

Low Emission Development Strategies Training Series

Module 1: LEDS Action Plan Overview

The Center for Climate Strategies

Kiev, June 2015



THE CENTER FOR
CLIMATE STRATEGIES

Course Overview

Purpose: Provide training to plan, launch, and implement a comprehensive, multi-objective LEADS Action Plan Process with transition to the actual Ukraine LEADS Action Plan Process

Structure: Six Modules delivered in English with simultaneous translation in Ukrainian over a three day workshop.

Material: Made available in advance and consists, for each Module, of:

- Pre-training tests and quizzes
- Chapters containing explanatory notes and narrative of the content of each Module
- In class lectures, exercises and surveys
- Post-training test and quizzes

Course Overview

Modules:

1. LEDES Action Plan Overview (Day 1 Morning)
2. LEDES Action Planning Startup – Preparation and Organization (Day 1 Morning/Afternoon)
3. LEDES Action Planning Startup – Preliminary Assessment (Day 2 Morning/Afternoon)
4. LEDES Policy Options Selection & Design (Day 3 Morning)
5. Impact Analysis of LEDES Policy Options (Day 3 Morning/Afternoon)
6. LEDES Plan Final Report, Transmittal and Implementation (Day 3 Afternoon)

Course Overview

Trainer and Technical/Facilitator Team

The [Center for Climate Strategies \(CCS\)](http://www.climatestrategies.us) helps governments and their stakeholders (over 40 states/provinces and local jurisdictions in the U.S., Mexico, China, Canada, Ukraine, Guatemala, and the Philippines) address energy, economic, and environmental issues by fostering multi objective, comprehensive, consensus-based actions through collaboration and advanced technical assistance.

Module 1: LEDS Action Plan Overview

Topics

- A. LEDS Concepts
- B. Alignment with Leadership and Country Needs
- C. LEDS Practices (Stepwise process)
- D. LEDS Examples and Results
- E. Lessons Learned from LEDS and related processes
- F. Ukraine Issues, Needs, and Opportunities

Learning Objectives

Identify objectives and scope of a LEDS Action Plan and related process:

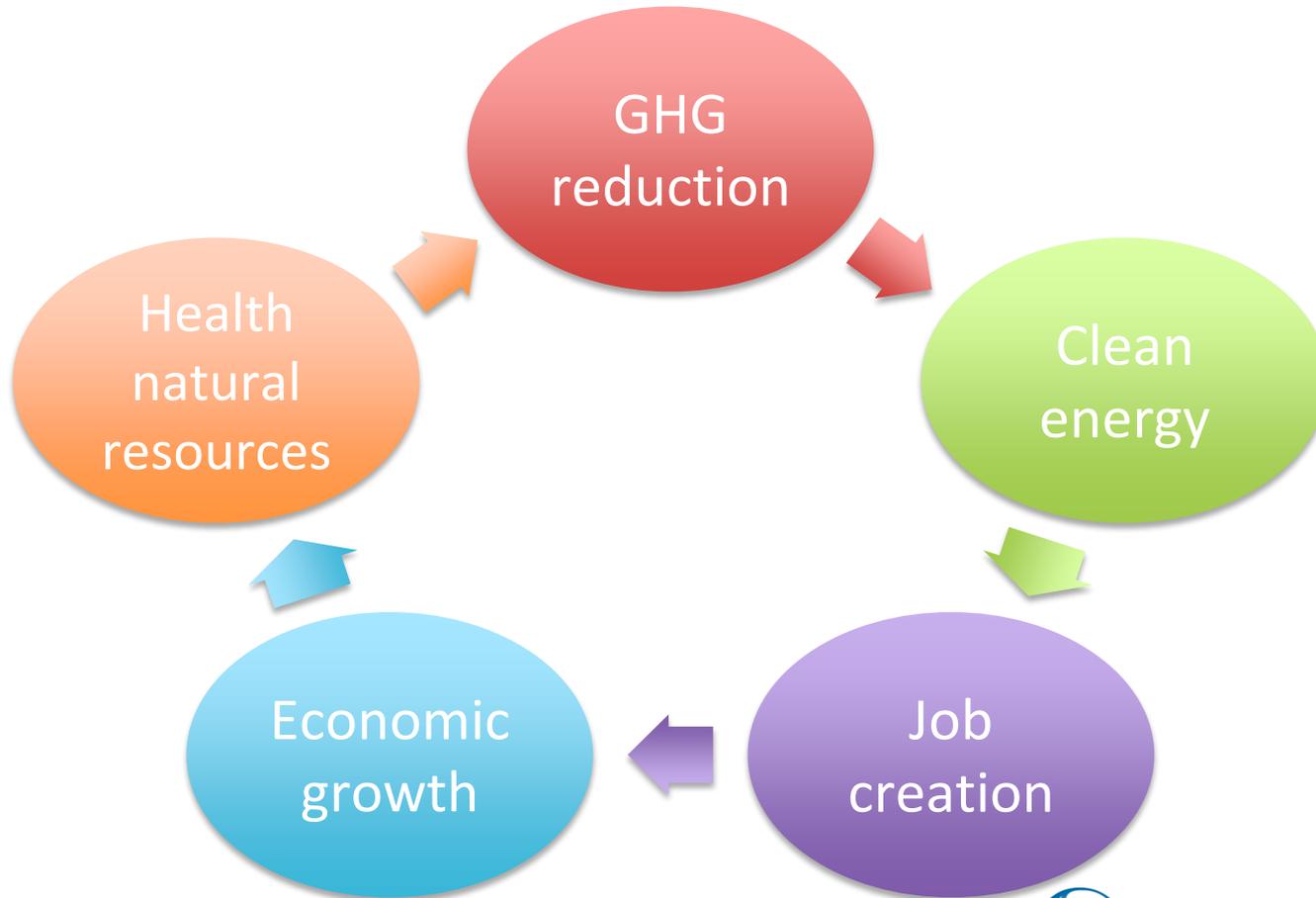
- Multi-objective 3E approach
- Self-interest driven, customized to Ukraine needs
- Comprehensive scope (all energy sectors, mechanisms and levels of governments)
- High-level leadership commitments
- Preliminary and joint fact finding, and joint policy development

LEDS Concepts

LEDS is a comprehensive, collaborative, step-wise, multi-objective process designed to help countries establish their own policies, goals, and decisions to reduce greenhouse gas (GHG) emissions and simultaneously improve their economic and energy systems in a fair and equitable manner that is fully implementable.

LEDS Concepts

Comprehensive Approach: Multi-Objective



LEDS Concepts

Ukraine Economic Indicators

Source: Trading Economics, May 2015



SOURCE: WWW.TRADINGECONOMICS.COM | STATE STATISTICS SERVICE OF UKRAINE

LEDS Concepts

Ukraine Hydrocarbon Reserves

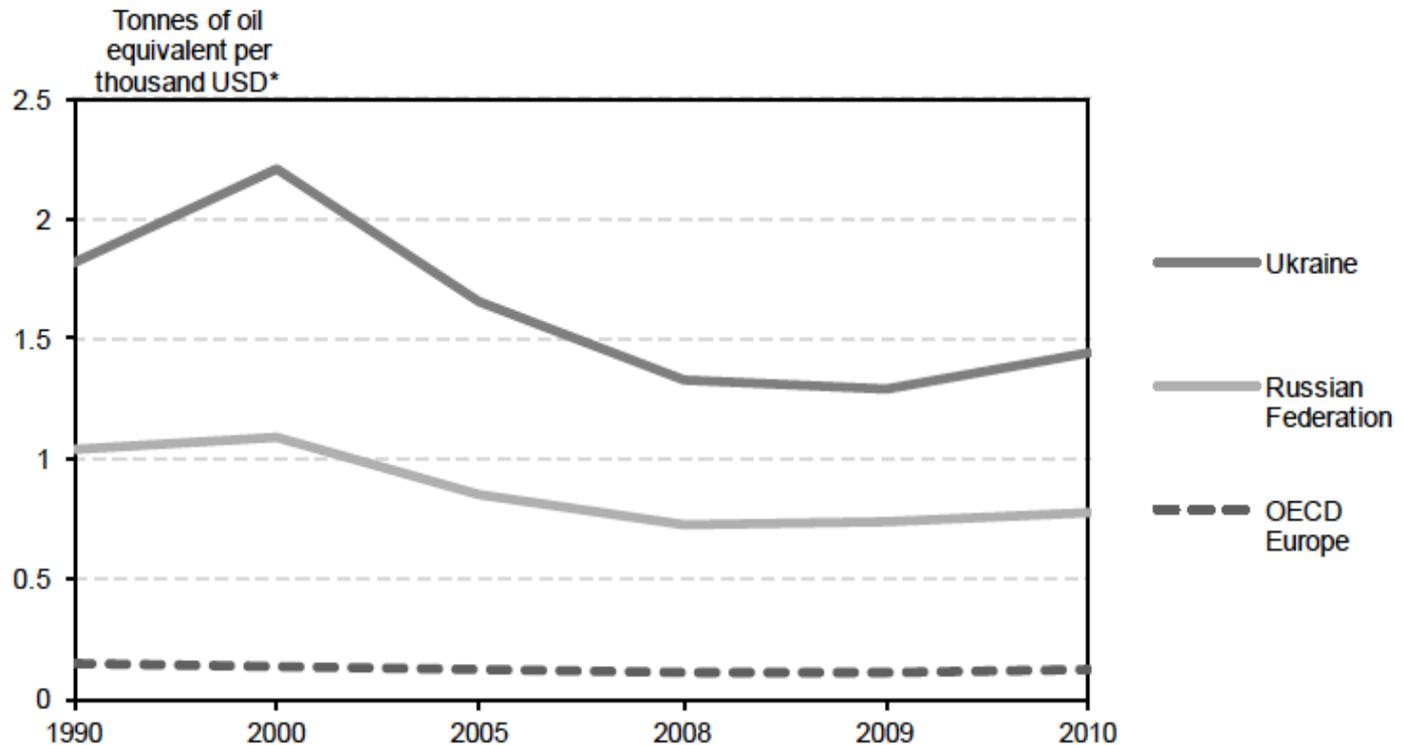


This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

LEDS Concepts

Ukraine Energy Intensity

Figure 2.5 Energy intensity indicators in select countries (TPES/GDP)



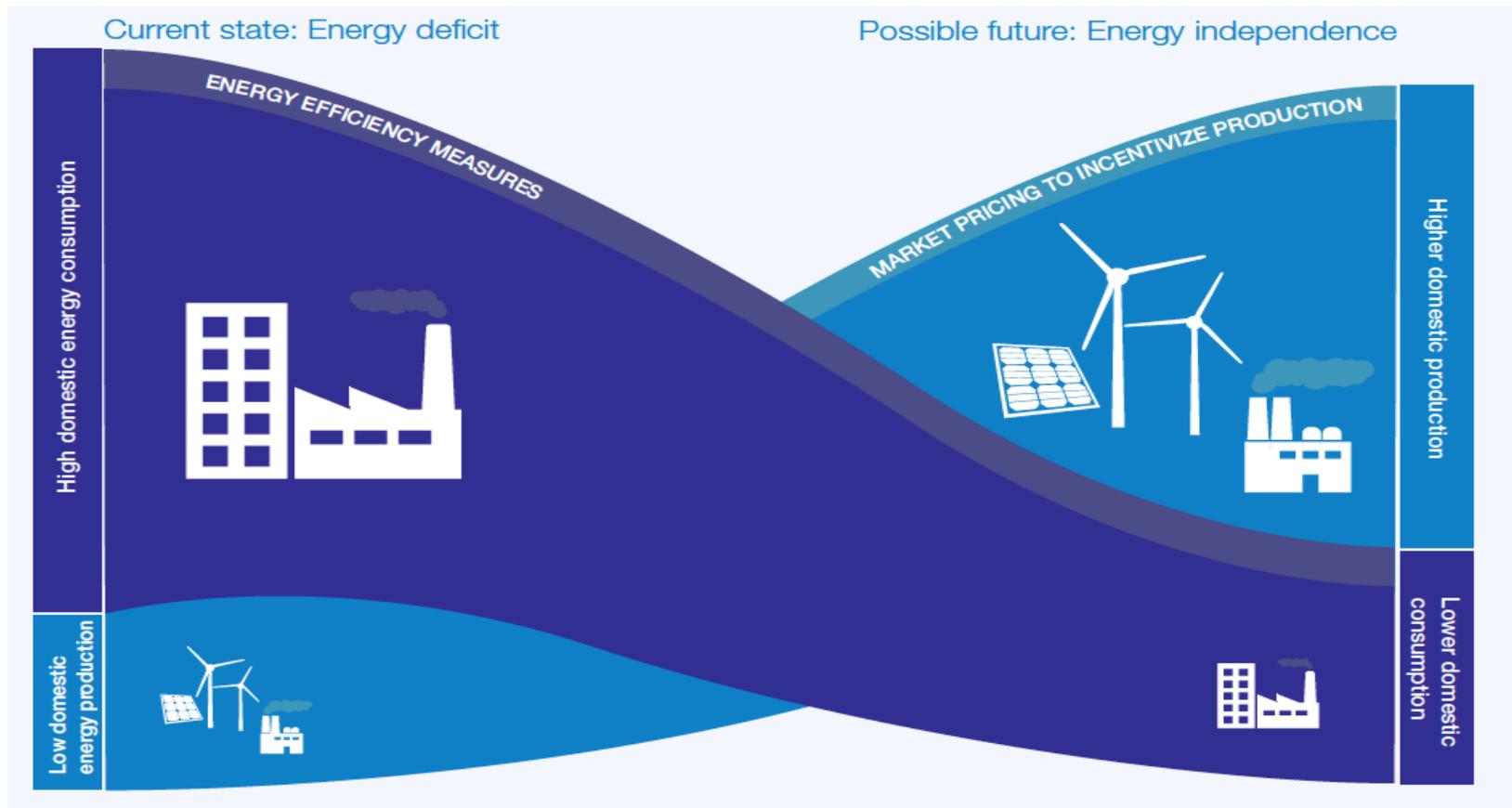
* GDP in 2005 US dollars.

Source: IEA (2012), *Energy Balances of Non-OECD Countries*, OECD/IEA, Paris.

LEDS Concepts

Ukraine Energy Intensity

Source: World Economic Forum, Scenarios for Ukraine, April 2014



LEDS Concepts

Global Temperatures

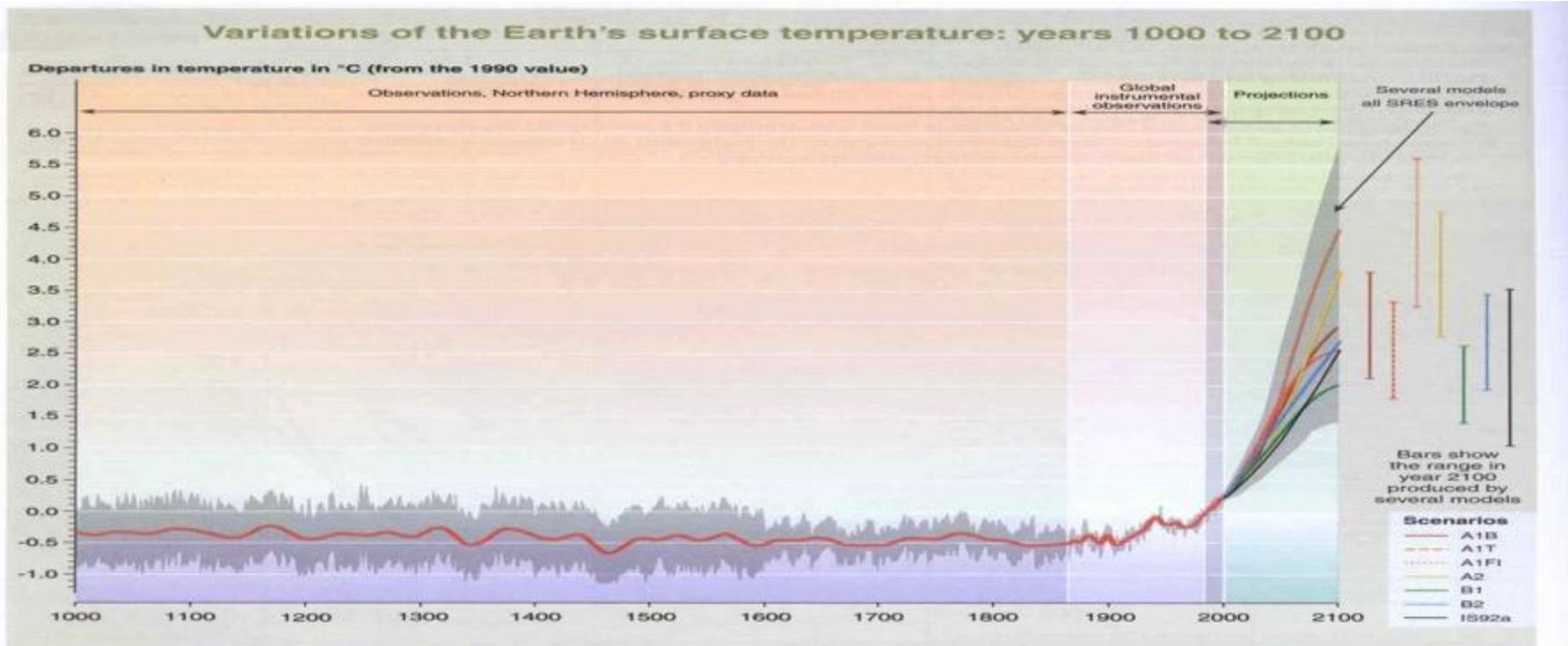


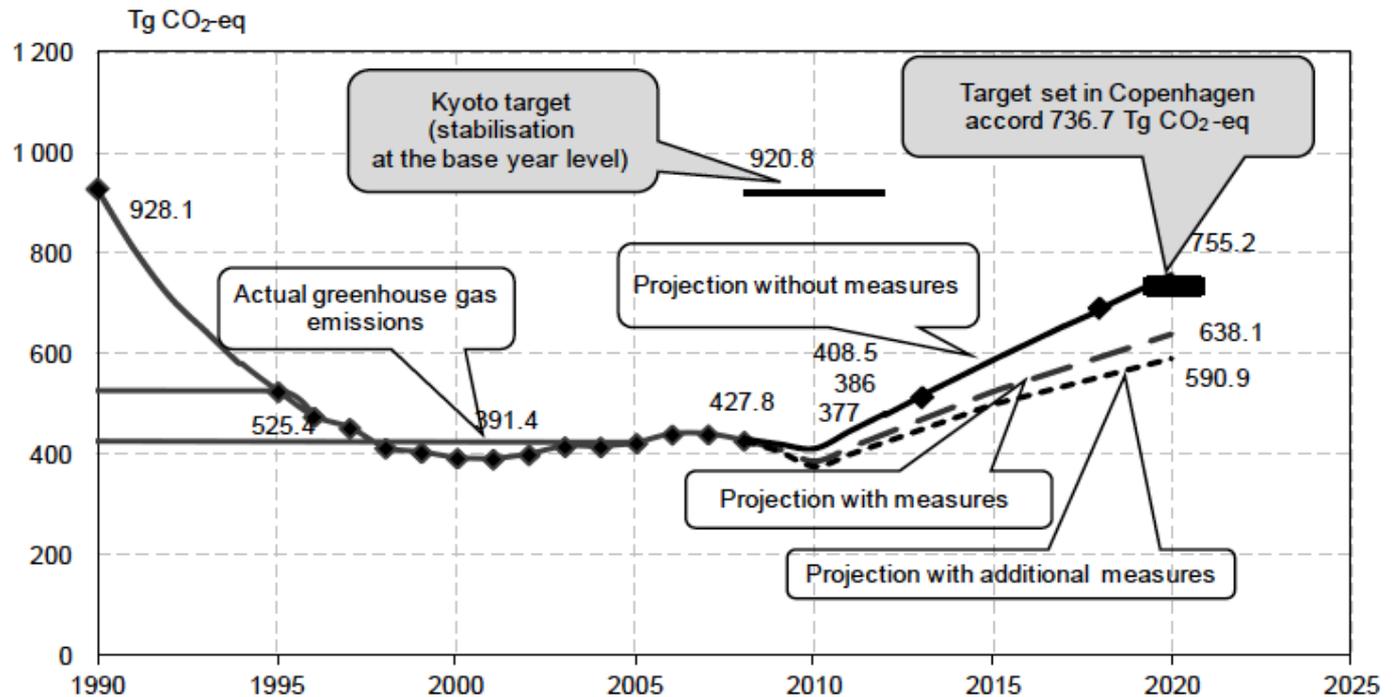
Figure SPM-10b: Variations of the Earth's surface temperature: years 1000 to 2100. From year 1000 to year 1860 variations in average surface temperature of the Northern Hemisphere are shown (corresponding data from the Southern Hemisphere not available) reconstructed from proxy data (tree rings, corals, ice cores, and historical records). The line shows the 50-year average, the grey region the 95% confidence limit in the annual data. From years 1860 to 2000 are shown variations in observations of globally and annually averaged surface temperature from the instrumental record; the line shows the decadal average. From years 2000 to 2100 projections of globally averaged surface temperature are shown for the six illustrative SRES scenarios and IS92a using a model with average climate sensitivity. The grey region marked "several models all SRES envelope" shows the range of results from the full range of 35 SRES scenarios in addition to those from a range of models with different climate sensitivities. The temperature scale is departure from the 1990 value; the scale is different from that used in Figure SPM-2.

Q9 Figure 9-1b

LEDS Concepts

Ukraine Carbon Emissions

Figure 5.2 GHG emissions projections



Note: emissions are without land use, land-use change and forestry.

Source: United Nations Framework Convention on Climate Change (UNFCCC), 2011, *Report of the In-depth Review of the Fifth National Communication of Ukraine*, FCCC/IDR.5/UKR, 27 September 2011, UNFCCC, Bonn, Germany.

LEDS Concepts

Comprehensive Approach: Metrics

Economic

GDP, employment, personal income, market capture, investment capture, trade

Energy and Resources

Intensity, diversity, imports, affordability, cost, sustainability, market penetration

Emissions

Tonnages, intensity, health and resource co-benefits

Equity

Personal income distribution, business size, geographic location

LEDS Concepts

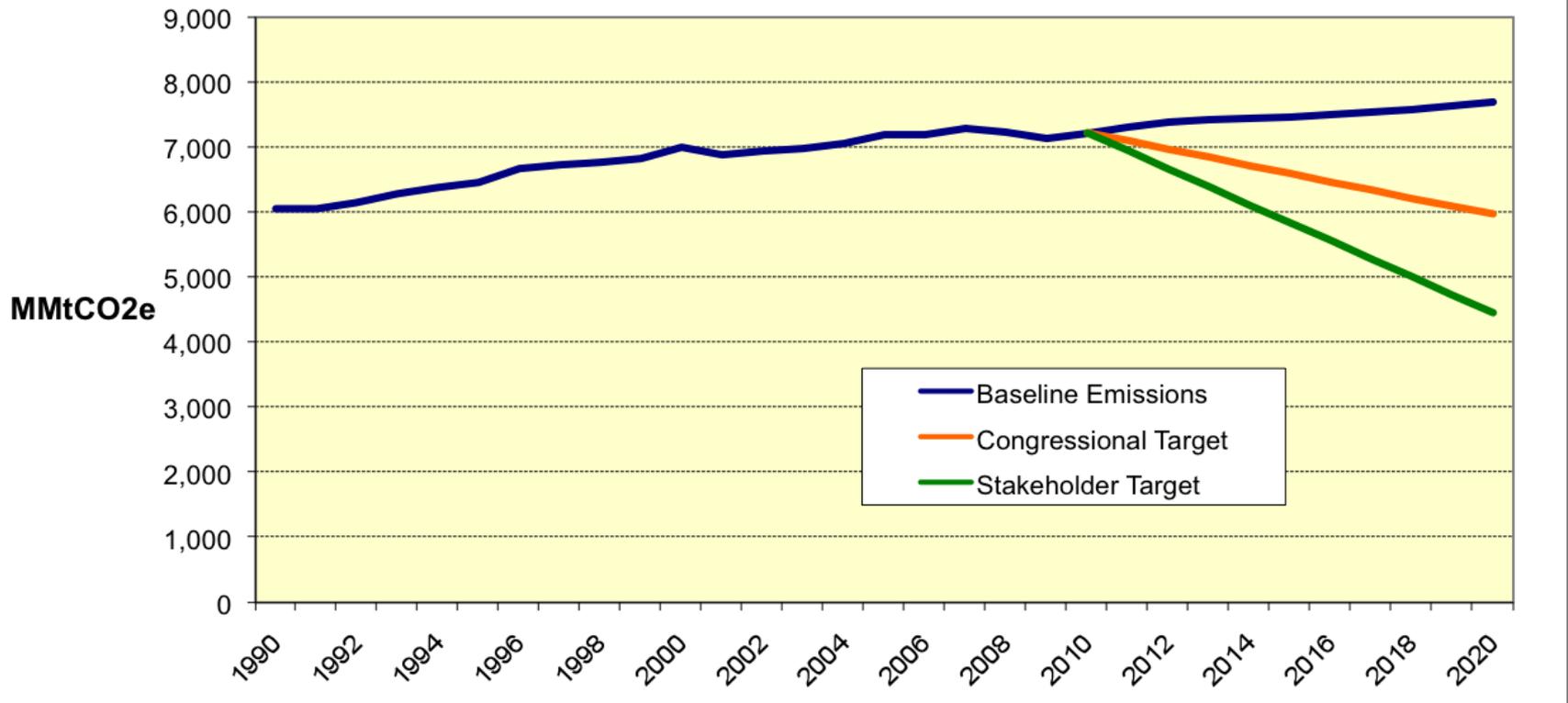
Comprehensive Approach



LEDS Concepts

Comprehensive Approach

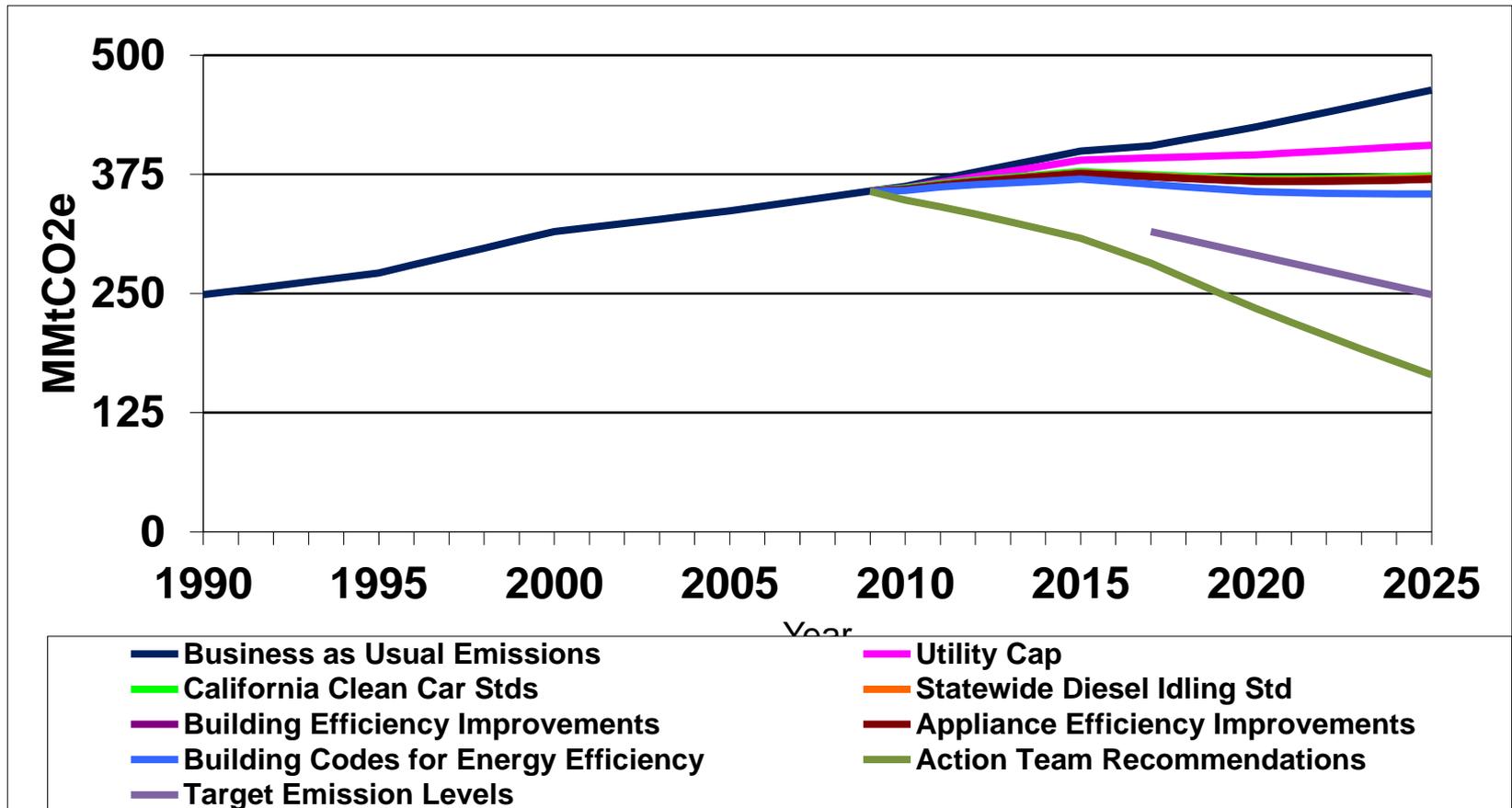
**1990-2020 U.S. GHG Reduction Potential,
Congressional Target and Stakeholder Target Scenarios**
Center for Climate Strategies, 2010



LEDS Concepts

Comprehensive Approach

Source: Florida Energy and Climate Plan



LEDS Concepts

Comprehensive Approach: All Sectors

Energy Supply (Power,
Fuel & Heat)

- Renewable and Low Emitting Sources

Residential, Commercial,
Industrial & Institutional

- Efficiency, Conservation and Process Improvements

Transportation and Land
Use

- Efficiency, Low emitting Fuels

Agriculture, Forestry &
Fisheries

- Land Protection and Management

Waste Management

- Conservation and Reuse

LEDS Concepts

Comprehensive Approach: All Implementation Mechanisms

Implementation Mechanisms	Codes & Standards	Market-Based and Pricing Mechanisms	Funding Mechanisms	Voluntary Agreements	Technical Assistance	Information & Education
Energy Supply	?	?	?	?	?	?
Industrial	?	?	?	?	?	?
Residential/ Commercial/ Institutional	?	?	?	?	?	?
Transportation & Land Use	?	?	?	?	?	?
Agriculture/ Forestry/ Fisheries	?	?	?	?	?	?
Waste Management	?	?	?	?	?	?
Cross Cutting	?	?	?	?	?	?



LEDS Concepts

Comprehensive Approach: All spatial levels

- LEDS is needed at a number of spatial levels:
 - Local—municipal land-use planning to promote the use of low-carbon transport modes and green energy sources
 - Regional—provincial financial or utility policies to encourage investment in energy efficiency, or promote reforestation
 - National—Vehicle or appliance efficiency standards applied nationwide, or nationwide carbon taxes
- Coordination between levels is often crucial to maximizing the effectiveness of LEDS plans

LEDS Concepts

Country Driven Process

- Addressing national vision
- Customized to country's needs
 - Self interest
 - Agency priorities
 - Local Barriers
 - Immediate, burning Ukraine issues

LEDS Concepts

Leadership from the Top, Creation from the Bottom Up

- Comprehensive
- Stepwise
- Participatory and Collaborative
- Expert-based
- Fact-based
- Implementation driven

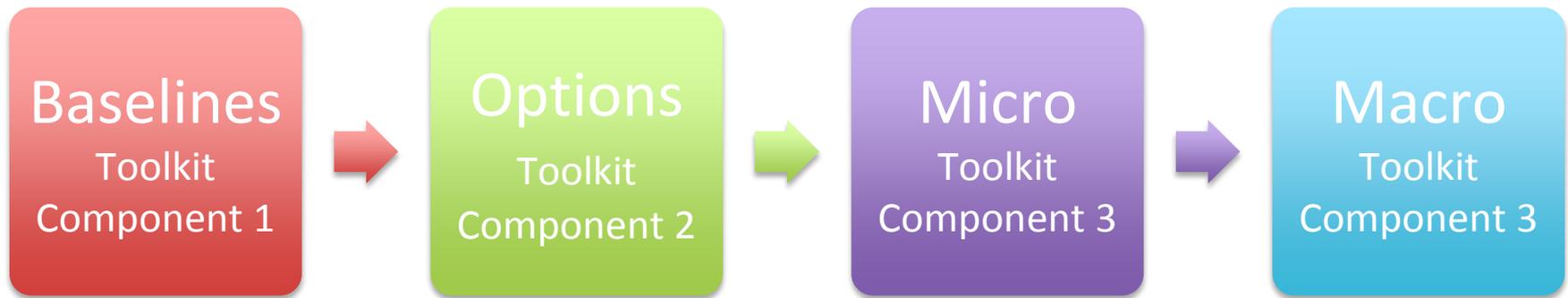
LEDS Practices

Stepwise Process



LEDS Practices

Analytical Process



LEDS Practices

- LEDS shares many objectives and methods with a number of related concepts:
 - “Green Growth Planning”
 - “Sustainable Development”
 - “Low Carbon Development”
 - “Energy, Environmental and Economic (3E)” Planning
 - “Security and Sustainability Planning”

LEDS Examples and Results

Developing and Assessing Economic, Energy, and Climate Security and Investment Options for the US

2012 International Energy Workshop Paper

LEDS Examples and Results

3E Approach

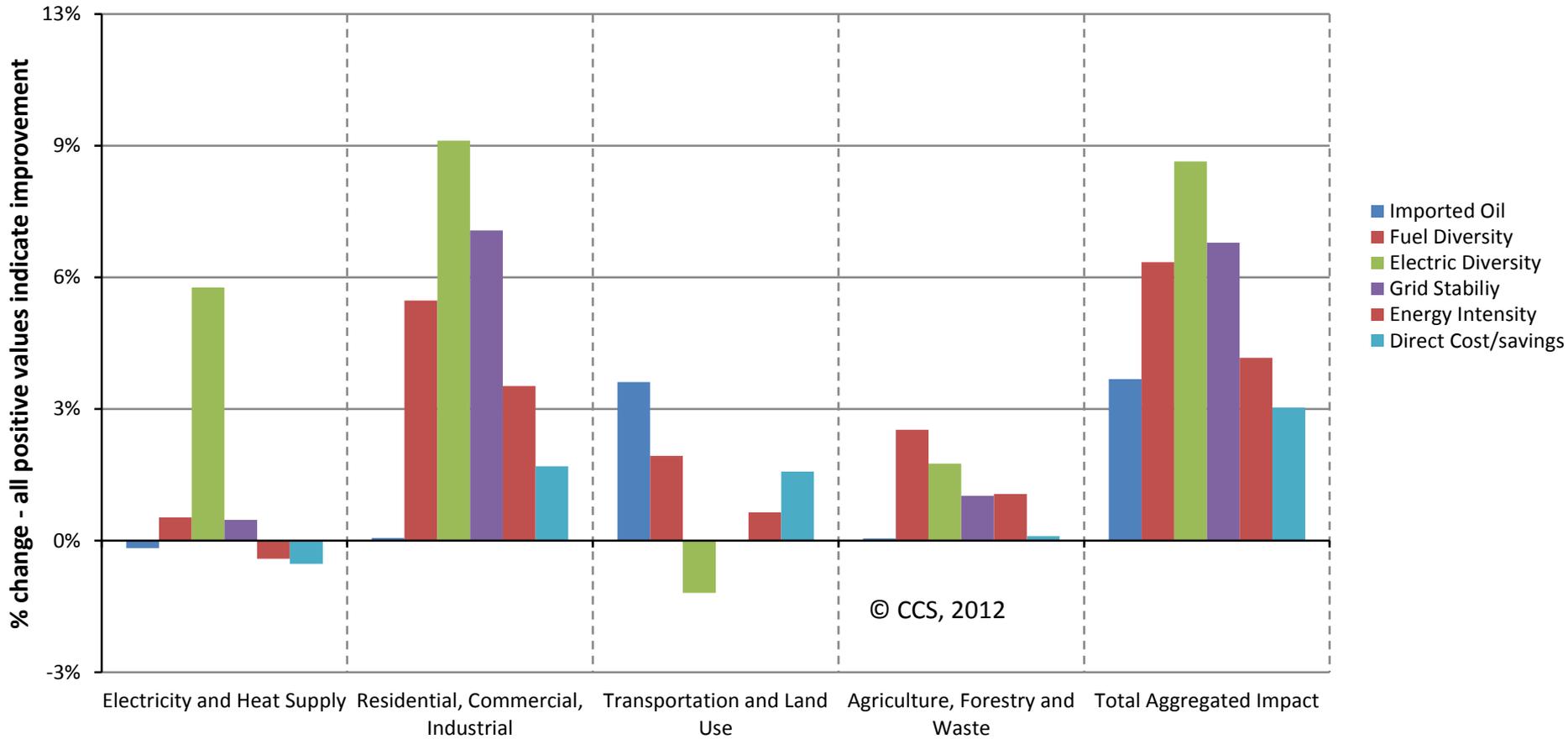
Key findings of the report included:

- Low-carbon policy actions at the state and national levels have been successful at reducing national greenhouse gas emissions independent of changes in the economy. And more opportunities exist.
- Properly selected and designed policies can generate net positive effects on the economy, energy security and sustainability, and pollution reduction
- These actions in aggregate offer sizable macroeconomic, energy security, and environmental benefits
- It is possible to identify a comprehensive set of actions in each sector that individually attain net positive results for economic, energy and environmental security through proper selection, design and implementation.



LEDS Examples and Results

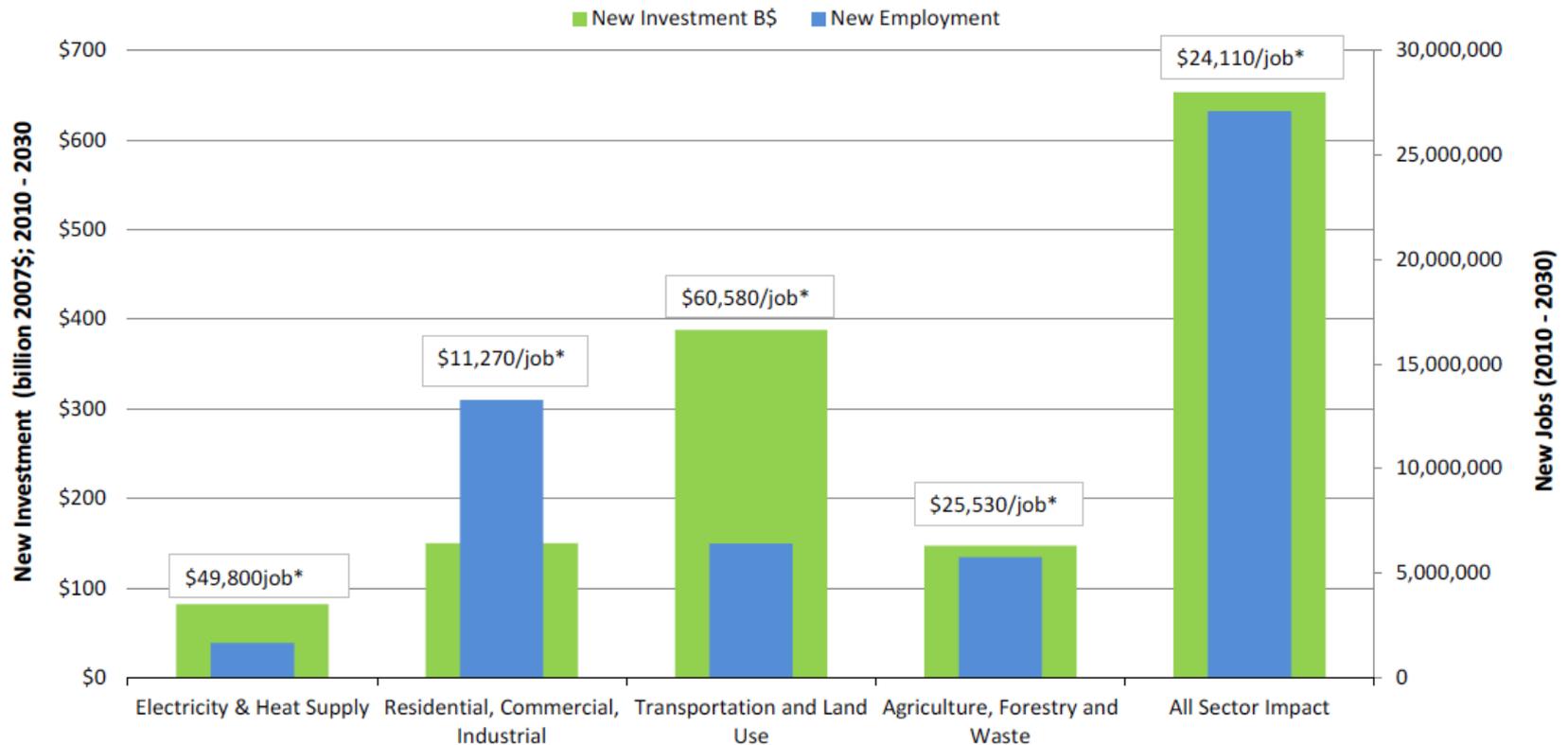
Energy Security Metrics



LEDS Examples and Results

Investments and Job Security

Security Investment and Jobs 2010 - 2030



*job = employee-year over the period

LEDS Examples and Results

Investments and Job Security

1. Cost effective actions increase economic efficiency and expansion

2. Energy savings actions cut energy costs, stimulate labor investment

3. Shifts to indigenous vs. imported energy and resources cut capital outflows

6. Labor intensive activities create more jobs, even if at higher cost (up to a point)

5. New investment from outside sources stimulates labor investment at home

4. Actions supported by local vs. distant supply chains cut job outflows

From “Summary of Key Factors Contributing to Macroeconomic Impacts of GHG Mitigation Options”

Dan Wei, Adam Rose, and Noah Dormady, CCS/USC 2011

www.climatestrategies.us

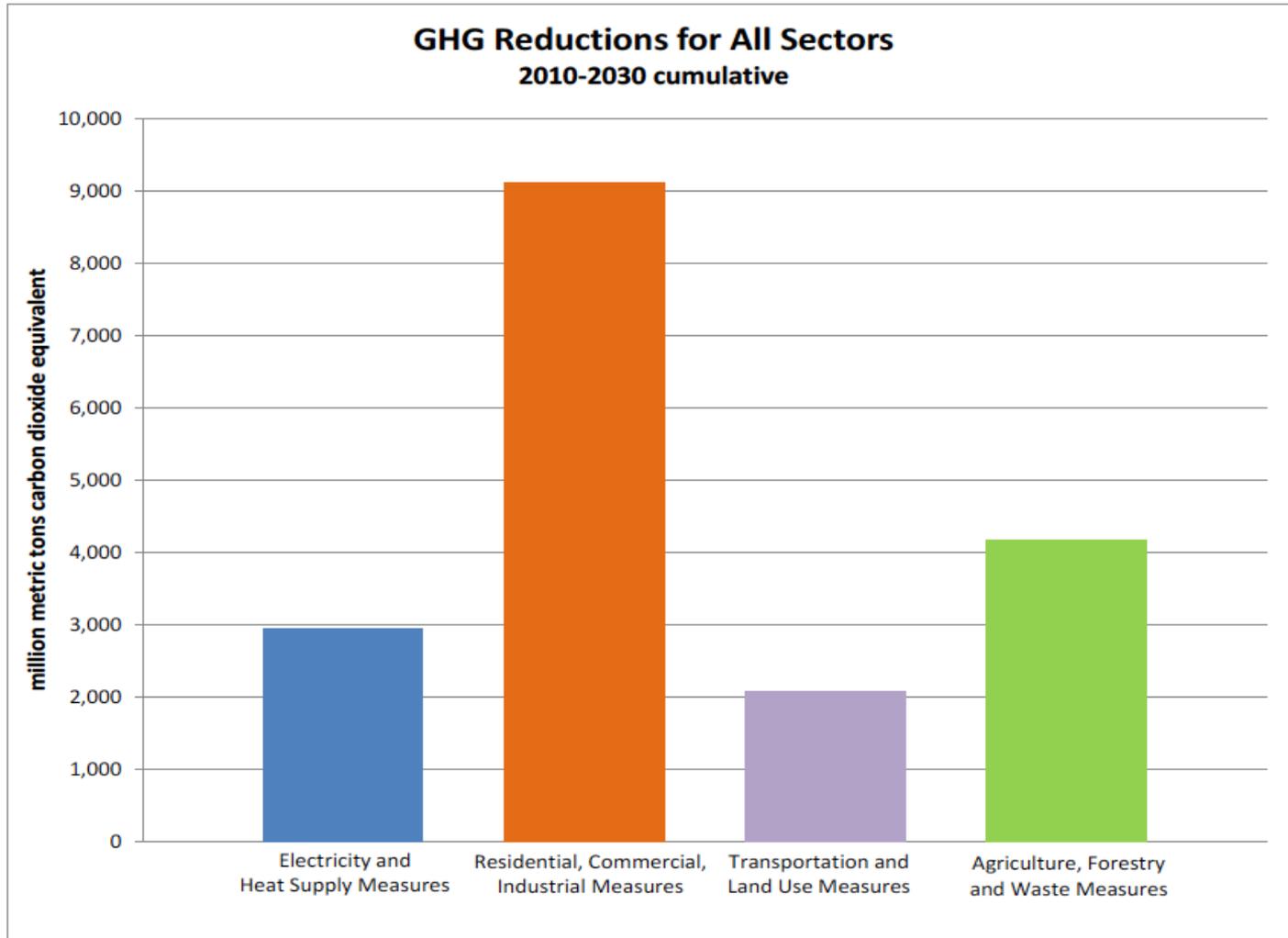
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LEDS Examples and Results

GHG Reductions

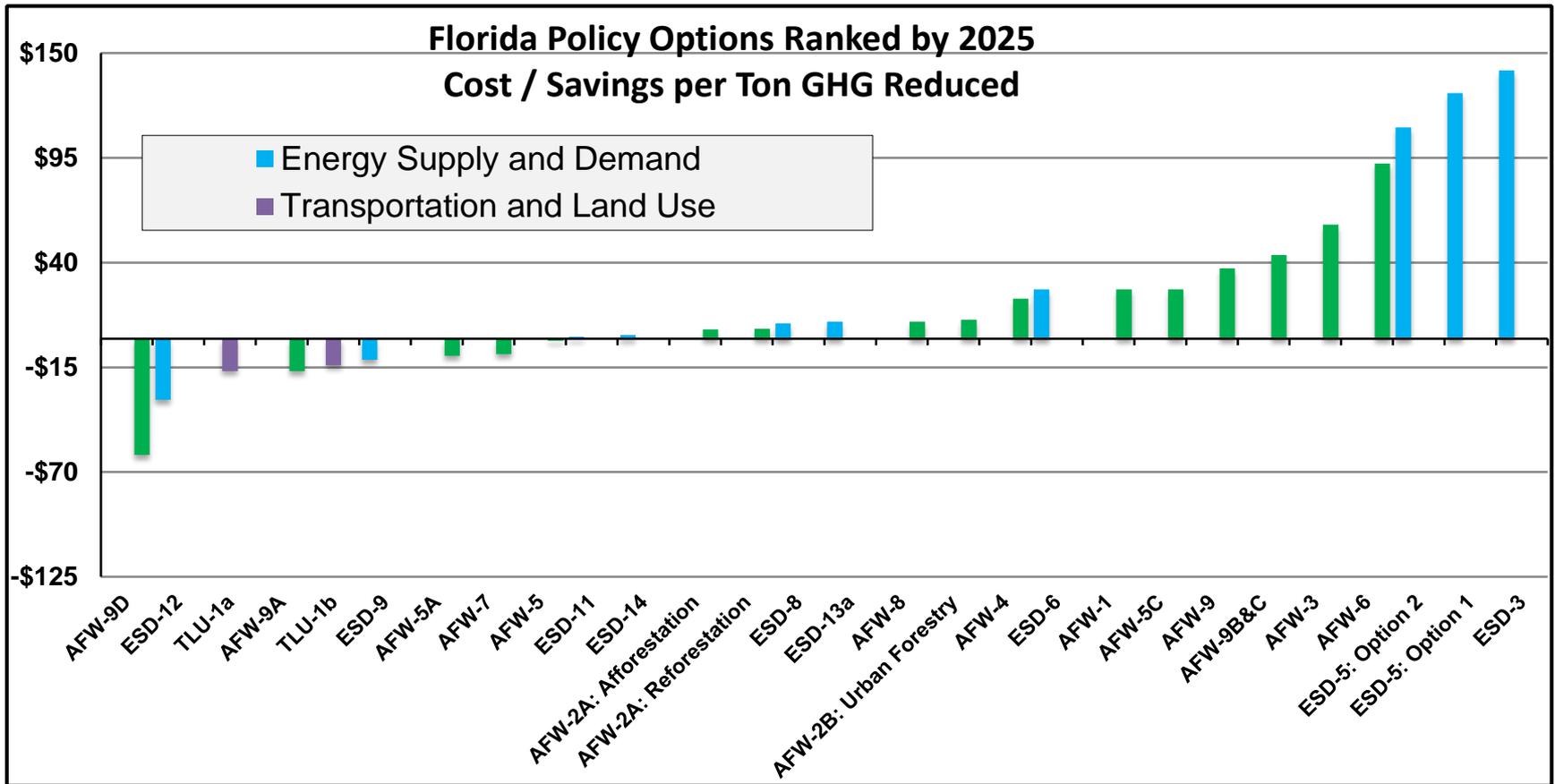


LEDS Examples and Results

Florida Energy & Climate Plan

LEDS Examples and Results

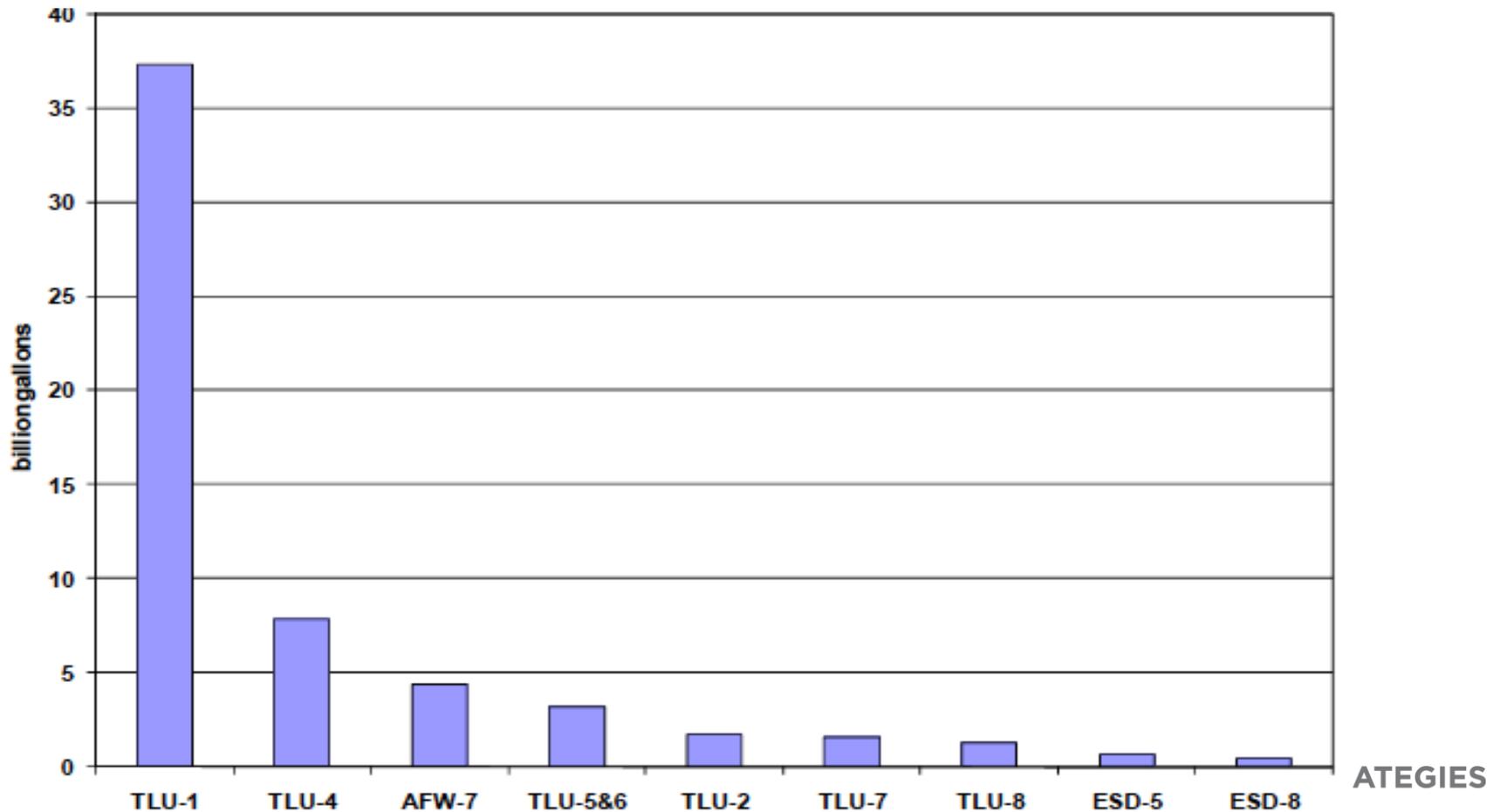
Costs Savings



LEDS Examples and Results

Energy Security

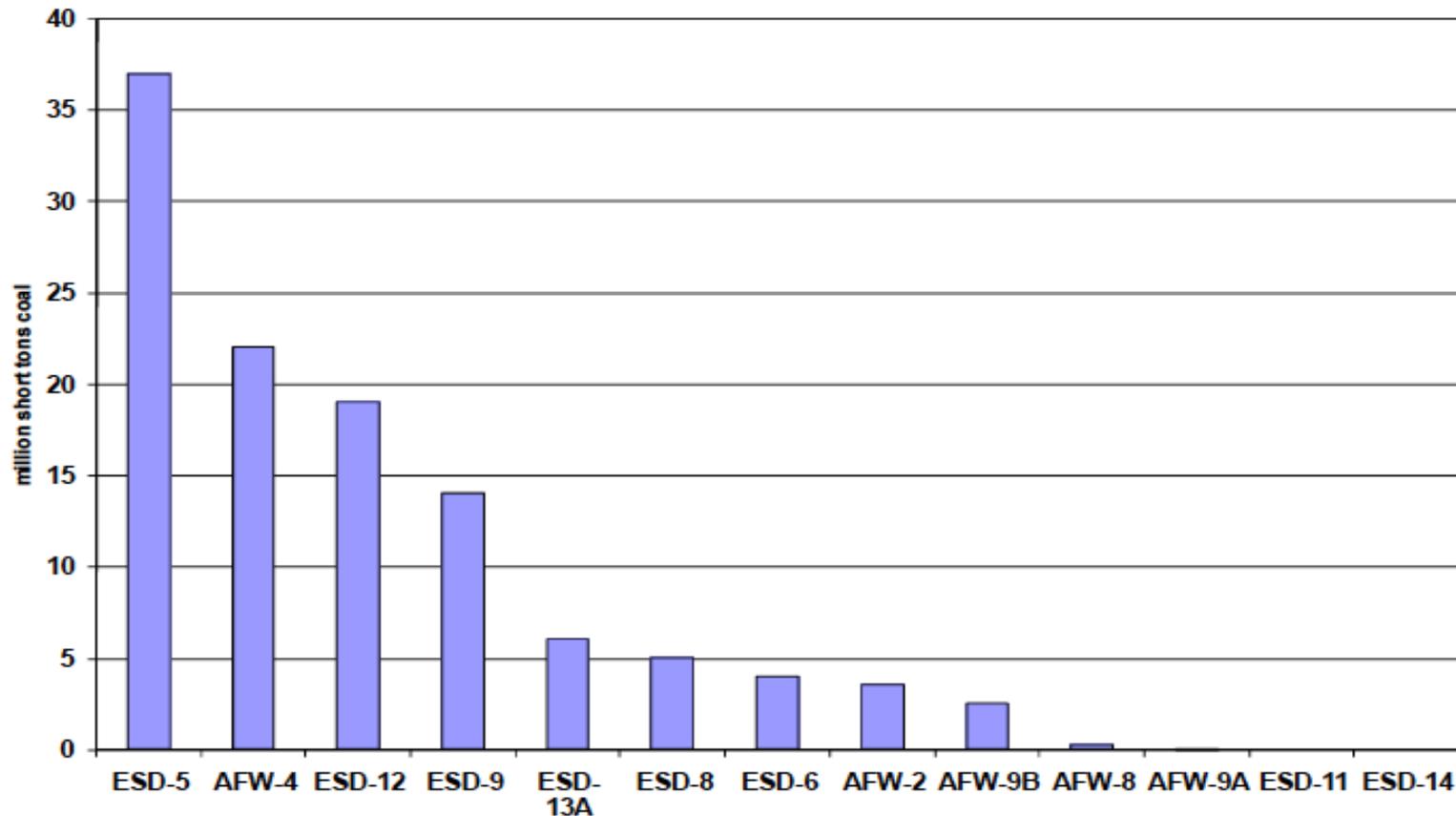
Petroleum Savings by Recommendation, 2009-2025



LEDS Examples and Results

Energy Security

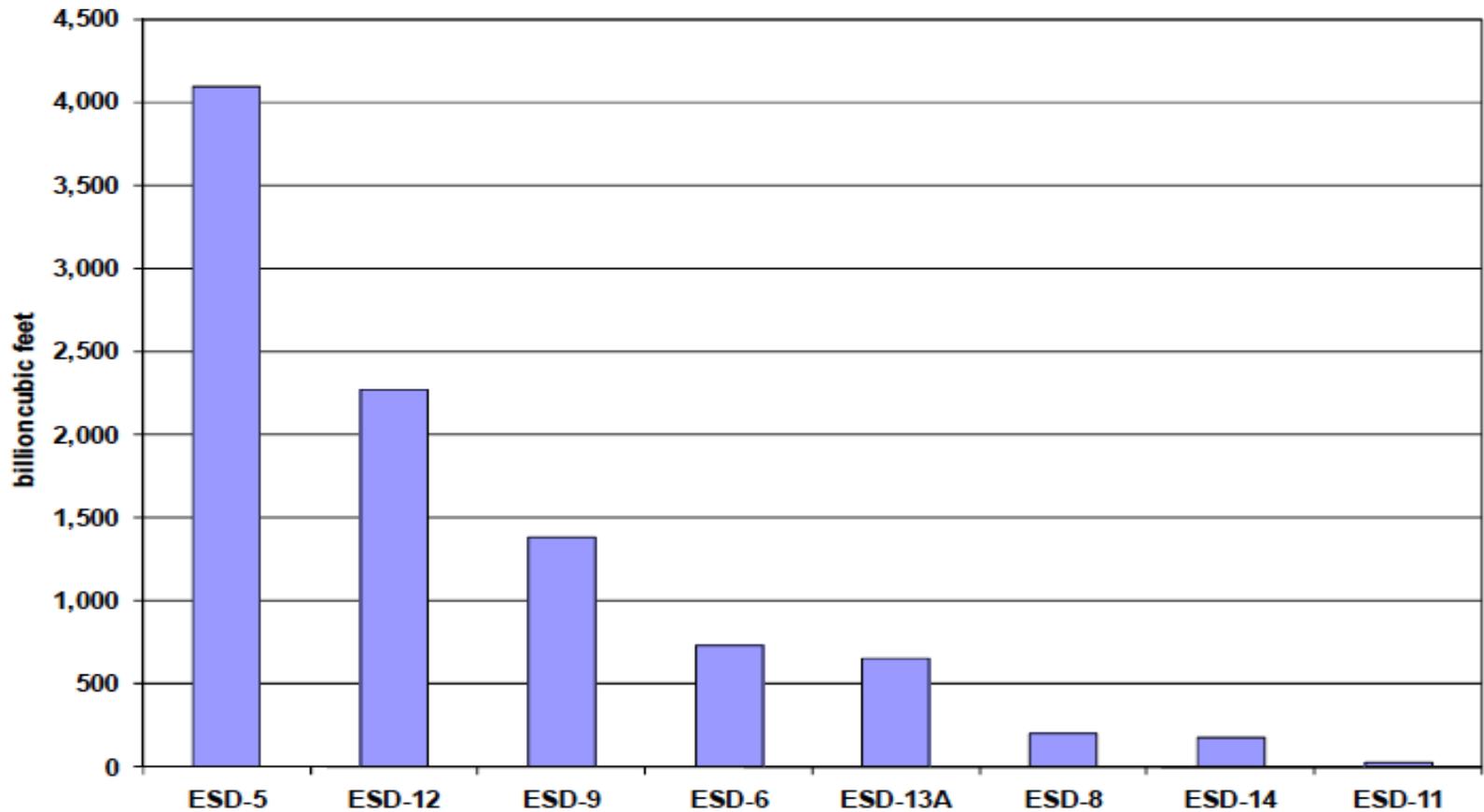
Coal Savings by Recommendation, 2009-2025



LEDS Examples and Results

Energy Security

Natural Gas Savings by Recommendation, 2009-2025



LEDS Examples and Results

Economic Growth

Table 5. Gross State Product Impacts of the Florida CAP
(billions of fixed 2000\$)

Scenario	2010	2015	2020	2025	Net Present Value
ESD 5	\$0.17	\$0.79	\$2.62	\$4.50	\$16.22
ESD 6	\$0.00	\$0.00	-\$0.60	-\$1.00	-\$2.48
ESD 8	-\$0.06	-\$0.29	-\$0.60	-\$0.99	-\$4.21
ESD 9	\$0.00	\$0.10	\$0.30	\$0.41	\$1.70
ESD 11	\$0.00	\$0.00	\$0.01	\$0.01	\$0.04
ESD 12	\$0.00	\$0.12	\$0.38	\$0.70	\$2.40
ESD 13a	\$0.00	\$0.15	\$0.49	\$0.92	\$3.08
ESD 14	\$0.00	-\$0.01	\$0.03	\$0.43	\$0.46
Subtotal - ESD	\$0.12	\$0.88	\$2.62	\$4.97	\$17.21
AFW 1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
AFW 2	\$0.08	\$0.56	\$1.25	\$2.04	\$8.04
AFW 3	\$0.00	\$0.00	\$0.00	\$0.00	-\$0.01
AFW 4	\$0.00	-\$0.05	-\$0.12	-\$0.17	-\$0.71
AFW 5	\$0.00	\$0.00	\$0.01	\$0.01	\$0.05
AFW 6	\$0.00	\$0.01	\$0.04	\$0.08	\$0.26
AFW 7	\$0.00	\$0.88	\$0.77	\$0.43	\$4.07
AFW 8	\$0.00	\$0.01	\$0.04	\$0.07	\$0.23
AFW 9	\$0.01	\$0.08	\$0.19	\$0.32	\$1.22
Subtotal - AFW	\$0.26	\$1.50	\$2.18	\$2.78	\$13.17
TLU 1	\$0.07	\$0.26	\$0.55	\$0.86	\$3.83
TLU 2	\$0.00	\$0.01	\$0.03	\$0.03	\$0.16
TLU 4	-\$0.01	-\$0.12	-\$0.28	-\$0.53	-\$1.87
TLU 8	\$0.04	\$0.04	\$0.09	\$0.25	\$0.81
Subtotal - TLU	\$0.10	\$0.19	\$0.39	\$0.63	\$2.93
Summation Total	\$0.31	\$2.57	\$5.19	\$8.38	\$33.31
Simultaneous Total	\$0.31	\$2.73	\$5.95	\$11.06	\$37.90

LEDS Examples and Results

Job Creation

**Table 6. Employment Impacts of the Florida CAP
(thousands)**

Scenario	2010	2015	2020	2025
ESD 5	2.054	8.335	23.370	36.710
ESD 6	0.000	0.000	-3.554	-7.130
ESD 8	-0.681	-3.779	-7.616	-11.590
ESD 9	0.000	1.129	2.980	3.569
ESD 11	0.000	0.077	0.163	0.240
ESD 12	0.158	3.023	6.097	8.666
ESD 13a	0.000	2.554	6.722	10.920
ESD 14	0.298	-0.202	-1.326	-0.301
Subtotal - ESD	1.829	11.137	26.836	41.084
AFW 1	0.075	0.283	0.305	0.308
AFW 2	6.760	18.300	29.450	40.000
AFW 3	0.030	0.113	0.204	0.279
AFW 4	0.000	2.957	9.600	20.470
AFW 5	-0.023	0.034	0.090	0.142
AFW 6	0.428	1.520	3.283	5.153
AFW 7	0.000	17.290	15.460	7.447
AFW 8	0.008	0.072	0.422	0.645
AFW 9	0.273	1.996	4.079	6.440
Subtotal - AFW	7.551	42.566	62.893	80.883
TLU 1	1.112	3.951	7.712	11.290
TLU 2	0.000	0.126	0.265	0.370
TLU 4	-0.140	-1.982	-3.981	-6.701
TLU 8	0.985	0.509	0.945	2.283
Subtotal - TLU	1.958	2.604	4.941	7.242
Summation Total	11.338	56.307	94.670	129.210
Simultaneous Total	11.380	57.720	100.400	148.300

LEDS Examples and Results

Michigan Energy & Climate Plan

LEDS Examples and Results

3E Results

Between 2010 and 2025:

- 129,000 net new jobs in 2025
- Direct net cumulative savings of about \$10, and direct average cost savings of \$10.20 per metric ton of carbon dioxide equivalent (MMTCO₂e)
- \$25 billion net gain in Gross State Product (in Net Present Value terms) Reduced GHG emissions from Michigan sources by 121 MMTCO₂e in 2025, or about 44 percent below expected emissions in 2025 compared to business as usual
- Residential energy price reductions by 2025 of:
 - 1.39% for electricity
 - 0.37% for gasoline
 - 0.40% for fuel oil
 - 0.60% for natural gas

LEDS Examples and Results

Green Growth Best Practice Report

LEDS Examples and Results

Green growth value creation framework:

- **Comprehensive well-being**, valued across the priority green growth goals. This means focusing on welfare indicators that go beyond GDP growth.
- **Comprehensive wealth**, or the full asset base of the country, includes natural capital, human capital, and technological assets.
- **Current productivity or efficiency of value creation** (economic, environmental, and social).
- Workings of **the natural system and the ecosystem services** created by that system.
- Dynamics of **innovation or technology progress**, where ‘technology’ is broadly defined.
- **Socio-economic context**, such as the extent of labor mobility, cyclical unemployment.

LEDS Examples and Results

Case Studies

India's Integrated Rural Energy programs (IREP):

- Aims at achieving social, environmental, and economic benefits together
- The programs were initiated after the two oil shocks in the 1970s to enhance national energy security and access and to provide affordable, clean energy options to rural populations
- The program links immediate and near-term issues, such as energy access, indoor air pollution mitigation, resource enhancement, and rural employment with long-term concerns, such as GHG mitigation and natural resource conservation

LEDS Examples and Results

Case Studies

Ethiopia's Growth and Transformation Plan (GTP):

- 5-year development plan – the Growth and Transformation Plan (GTP) - that targets agricultural productivity improvement, industrial development, infrastructure growth, and specific measures to promote poverty reduction and inclusion
- Explicitly supplemented with the Climate Resilient Green Economy (CRGE) plan to align the GTP's economic and social goals with additional benefits related to GHG mitigation and climate resilience

LEDS Examples and Results

Case Studies

EU 2050 Low Carbon Roadmap

- Reduced import dependency – €175 - €320 billion saving on fuel costs annually up to 2050, reducing costs, improving energy security and reducing import dependency.
- Increased innovation and job creation – potential for growth in the renewables and construction sectors.
- Improvements to air quality – €50 billion annual saving in pollution control up to 2050, with improved health impacts reducing mortality, with benefits estimated up to €38 billion in 2050.

LEDS Examples and Results

West Coast Clean Economy, Opportunities for Investment & Accelerated Job Creation

LEDS Examples and Results

Economic Growth

Figure 11: Region-wide increase in clean economy GDP by sector under BAU and policy-driven scenarios, 2010-2020 (\$ millions).

Potential Increase in GDP by Sector (Region-wide from 2010-2020 in \$ millions)	2010	2020	
	Baseline	BAU	Policy Driven
		Potential Growth in GDP	Potential Growth in GDP
Clean Energy Supply	\$13,757	Up to \$4,100	Up to \$32,000
Energy Efficiency & Green Building	\$5,885	Up to \$1,800	Up to \$26,400
Clean Transportation	\$3,197	Up to \$900	Up to \$8,900
Environmental Protection & Resource Management	\$23,113	Up to \$6,700	Up to \$24,800
Knowledge & Support	\$1,241	Up to \$400	Up to \$3,400
Total	\$47,193	Up to \$13,900	Up to \$95,500

LEDS Examples and Results

Economic Growth

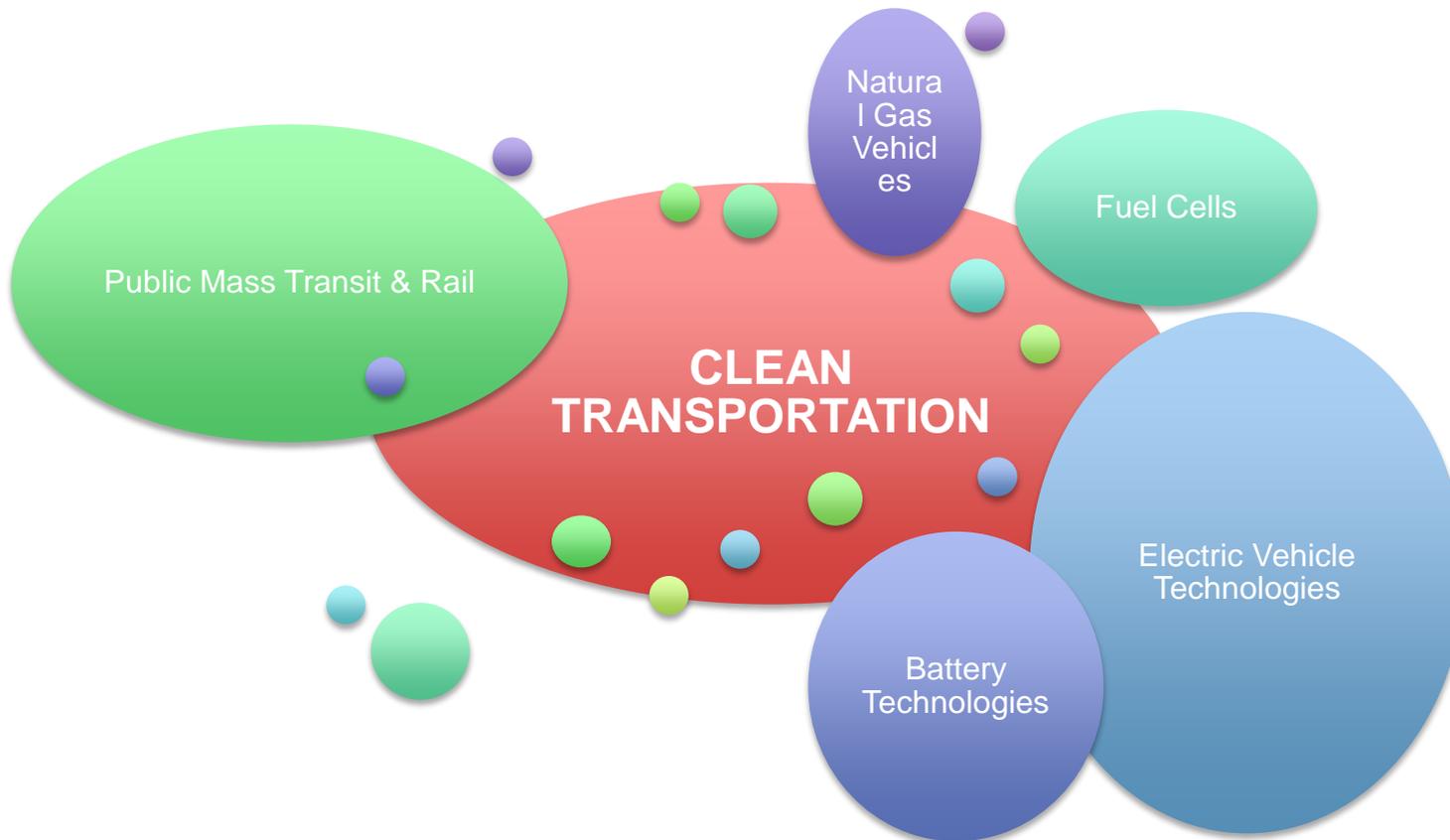
Figure 10: Region-wide increase in new clean-production jobs by sector under BAU and policy-driven scenarios, 2010 - 2020.

Potential Increase in New Clean Economy Jobs by Sector (Region-wide from 2010-2020)	2010	2020		
	Baseline	BAU	Policy Driven	
		Potential New Jobs	Potential New Jobs	% Growth
Clean Energy Supply	56,813	Up to 17,000	Up to 132,000	232%
Energy Efficiency & Green Building	80,806	Up to 24,000	Up to 362,000	448%
Clean Transportation	62,359	Up to 18,000	Up to 174,000	278%
Environmental Protection & Resource Management	290,332	Up to 84,000	Up to 312,000	107%
Knowledge & Support	18,162	Up to 6,000	Up to 49,000	270%
Total	508,462	Up to 149,000	Up to 1,029,000	202%

Source: GLOBE and CCS, 2012

LEDS Examples and Results

Economic Growth: New Markets



LEDS Examples and Results

Economic Growth: New Investors

Energy consumers/customers (utility customer)

Durable goods and services customers (car purchaser)

Tax payers (federal, state, local)

Growth investor (venture capitalist, growth equity fund)

Moderate returns investor (credit union, money market)

Long term savings investors (retirement fund participants)

LEDS Examples and Results

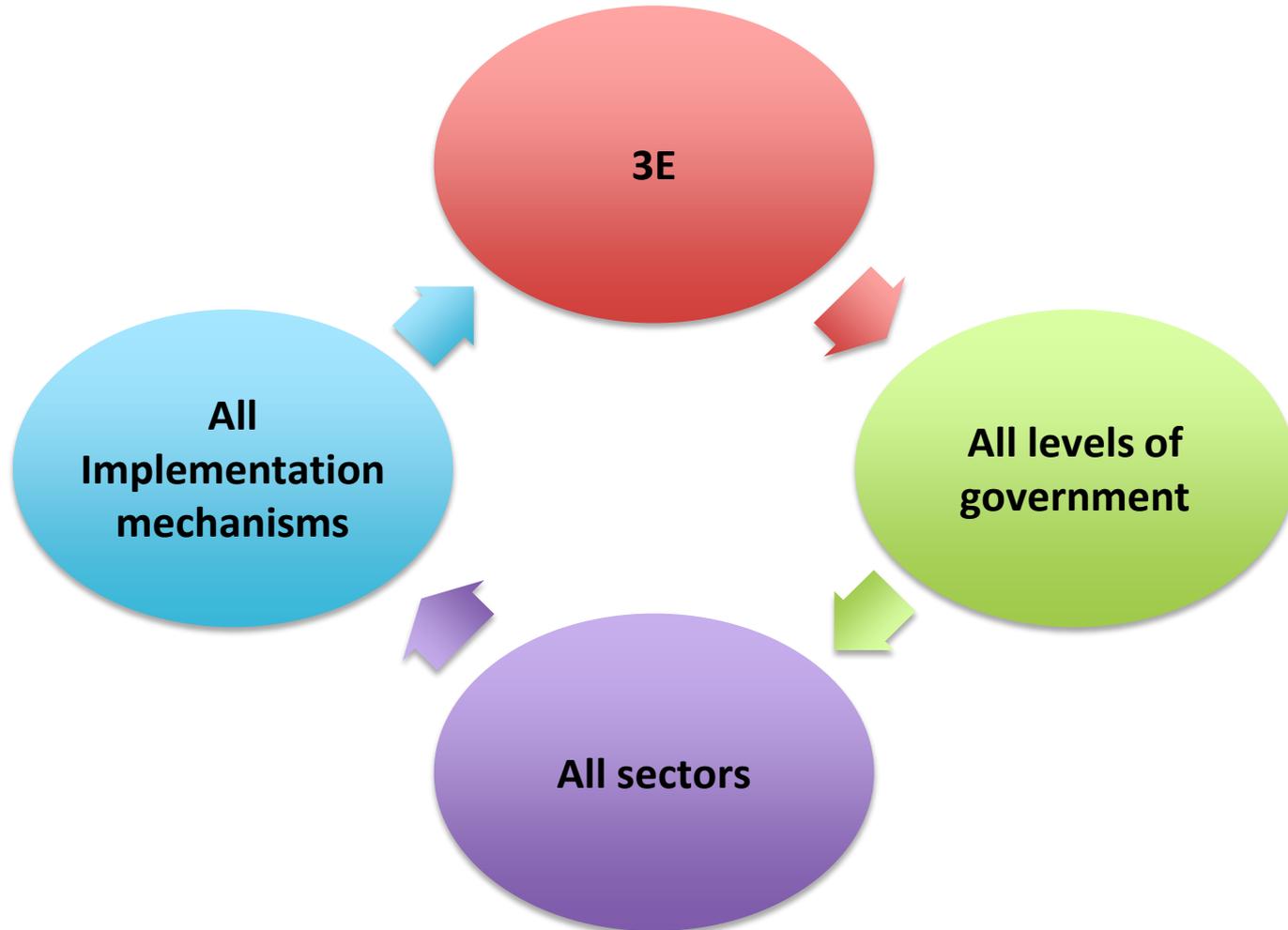
Decoupling

Source: IEA, March 2015

- “Global emissions of carbon dioxide stood at 32.3 billion tonnes in 2014, unchanged from the preceding year”
- “In the 40 years in which the IEA has been collecting data on carbon dioxide emissions, there have only been three times in which emissions have stood still or fallen compared to the previous year, and all were associated with global economic weakness: the early 1980's; 1992 and 2009. In 2014, however, the global economy expanded by 3%.”

Lessons Learned

Comprehensive Scope



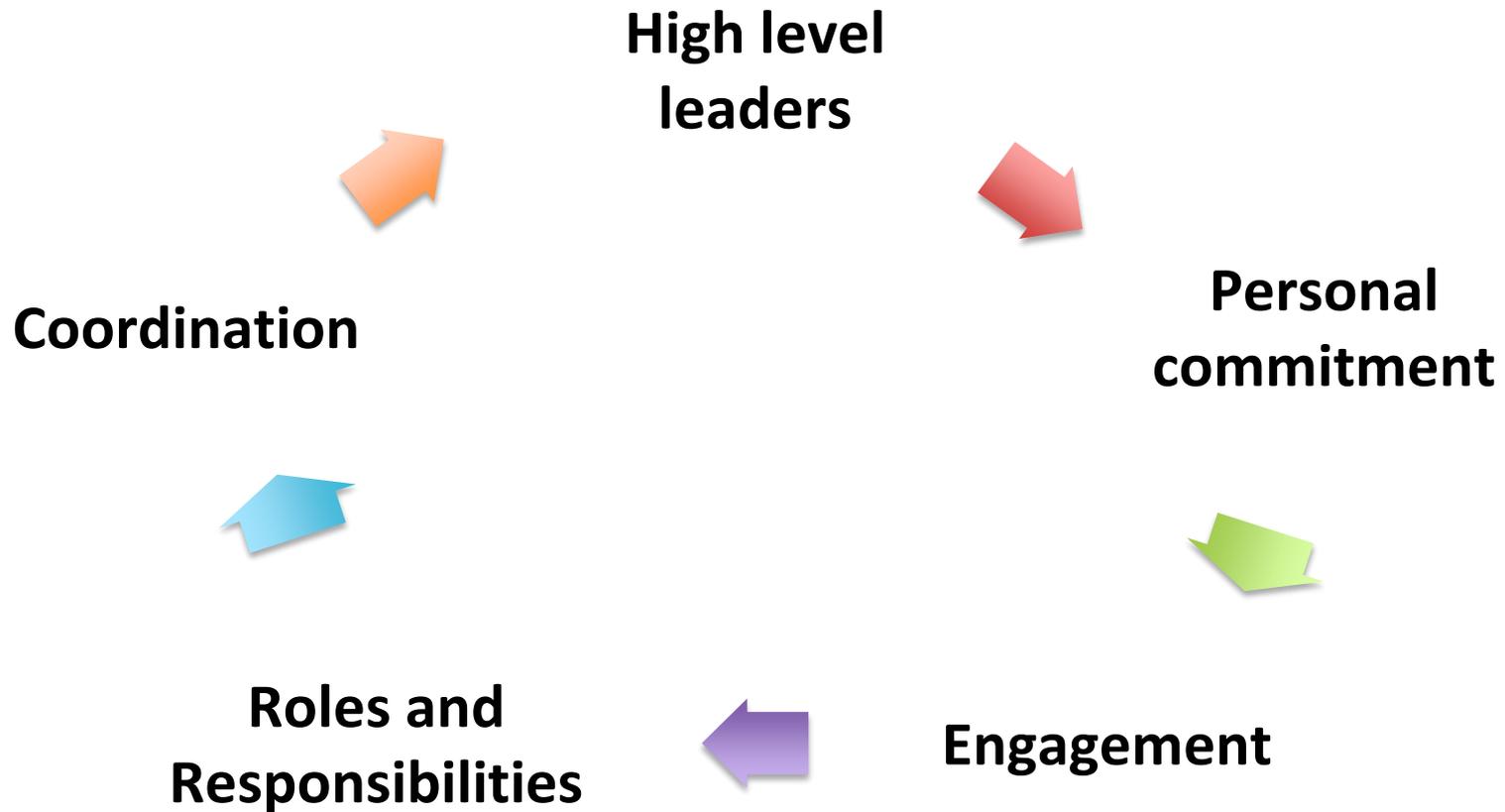
Lessons Learned

Self-interest Driven



Lessons Learned

Leadership from the Top



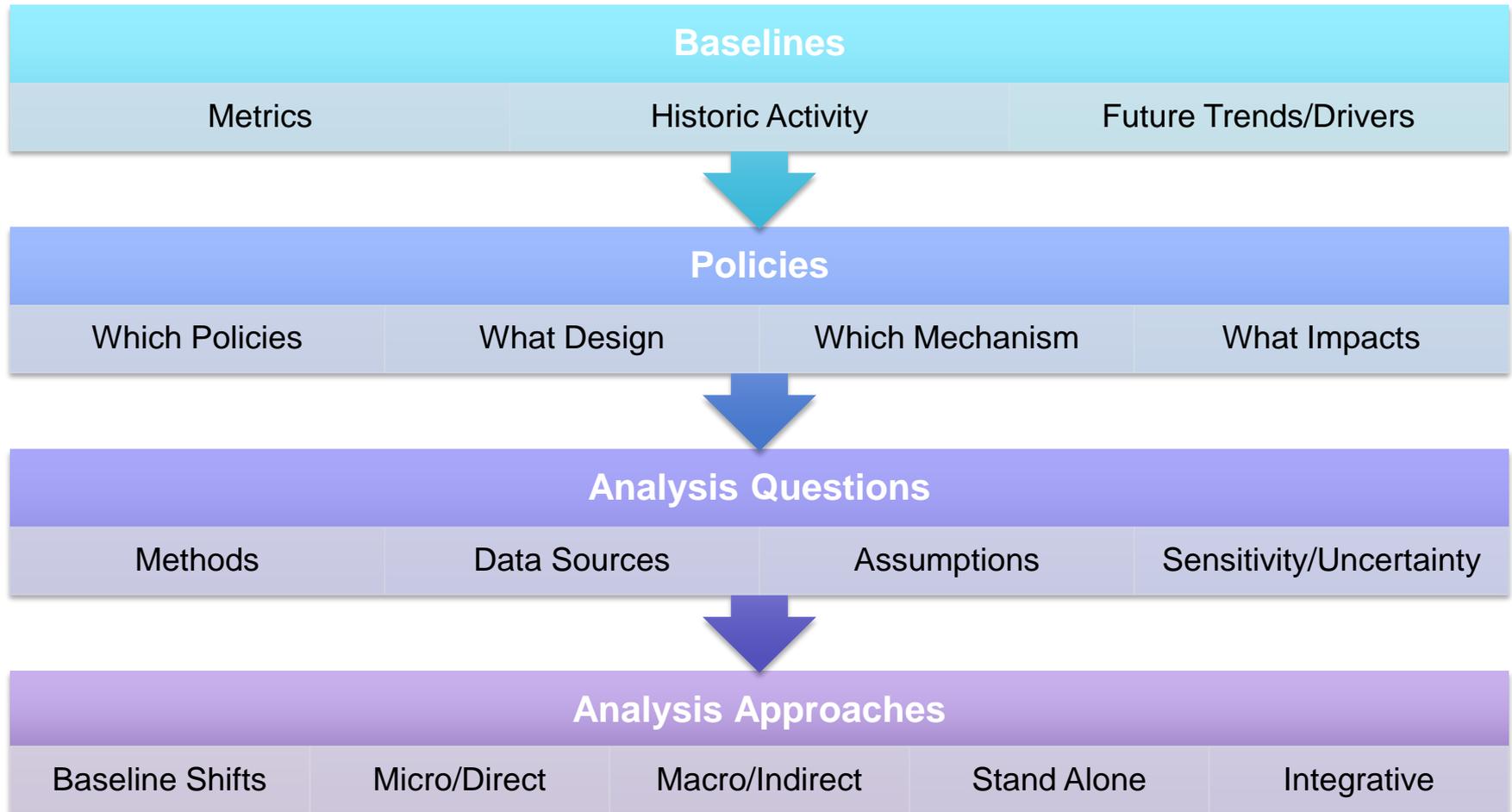
Lessons Learned

Effective Bottom up process



Lessons Learned

Effective Bottom up process



Lessons Learned

Effective Bottom up process

Step	Scope
Startup/Organization	<i>Economy, Energy, Environment, Equity</i>
Baselines	Sectors, Subsectors, Activities and Metrics
Policy Options	<i>Sectors, Mechanisms</i>
Draft Priorities	Top Options Within and Across Sectors
Policy Option Designs	<i>Concept, Effort, Timing, Coverage, Definitions</i>
Micro Direct Impacts	Cost Effectiveness, Energy and Resource Systems
Integration	<i>Interactions Within and Across Sectors</i>
Macro Indirect Impacts	Economic Systems
Recommendations	<i>Final Agreements, Approvals, Reports</i>
Implementation	Authorities, Investments, Assignments

Lessons Learned

Effective Bottom up process

Step	Tools and Templates
Startup/Organization	Directives and Executive Orders, Work Plan (Budget, Decision Procedures, Communications Protocols, Participant Guidelines, etc.), Partnership MOU
Baselines	Inventory/Forecast Guidelines, Common Assumptions, Toolkit Component 1
Policy Options	Catalog of Actions/Databases of Options, Benchmarks, Studies, Toolkit Component 2
Draft Priorities	Screening Guidance, Macro Screening Tool, Sample Benchmarks and Rankings, Multi Criteria Analysis Tool, Toolkit Component 2
Policy Option Designs	Policy Option Document, Design Strategies, Toolkit Component 2
Micro Direct Impacts	Principles and Guidelines for Quantification, Analysis Checklist, Custom Worksheets, Systems Models, Toolkit Component 3
Integration	Workbook Integration, Synthesis Module, Toolkit Component 3
Macro Indirect Impacts	Macro models (e.g. REMI, Reduced Form Tool, etc.), Quantification Guidelines, Toolkit Component 3
Recommendations	Iterative Decision Procedures, Facilitation Model, Interim and Final Report Formats
Implementation	Framework, Menu of Options, Strategy Guidance

Ukraine Issues and Opportunities

- Economic Development and Security
- Energy Security
- Industrial and Commercial Modernization
- Health and Environmental Protection
- Linkage to National and Subnational Mechanisms
- Fairness and Equality

Survey Exercise and Discussion

1. What are the keys to economic, income, and job growth in Ukraine?
 - List a few top approaches...
2. What are the keys to expanded energy security?
 - List a few top approaches...
3. What are the keys to expanded health and environmental protection?
 - List a few top approaches...
4. What are the keys to fairness and equity in these goal areas?
 - List a few top approaches...
5. What are the keys to accomplishing each of these goals at the same time in Ukraine?
 - List a few top approaches...
6. What are the most needed capacities for Ukraine?
 - List a few top approaches...

Exercise and Discussion

-- Top Current and New Actions? --

Sectors/ Mechanisms	Codes/Standards	Financial Assistance	Technical Assistance	Taxes and Incentives	Information and Education	Voluntary Agreements	Others?
Energy							
Transportation							
Industry							
Manufacturing							
Housing							
Commercial Buildings							
Waste							
Agriculture							
Forestry							
Other							

*Thank you for your time and
attention!*

Questions?

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