

Myanmar Energy Outlook:

A Country Report from EAS Energy Saving
Potential Project 2013

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Introduction to ERIA



- The formal establishment of ERIA was agreed upon by all the leaders at the 3rd East Asia Summit.

Establishment of ERIA approved by 3rd EAS, Nov 21, 2007



“13. We agreed to the establishment of the Economic Research Institute of ASEAN and East Asia (ERIA) focuses on research topics of strategic interest to the EAS countries practical policy recommendations to further regional integration and strengthen partnerships in East Asia.”

ERIA’s research focus include wide-ranging policy areas from Trade/Investment to SMEs, Human Resource development, Infrastructure, Energy, etc.

- Following the agreement at the 3rd EAS meeting, formal agreement to endorse the status of ERIA as an International Organization was concluded on December 30, 2008 between the Indonesian Government and ASEAN Secretariat.

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Outline of the Presentation



- Research Background
- Methodology
- Myanmar Energy Situation
- Myanmar Energy Outlook: BAU
- Myanmar Energy Outlook: APS
- Myanmar Power Sector
- Conclusions and Policy Implications
- Appendix: Key Assumptions and Input Data

EAS energy co-operation



East Asia Summit (EAS)

EAS Energy Minister Meeting (EMM)

Energy Cooperation Task Force (ECTF) (2nd EAS, 2007)

EMM 2011, Brunei:
ERIA Energy Unit (Apr. 2012)

Energy Efficiency and Conservation Work Stream (Japan)

Analysis of Energy Saving Potential & Energy Outlook (2007- present)

Energy Efficiency Roadmapping (2010-present)

Energy Security Index (2011-present)

Optimum electricity power infrastructure (2012-present)

Smart urban traffic (2012-present)

Energy access in Myanmar (2012-present)

Strategic usage of coal (2012-present)

Bio-fuels for Transport and other Purposes Work Stream (The Philippines & India)

Benchmarking of Biodiesel Fuel Standardization (2007-present)

Sustainability Assessment of Biomass Utilization WG (2007-present)

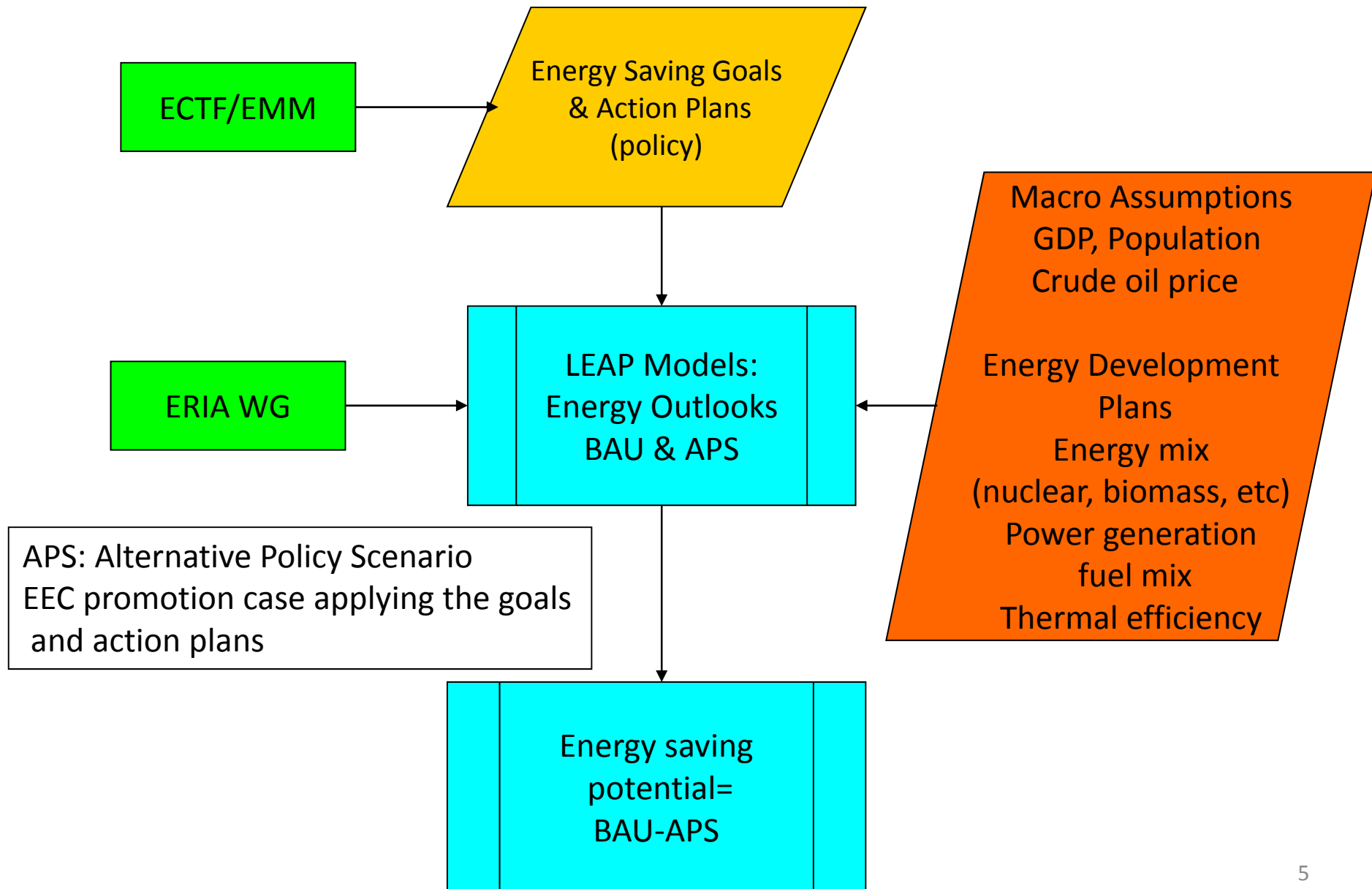
Market Potential of Biofuels (2011-present)

Sustainability assessment of geothermal use (new)

Energy Market Integration Work Stream (Singapore & Australia)

ERIA EMI Working Group (2009-present):

Research Concept



Overview of Myanmar Energy Situation I

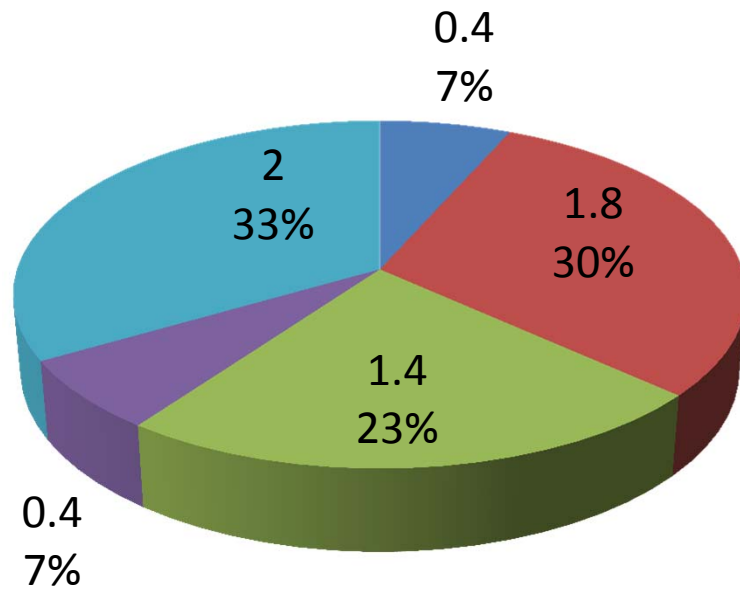


- Endowment
 - Four months of heavy monsoon and abundant sunshine all year round: Wind, Solar and Hydro energy
 - Proven reserve: 210 million barrels of crude oil; 20 tcf / 560 bcm of natural gas; 711 million metric tons of coal
- Energy Supply and Demand
 - Total primary energy consumption (TPES): 6.0 Mtoe in year 2010
 - 3,460 MW of installed power generation capacity
 - Generated 7.5 TWh of electricity in year 2010
 - A net export of energy: natural gas and coal; but imports 50% of its crude oil requirement

Overview of Myanmar Energy Situation II

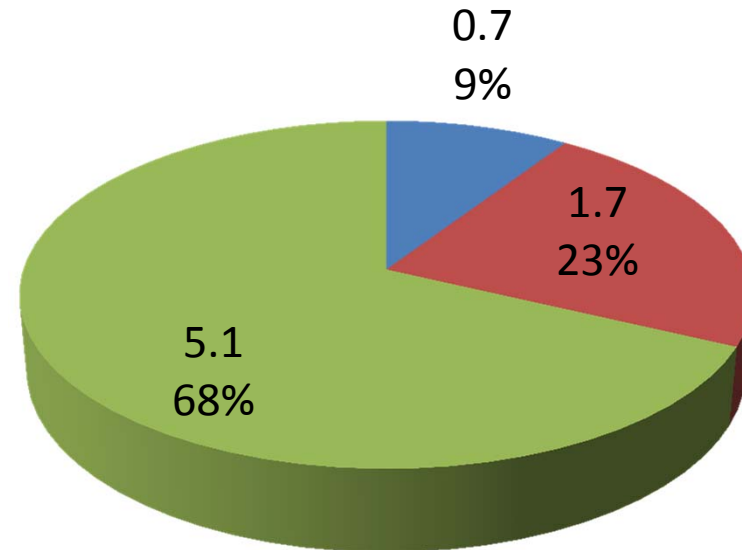


TPES (Mtoe)



- Coal
- Natural Gas
- Other
- Oil
- Hydro

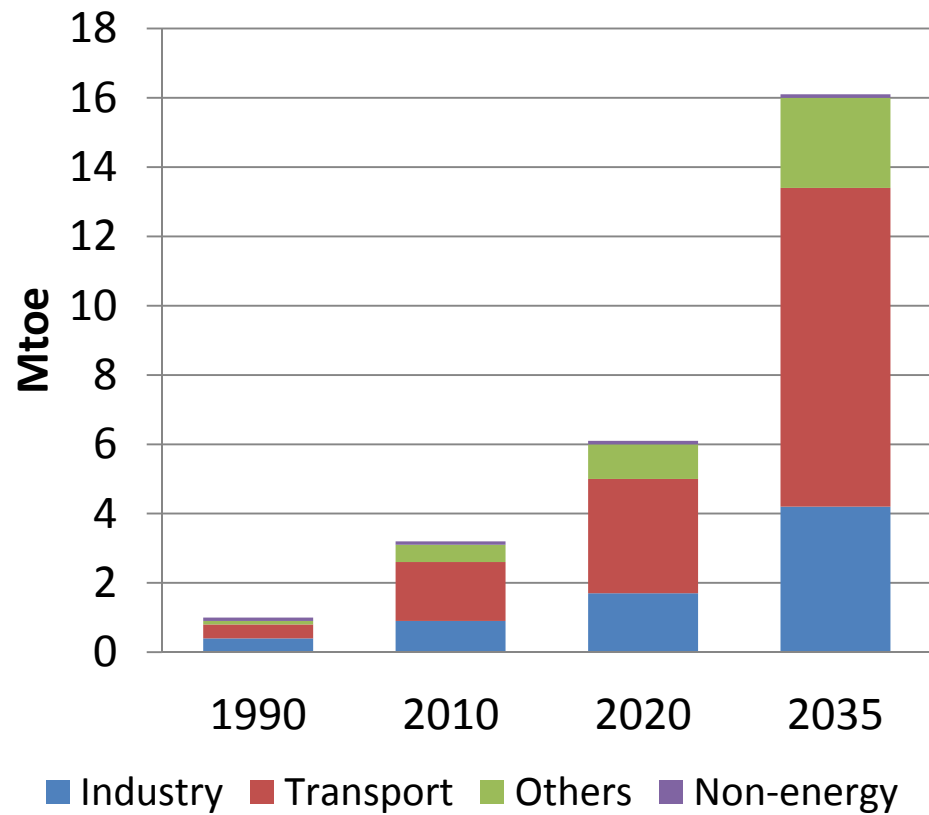
Power Generation (TWh)



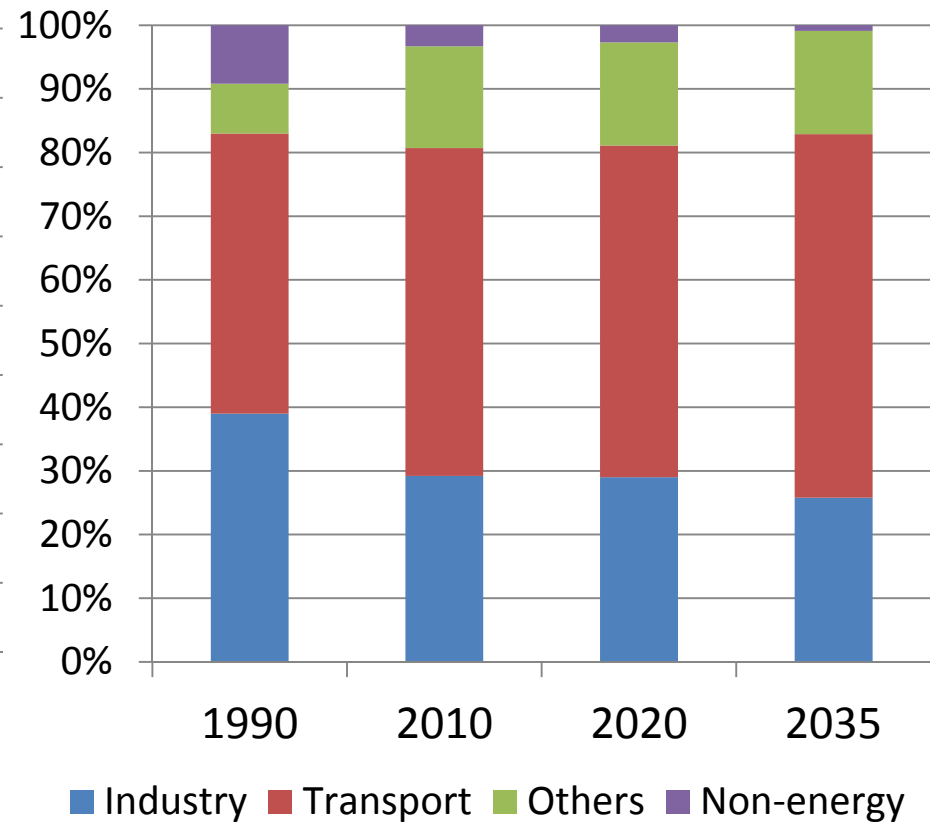
- Coal
- Natural Gas
- Hydro

Myanmar Energy Outlook (BAU): Final Energy Demand

Final Energy Demand by Sector



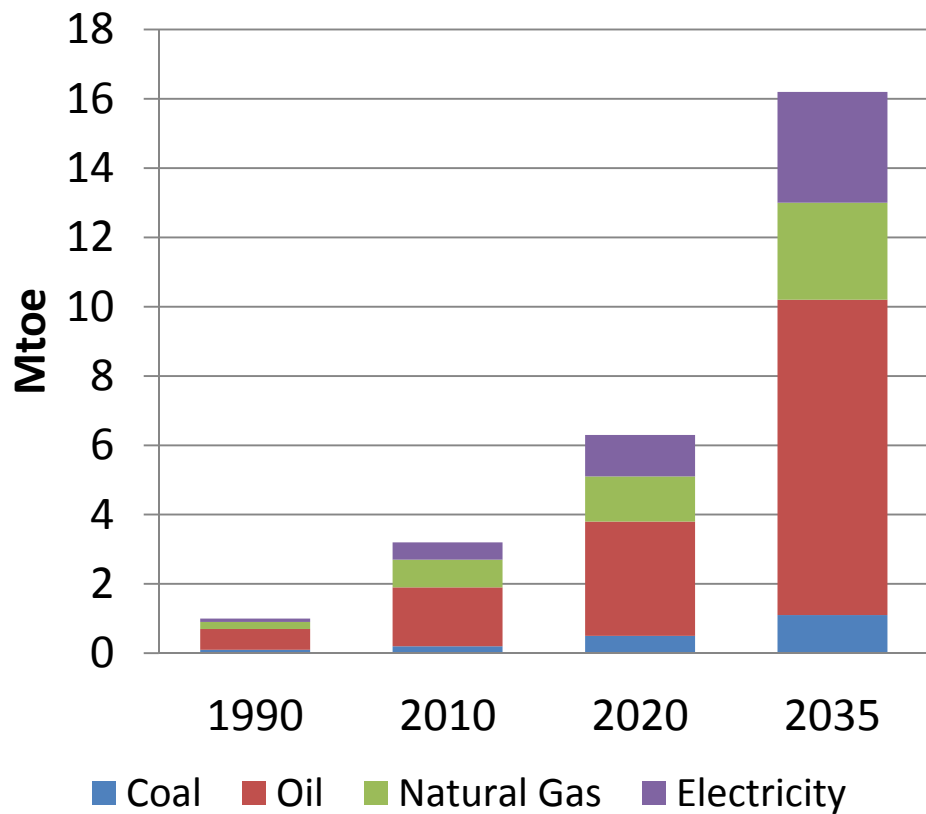
Sectoral Share



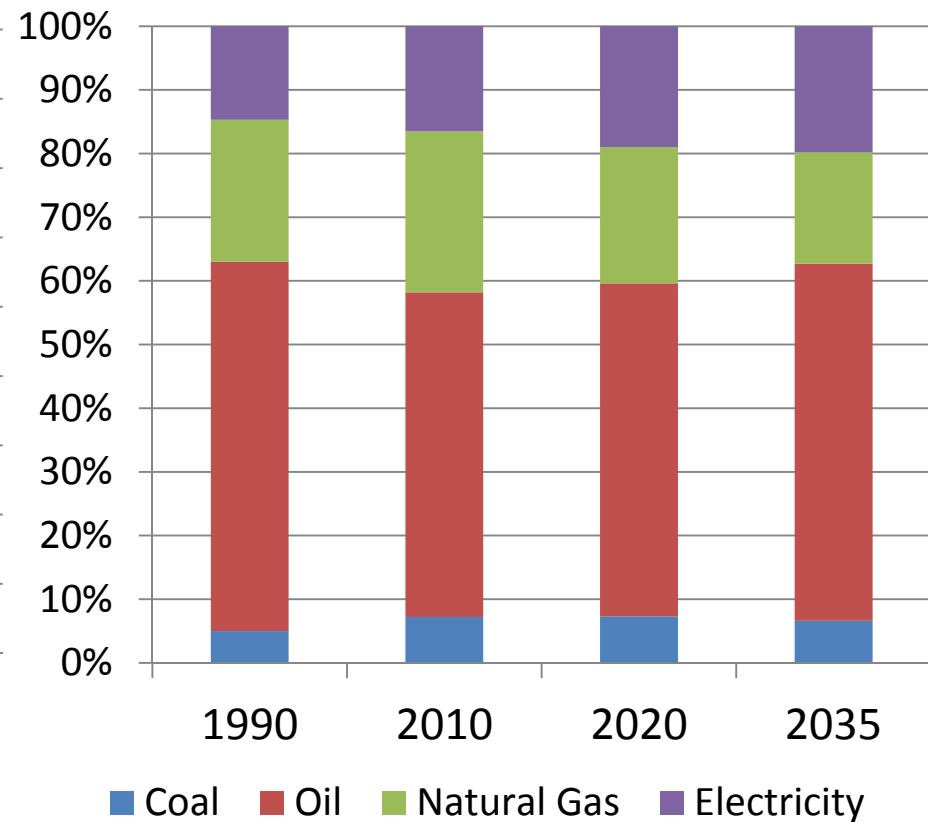
Myanmar Energy Outlook (BAU): Final Energy Demand



Final Energy Demand by Fuel



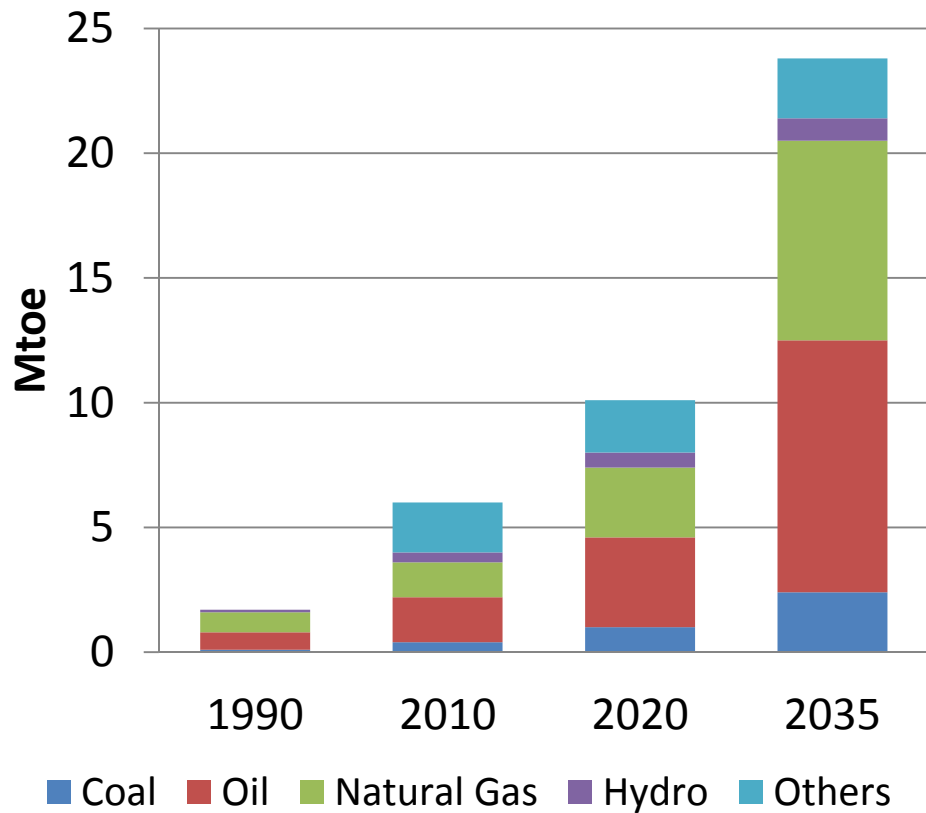
Fuel Share



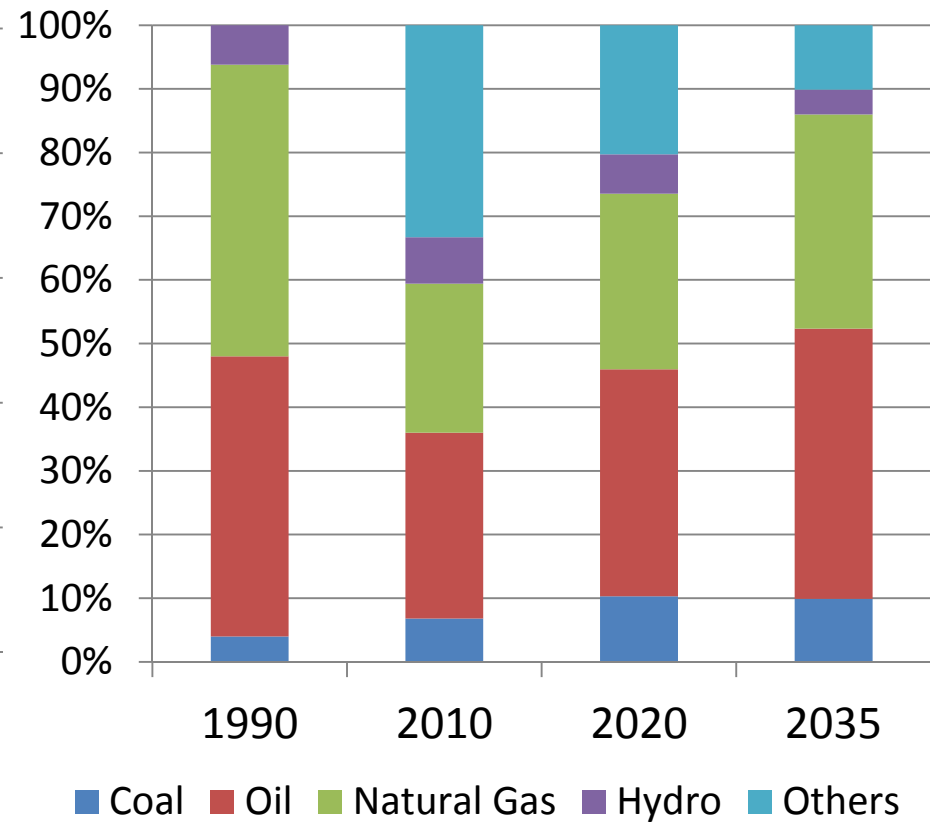
Myanmar Energy Outlook (BAU): Primary Energy Consumption



Final Energy Demand by Source



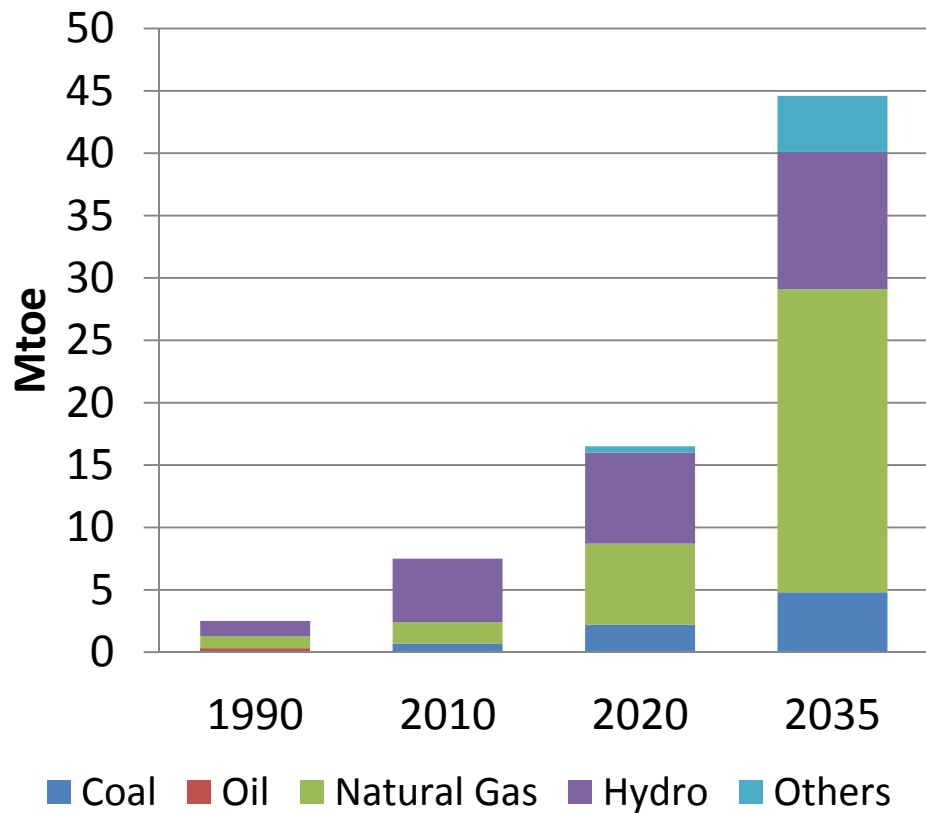
Share of Primary Energy Source



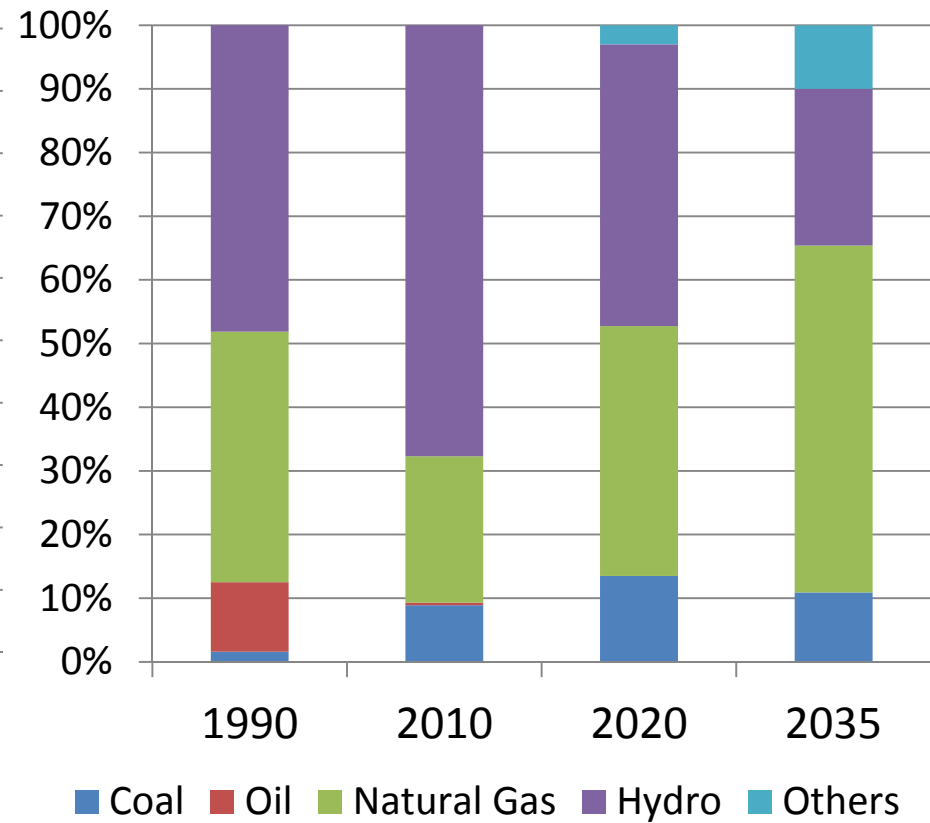
Myanmar Power Sector: Fuel Mix for Generation



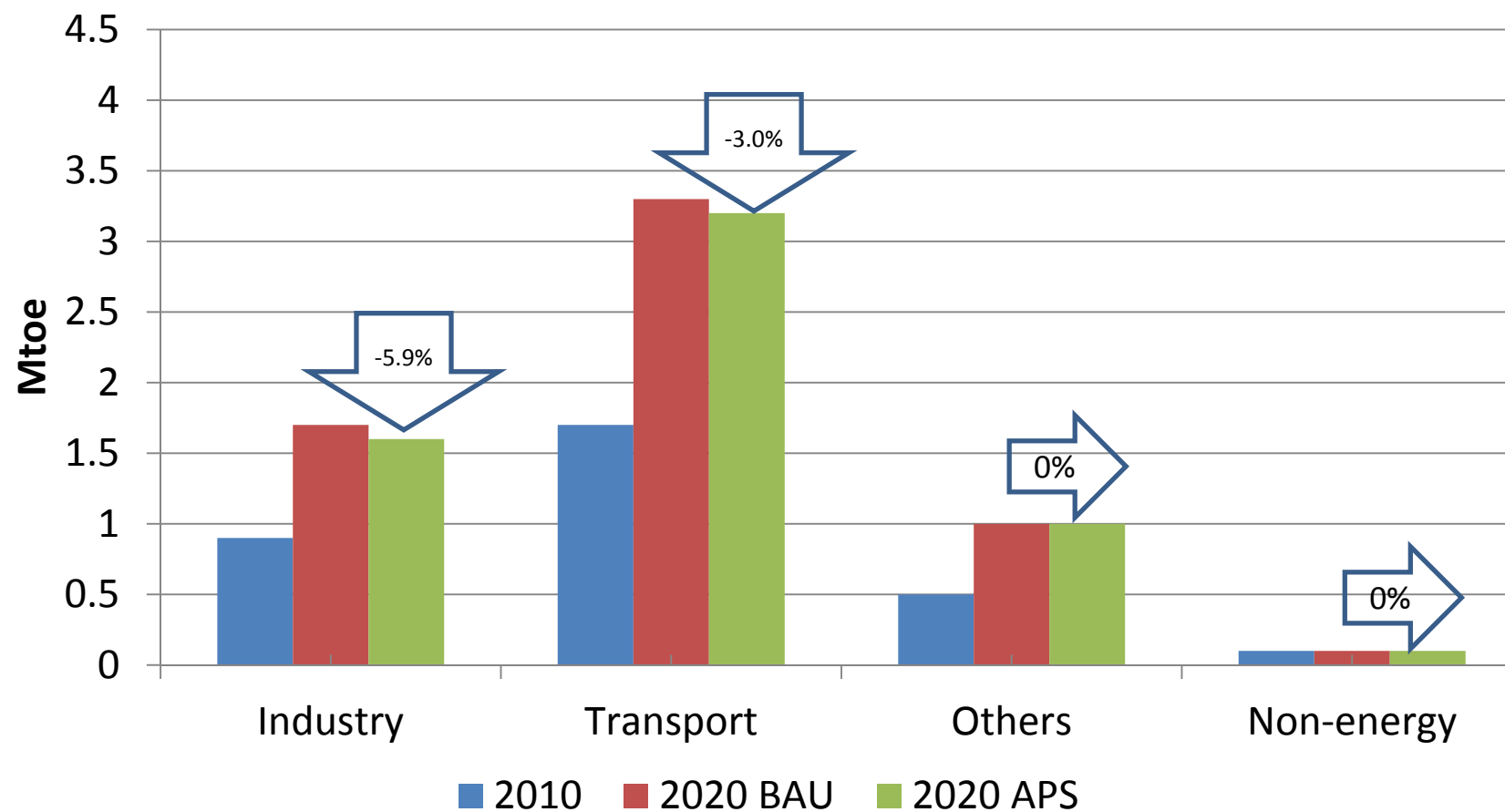
Fuel Demand by Source



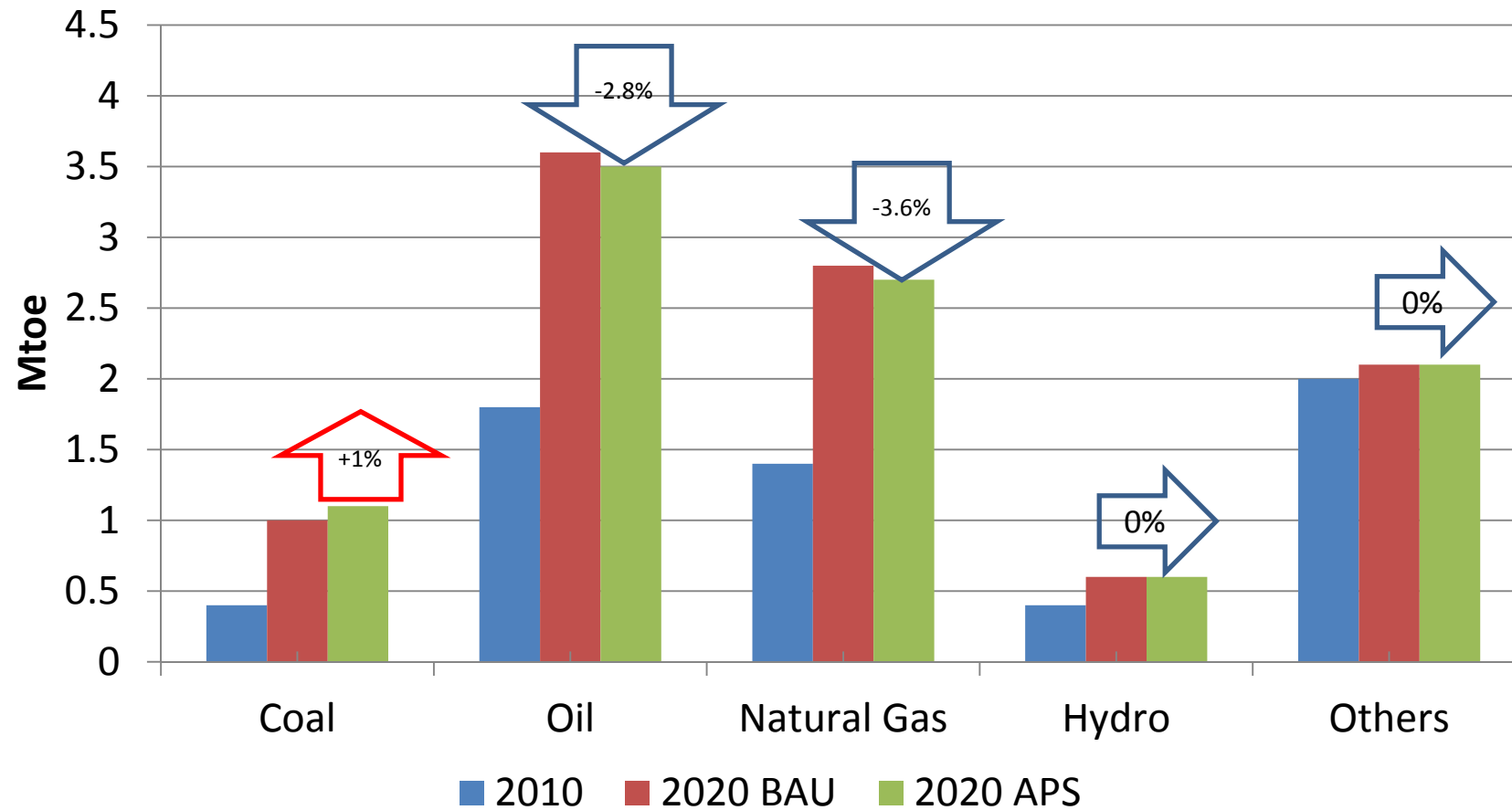
Share of Fuel



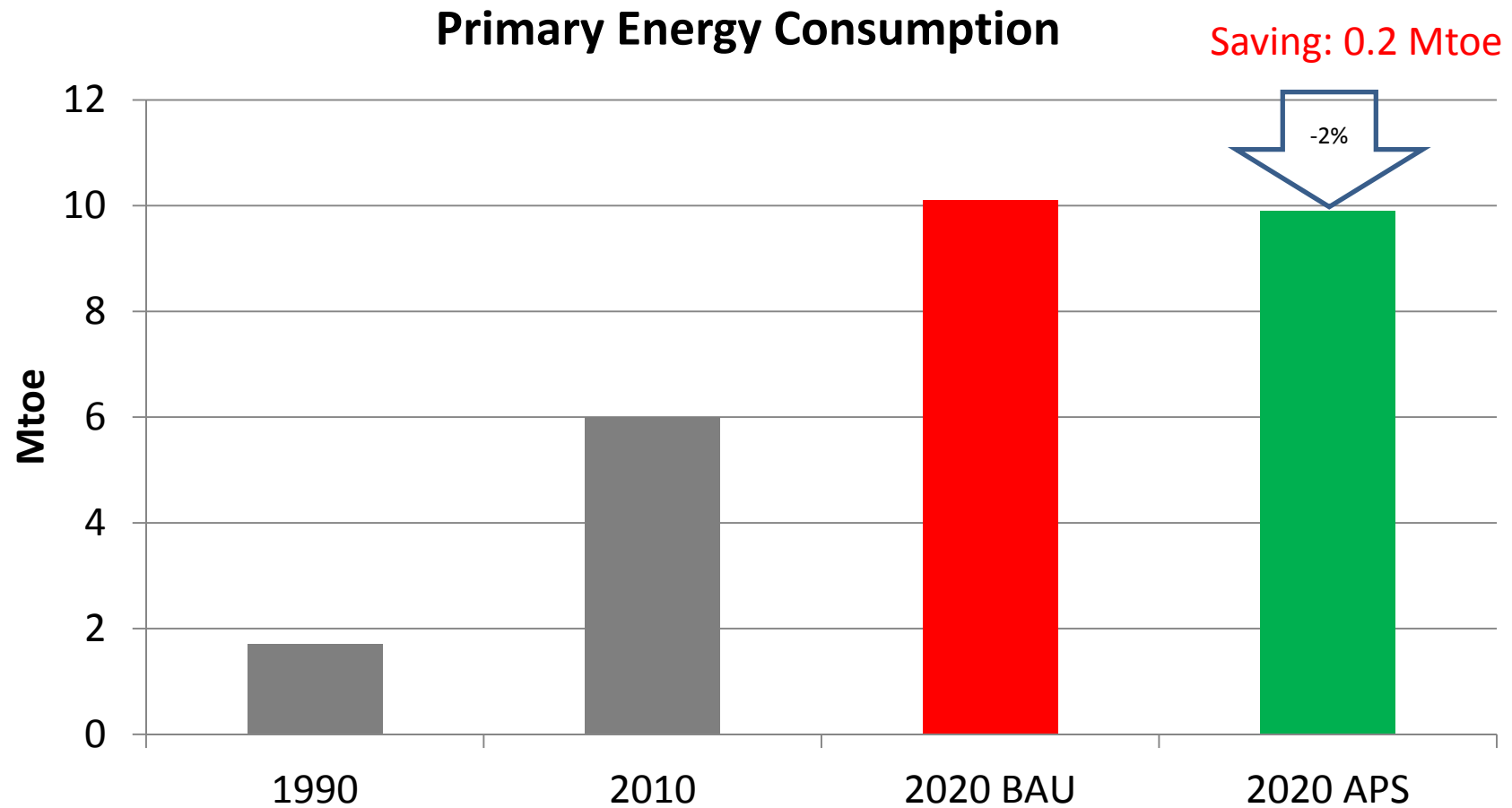
Final Energy Demand by Sector: BAU vs. APS



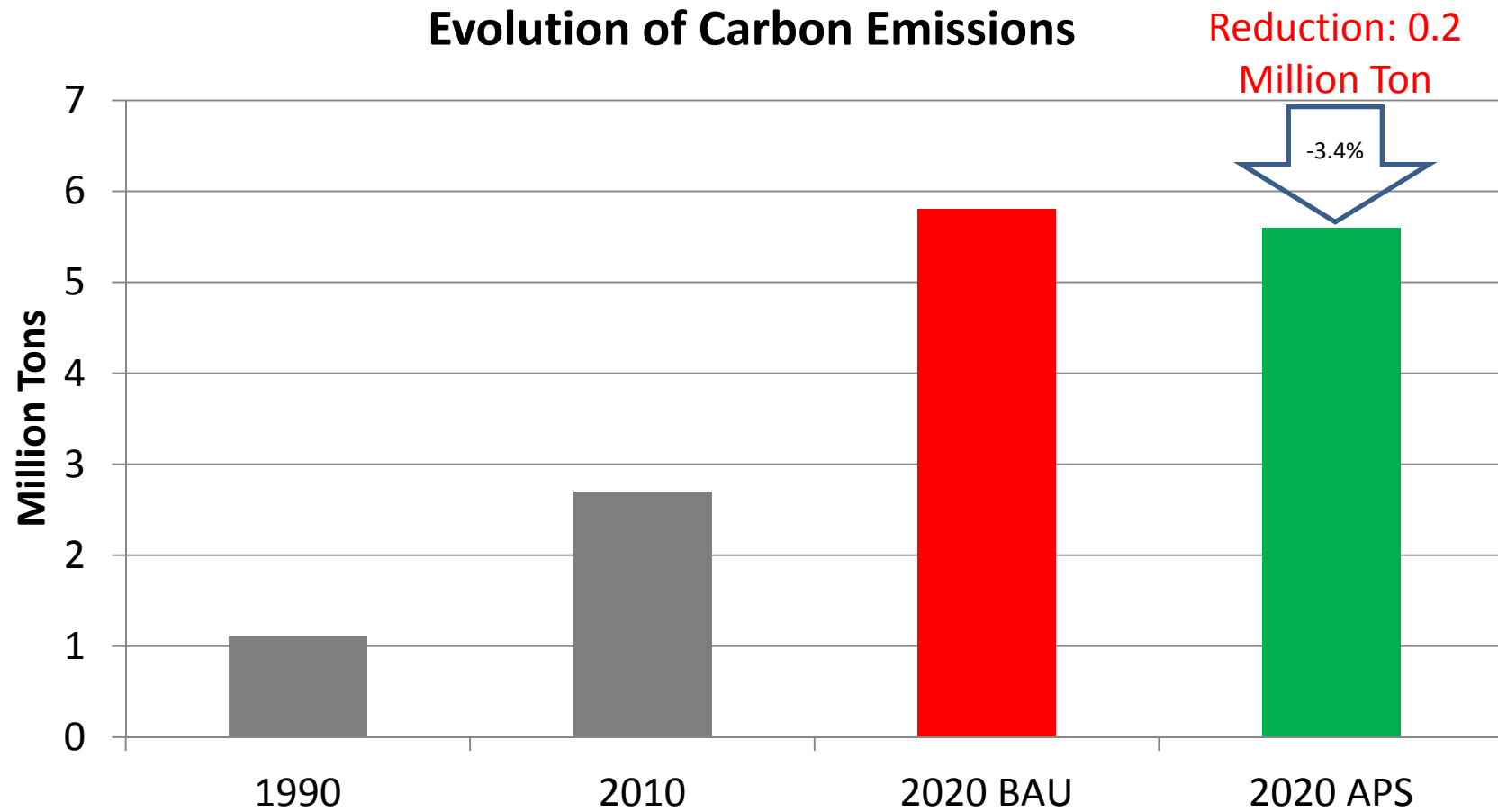
Primary Energy Consumption by Source: BAU vs. APS



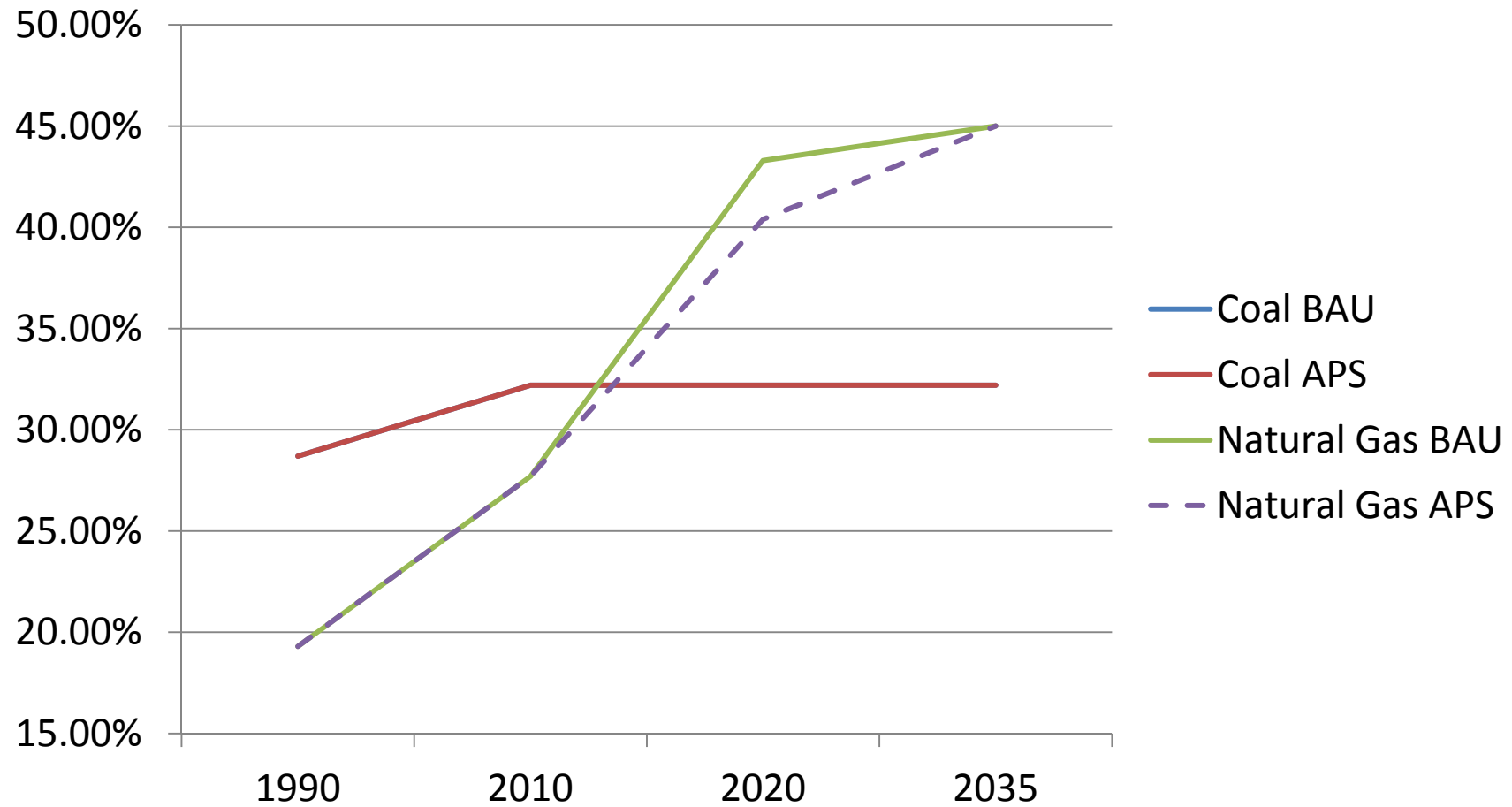
Total Savings of Primary Energy Consumption



Reduction in Carbon Emissions



Power Generation Thermal Efficiency of Myanmar



Conclusions and Policy Implications



- There is a need for a detailed and comprehensive energy sector assessment
 - Better energy statistics would be needed for better analysis of energy saving potential in Myanmar
- Needs to improve energy management practices for industrial and commercial sectors
- Requires an energy efficiency labeling program for energy service companies and appliances
- There should be an energy efficiency target for the rapidly expanding transport sector in addition to those in industrial, commercial and household sectors
- There is a need for a detailed policy mechanism for the renewable energy sector to implement the potential programs and projects
- Mid-term energy savings based on proposed measures in the APS are limited

Appendix

APPENDIX: Key Assumptions and Input Data I



- Myanmar's GDP is assumed to grow at an average annual rate of around 7.0 percent from 2010 to 2035, slowing from 1990-2010's growth of 8.9 percent.
- Population is assumed to increase by about 1.0 percent per year from 2010 to 2035.
- Alternative policy goals and action plans in the APS scenario: submitted by the energy ministers during the 6th EAS Energy Minister's Meeting (EMM) held in Phnom Penh, Cambodia on 12 September 2012

APPENDIX: Key Assumptions and Input Data II



Myanmar Energy Efficiency Initiatives

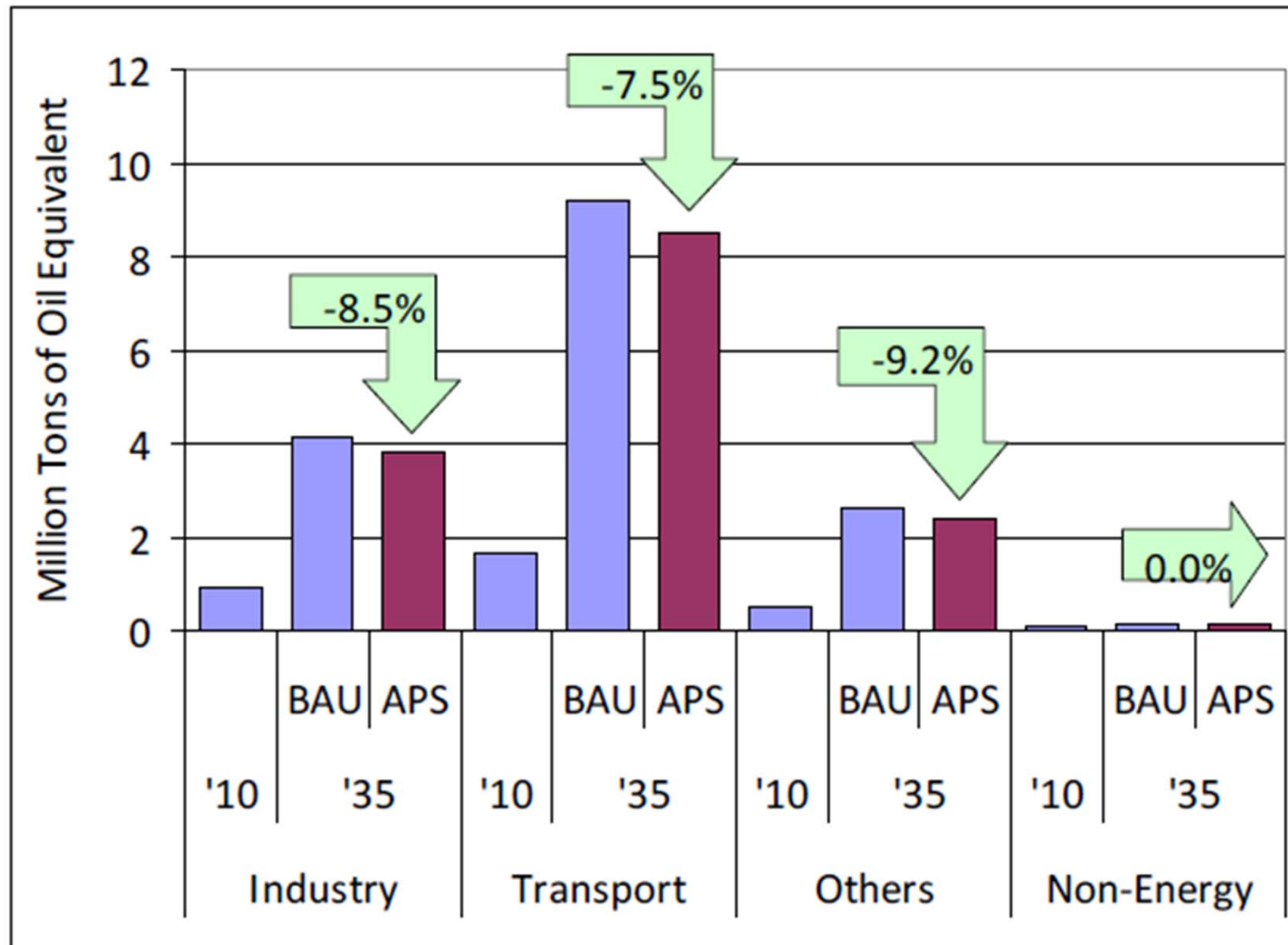
SECTORS	EEC INITIATIVES
Industrial	<ul style="list-style-type: none">- Promote introduction of equipment and facilities with high energy conservation capacity.- Develop energy statistics- Develop goals for voluntary action plans- Develop R & D and AEMAS Program
Transportation	<ul style="list-style-type: none">- Raise the fuel efficiency in terms of passenger-km, and km/liter, and- Fuel substitution with biofuels
Electricity	<ul style="list-style-type: none">- Develop technology transfer and renewable energy knowledge in rural area- Assist sustainable renewable energy application in electricity generation
Household	<ul style="list-style-type: none">- Labeling systems for buildings and appliances- Develop demand side management programs- Thorough management of energy and other resources

- Myanmar's primary energy saving goal is to reduce energy consumption by 5 percent in 2020 and 10 percent in 2030, relative to the BAU scenario.
 - In the industrial sector, improve energy efficiency by 10 percent against BAU and reduce energy related greenhouse gases by 2020.
 - In the transport sector, have biofuel (E85, biodiesel) substitution of at least 8 percent by 2020.
 - Increase the total installed power capacity of renewable energy to 15 percent by 2020.
 - Improve energy efficiency in the commercial/residential sector by 8 percent by 2020.

Appendix: APS by 2035 and Savings



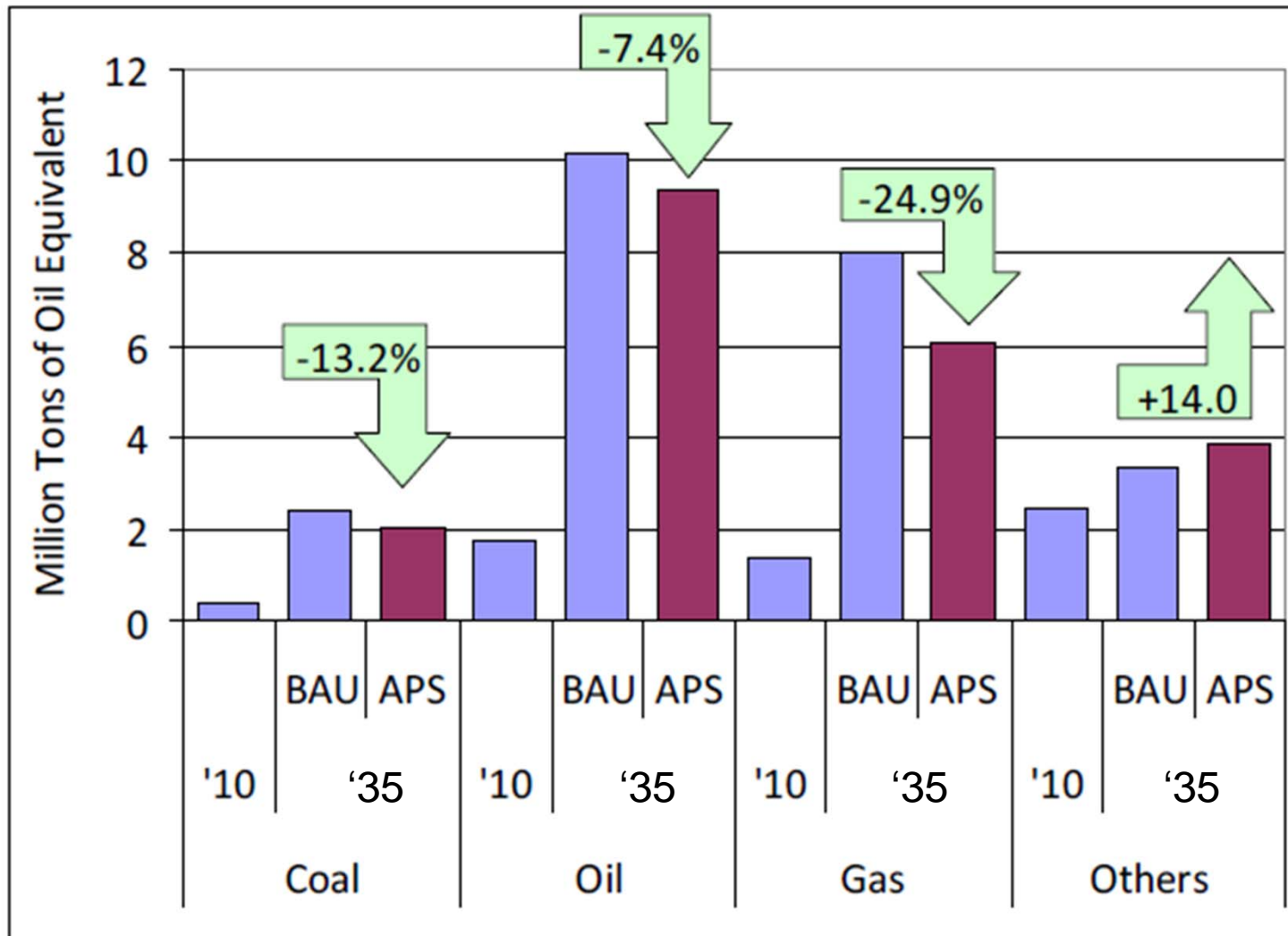
Figure 12-6: Final Energy Demand by Sector, BAU and APS



Appendix: APS by 2035 and Savings



Figure 12-7: Primary Energy Consumption by Source, BAU and APS



Appendix: APS by 2035 and Savings



Figure 12-8: Evolution of Primary Energy Consumption, BAU and APS

