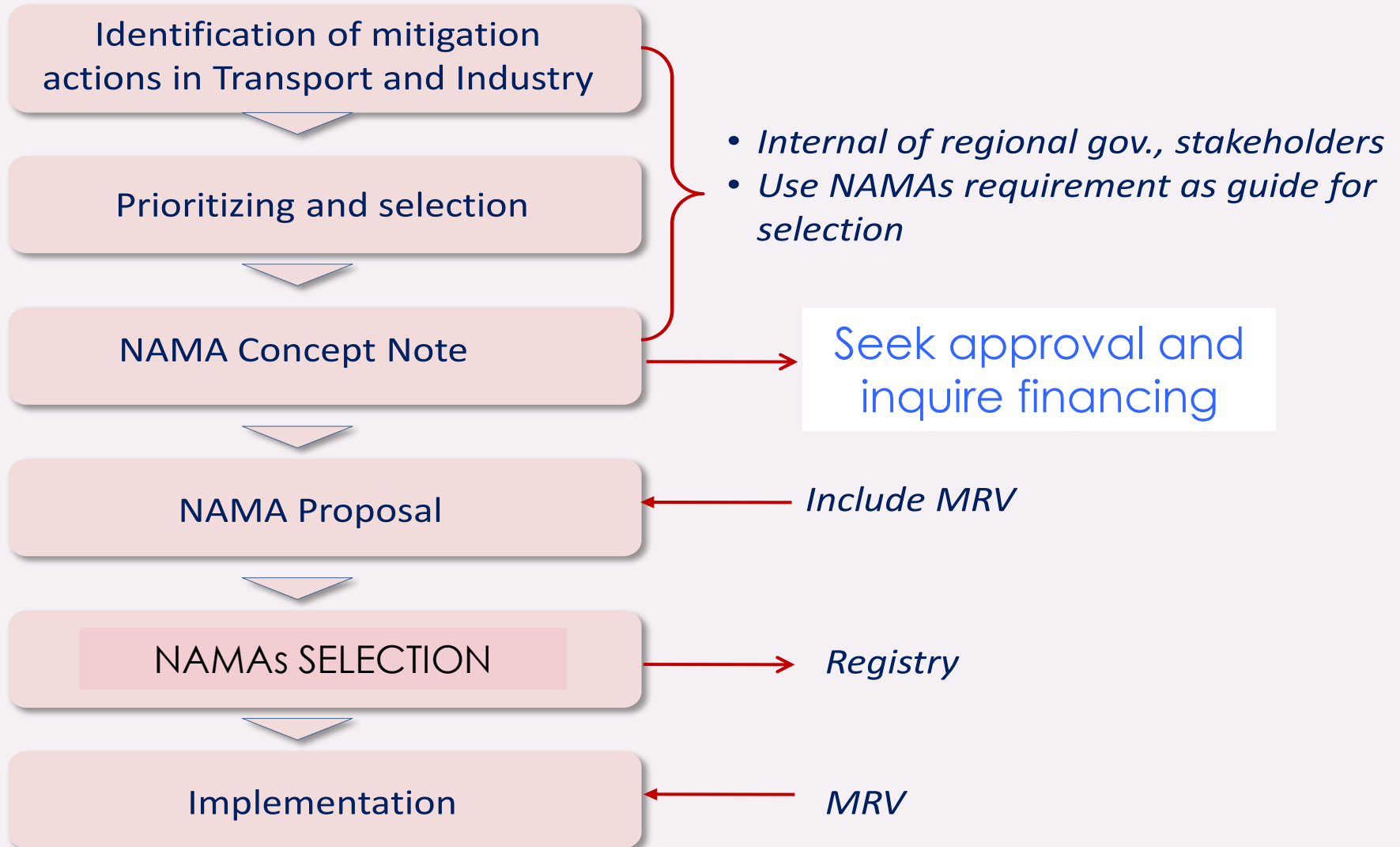
- Unilateral and Supported NAMAs will be integrated into national and provincial development report
- All proposals for NAMAs program/project/activity are submitted by line Minister/Government Agency, Private Sector, Community association/organization to the Minister/Head of Agency for National Development Planning (Bappenas) in accordance to Government Regulation No. 10/2011 on Mechanism on Receiving Foreign Loan and/or Grant
- Foreign grant received is to be managed by within the existing mechanism of APBN/APBD

NAMA proposals are submitted to Bappenas and will be reviewed and approved by multi-stakeholders meeting (SC-CCNCT: Steering Committee of Climate Change National Coordination Team). SC-CCNT: Bappenas, MoE, line ministries, DNPI, RAN-GRK Secretariat.

MITIGATION ACTIONS AND NATIONAL APPROVAL FOR NAMAS



STEPS IN NAMAs Development



The Needs for MRV

MRV lately become important issue within the context of NAMAs (Nationally Appropriate Mitigation Actions), i.e. climate change mitigation actions that are in line with country development objective and in support to sustainable development.

The issue of MRV is still relevant and an important component in the coming global efforts in climate change mitigations organized/managed under INDC (Intended Nationally Determine Contribution).

In order to have credible claim of GHG emission reduction achieved by implementing all mitigation efforts, including the INDC, the reduction has to be measured, reported, and verified (MRV-ed).

Those are the rationale that we have to continue researches that support to the development of MRV system in energy sectors, particularly energy in industry.

DEFINITION OF MRV

In the context of climate change, MRV is measurement, reporting and verification process of GHG emissions.

MRV is a mechanism to ensure so that all mitigation actions and its impacts and the support received for the mitigation actions are realized. It is expected that through MRV, all mitigation actions and its impacts and the support received for the mitigation actions could be measurable, reportable, and verifiable.

Elements to be "MRV" ed.

- Mitigation actions/NAMAs
- Support (technology, financing, capacity building)
- GHG inventories (not explicit in the Bali Action Plan, but a necessary component)

Implementation of the MRV of a mitigation action requires of the existence of MRV methodology and institutional setting.

Ministerial Regulation No.15 /2013

To gather mitigation action information that is accurate, transparent, consistent and credible



Measurement

- During planning and implementation of action
- **To determine GHG emission level before and after mitigation**
- **To monitor the achievement of mitigation action**



Reporting

- To document the achievement of mitigation action.
- As reference document in verification process (by MRV commission).

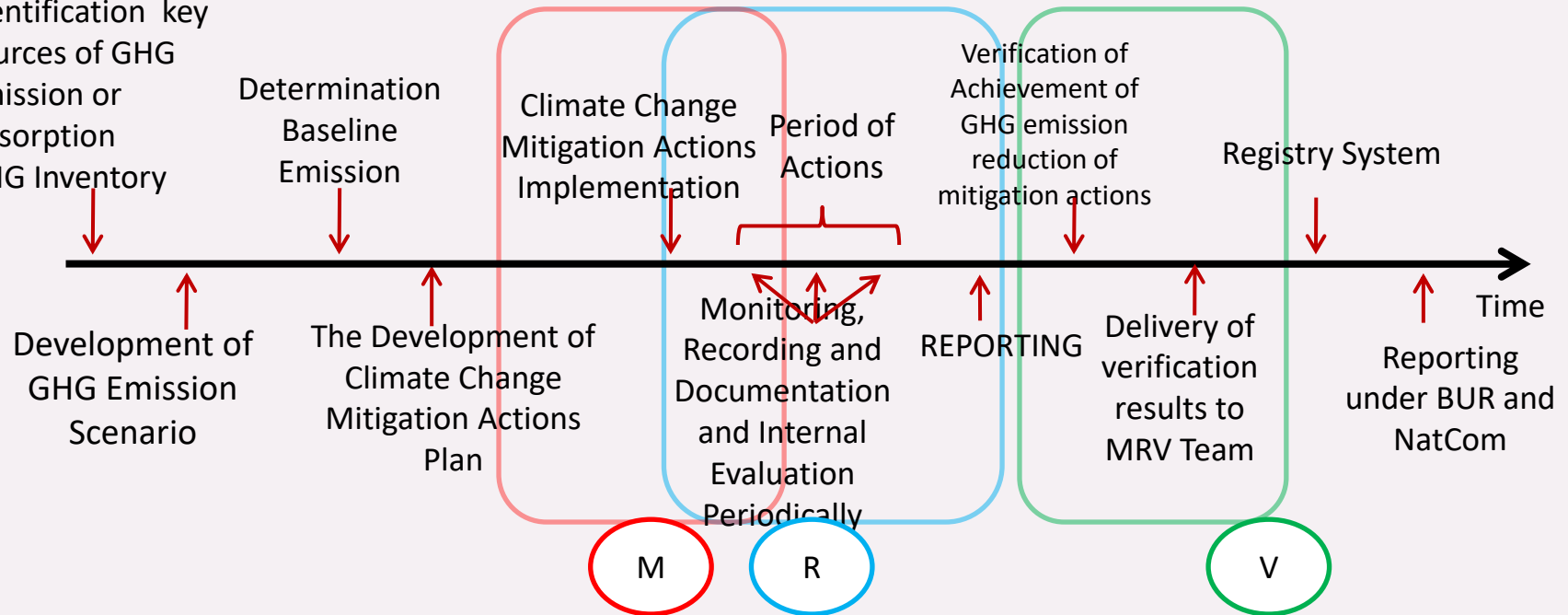


Verification

- To ensure that all information stated in the report is correct
- Verification is carried out by verifier appointed by “project participant” (the party that is responsible in mitigation action)
- Requirement of verifier:
 - ✓ Not involved in mitigation action implementation;
 - ✓ Hold competency certificate (as mitigation action verifier).

National MRV Framework

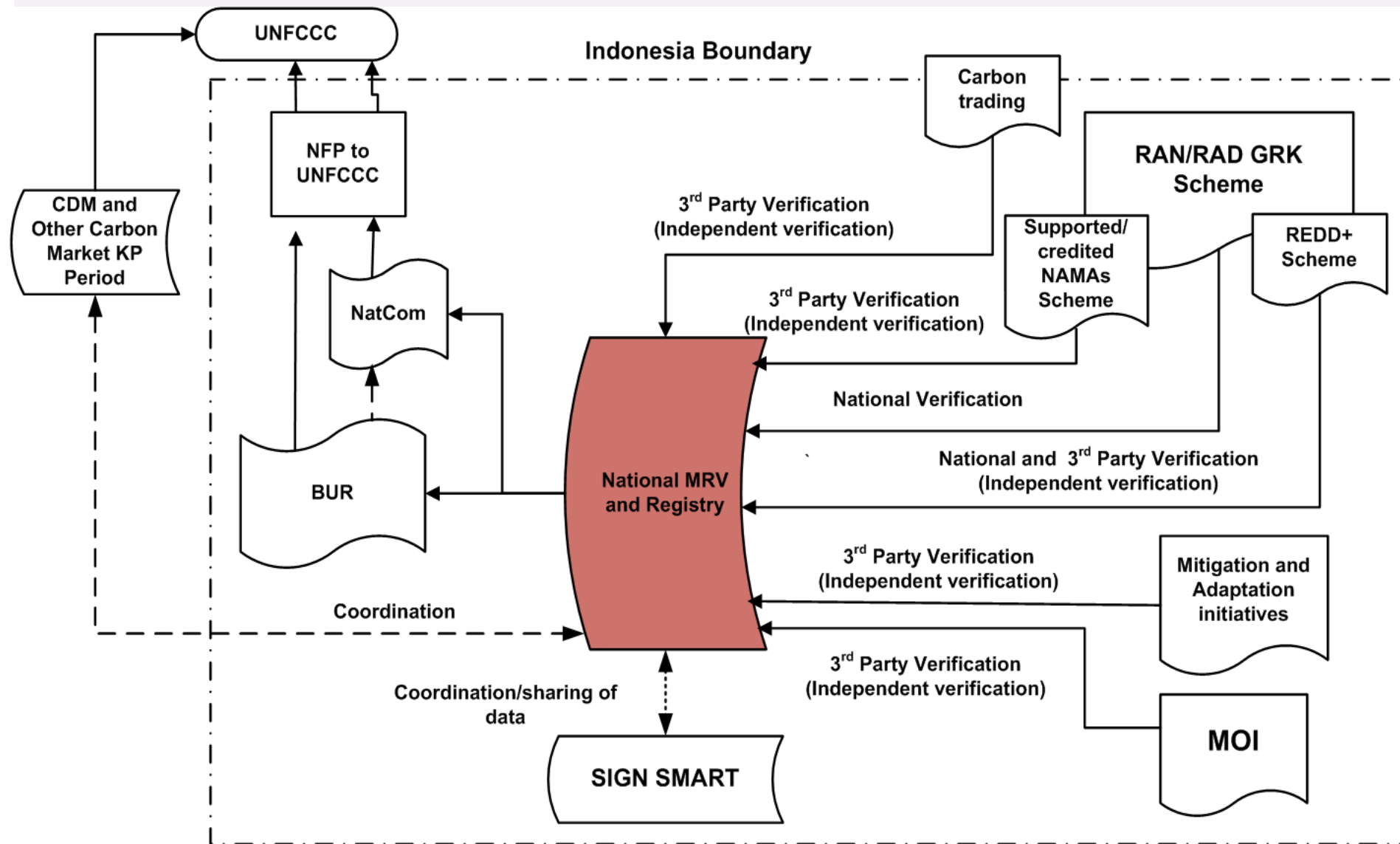
- Identification key sources of GHG Emission or Absorption
- GHG Inventory



No	Mitigation Actions	M	R	V
1	RAN			
	a. Forestry and Waste Sector	Relevant Directorate Generals in MoEF		DJPPI MoEF
	b. Other sectors (Energy, Transportation, Industry and Agriculture)	Relevant Ministry/ Institutions		DJPPI MoEF
2	REDD+	Project Management		DJPPI MoEF or Third Party
	CDM	Project Proponent		Third Party
	JCM	Project Proponent		Third Party
	Voluntary (VCS, etc.)	Project Proponent		Third Party

Source: Directorate of MPI DJPPI of Indonesia's MoEF, 2015

MECHANISM OF MRV CLIMATE ACTIONS AND SUPPORTS



OPPORTUNITY AND CHALLENGES

4

OPPORTUNITIES

- Referring to the National GHG emissions inventory (1st BUR), the opportunities of NAMAs development are in the Forestry and Energy sector
- In energy sector, NAMAs can be developed in 3-pillars of intervention (Energy efficiency, De-carbonization of electricity, Electrification of end uses) → **Pillars of De-carbonization**
- The Government has shown strong commitment to climate change mitigations (non-binding commitment in 2009) through domestic budgets (government and private)
- There are many mitigation actions that will have economic benefits as well as co-benefits
- The availability to access international support and catalyze private investment (ICCTF, climate investment fund, CDM, JCM, VCM, etc.)



Pillars of Decarbonization

Pillar 1.

Energy efficiency measures would drastically decrease energy intensity of GDP (Energy per GDP)

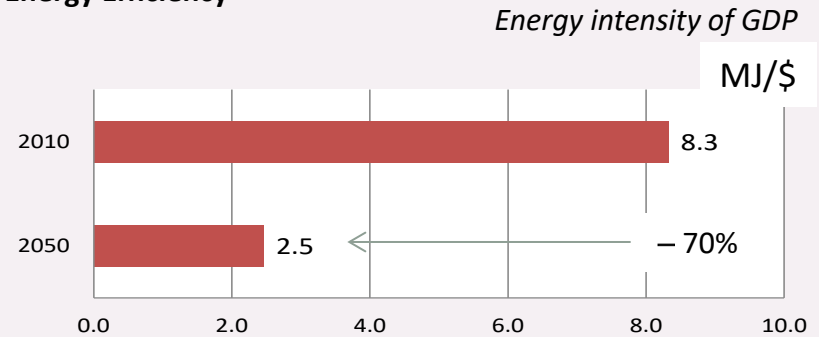
Pillar 2.

Decarbonization of electricity: Use of low carbon emitting fuels would significantly electricity emission intensity (gCO₂/kWh)

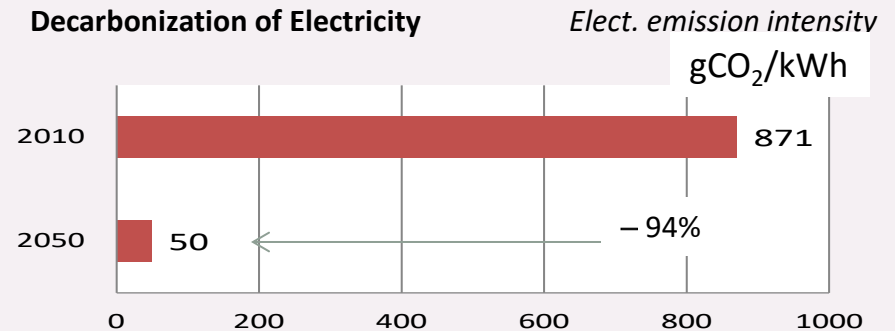
Pillar 3.

Electrification of end uses will reduce fossil fuel combustions and reduce emission (as long as the power generation is deeply decarbonized)

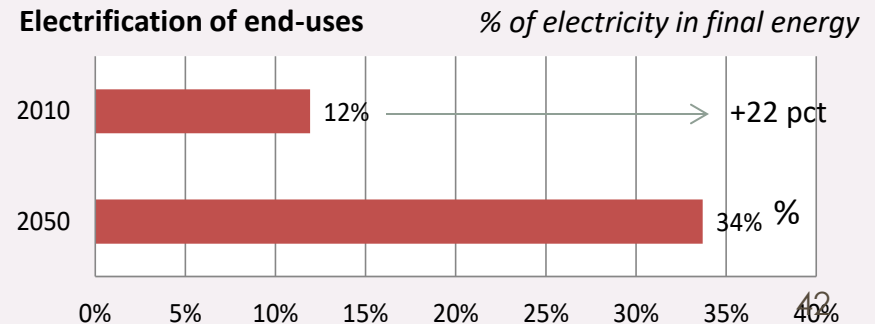
Pillar 1. Energy Efficiency



Pillar 2. Decarbonization of Electricity



Pillar 3. Electrification of end-uses



CHALLENGES

- NAMAs need firm institutional setting. Recently, there are changes in government organization, especially merger of Ministry of Environment with Forestry and the formation of Directorate General of Climate Change Control (DJPPPI) that is assigned as climate change vocal point. Coordination between DJPPPI and Bappenas, which has been the lead agency for NAMAs, is needed.
- The development/implementation of NAMA and Its MRV are relatively complicated (baseline development, reduction calculation, MRV setting up, etc.) while domestic capacities are still limited.
- Currently, NAMAs is less popular in international agenda compared to early days of the NAMA introduction.

LESSON LEARN

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- NAMAs development requires intensive stakeholder engagement (inter/intra sector) and capacity building
- The implementation of NAMAs requires the existence of clear legal status (umbrella) through Law and regulations
- Institutional arrangement with strong leading institutions is needed to develop strategy for the development of NAMAs including in the distribution of GHG emission reduction target. Intensive engagement with the stakeholders in this matter is necessary.
- In NAMAs implementation, there are difficulties related to the evaluation of its impact, i.e. the achievement of GHG emissions reduction due to lack of monitoring system.
- GHG emission reduction of NAMAs are estimated using project baseline as reference, therefore the aggregation of these reductions will not match with GHG emission reduction calculated using sectoral baseline (at national level). This issue is still not yet resolved. Methods or approach to link between project based (NAMAs) with national GHG emission target is needed.



Thank You

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