

International Conference on the Management of Energy, Climate and Air for a Sustainable Society MECAS2018

A. Clappier

Who Are our Sponsors?



*The EPFL (Swiss Federal Institute of Technology of Lausanne) and Cubaenergia are partner in a “**Research for Development project (R4D)**” financed by the SDC (Swiss Agency for Development and Cooperation) and the FNS (Swiss National Science Foundation):*

Such “R4D” projects aim to promote:

- The use of scientific research for cooperation purpose
- The set up a network of suitable foreign and local partners
- The exchange of students and scientific staff



Wednesday

Thursday

Friday

Wednesday July 4th	
08:30	Registration
09:00	Welcome: Odalys Goicochea, Director of environmental policy of the ministry of science, technology and environment
09:15	Conference introduction: Alain Clappier
Topic 1: Building energy and climate architecture	
09:30	Bornstein R. <i>(key speaker)</i> Analysis and modeling of urban weather and climate, with examples from the IUM-SURF project in Beijing
10:00	Martilli A. <i>(key speaker)</i> Impact of roof top solar panel on the urban climate, meteorology and building energy consumption: the case of Bologna (Italy)
10:30	Coffee break
10:50	Bonilla S. Development and use of the i-tree tool to explore the potential for urban green infrastructure as an adaption strategy to climate change resilience in the city of Santo Domingo
11:10	Mycoo M. Managing Caribbean urban development using climate change adaptation strategies, green infrastructure and urban form
11:30	McDermott Hughes D. Latifundios of energy: Enclosing the wind after fossil fuels
Topic 3: Abatement strategies for air pollution and energy usage	
11:50	Borrjero Montejó I. Determinación de la iluminación natural en Cuba a partir de la información satelital
12:10	Lunch break
13:45	Osseas M. <i>(key speaker)</i> Electric vehicles in urban environments: energy demand, climate change and technological challenges
14:15	Hernández-Garcés A. Importancia de la modelación de la calidad del aire para evaluar las estrategias de reducción de la contaminación del aire y el uso de la energía
14:35	Thunis P. SHERPA: A tool to support the design of regional and urban air quality plans
14:55	Imbert Lemoru C. Impacto del SO2 por el transporte y dispersión de contaminantes a la atmósfera en diferentes asentamientos poblacionales en el municipio Santiago de Cuba.
15:15	Jazchevich A. Personal exposure to air pollution: New methods, technologies and applications
15:35	Coffee break
16:05	Vorbach J. F. Global climate change economic impacts and abatement strategies for greenhouse gas emissions using the U.S. Environmental Protection Agency's residential carbon footprint calculator
16:25	Rincón E. A. Design and environmental impact assessment of an improved CPC for Solar-Photo-Fenton processes
16:45	Alonso D. Evaluación integral de la contaminación atmosférica en instalaciones del sector energético
17:05	Jura Ouma J. Urban Air Pollution: Re-Engineering the cities with green technologies and integrated solutions
17:25	Cuesta-Santos O. Inventory of emissions from stationary sources in Cuba: tool to reduce air pollution.

Thursday July 5th	
09:00	Tápanes D. Inventario de emisiones de las principales fuentes fijas industriales de La Habana. Estrategias para su reducción.
09:20	Guevara M. A CFD modeling of particulate matter PM2.5 inside BRT public transport buses
09:40	Villaruel J. Diminución de la contaminación emitida a la atmósfera por transporte público en Cuba
10:00	Madrazo J. Implementation of an air quality modeling system to study the impact of future energy strategies in Cuba
10:20	Coffee break and poster session
11:00	Molina E. La contaminación del aire y su impacto en la salud pública global, algunos resultados nacionales y retos para su enfrentamiento.
11:20	Suarez I. Discretización espacial y temporal de las emisiones de contaminantes atmosféricos
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13:45	Robock A. <i>(key speaker)</i> Geoengineering is not a solution to global warming: lessons for Caribbean and tropical societies
14:05	Taylor M. The Caribbean I.5 Project: Making the most of the Agency
14:25	Glenn S. Expanding partnerships for sustained ocean observing in the Caribbean and Mesoamerican corridor: Promoting ocean health to meet the United Nations Sustainable Development Goals
14:45	Hernández Manilla A. Escenarios bioclimáticos de la papa (solanum tuberosum) en Cuba
15:05	McRae I. Bridging WRF and ENVI-met research platforms to study the effects of urban morphology and meteorology on building-scale urban microclimate
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19:15	Gala diner

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13:45	Maréchal F. <i>(key speaker)</i> Can a country become independent of fossil resources ?
14:15	Aristzábal C. E. Implementación de tecnologías de aprovechamiento de energía fotovoltaica en instituciones prestadoras de servicios educativos: Caso de estudio ITM campus Robledo
14:35	Coffee break
15:00	Round tables (discuss the future of the world)
17:00	

Poster sessions

Round tables

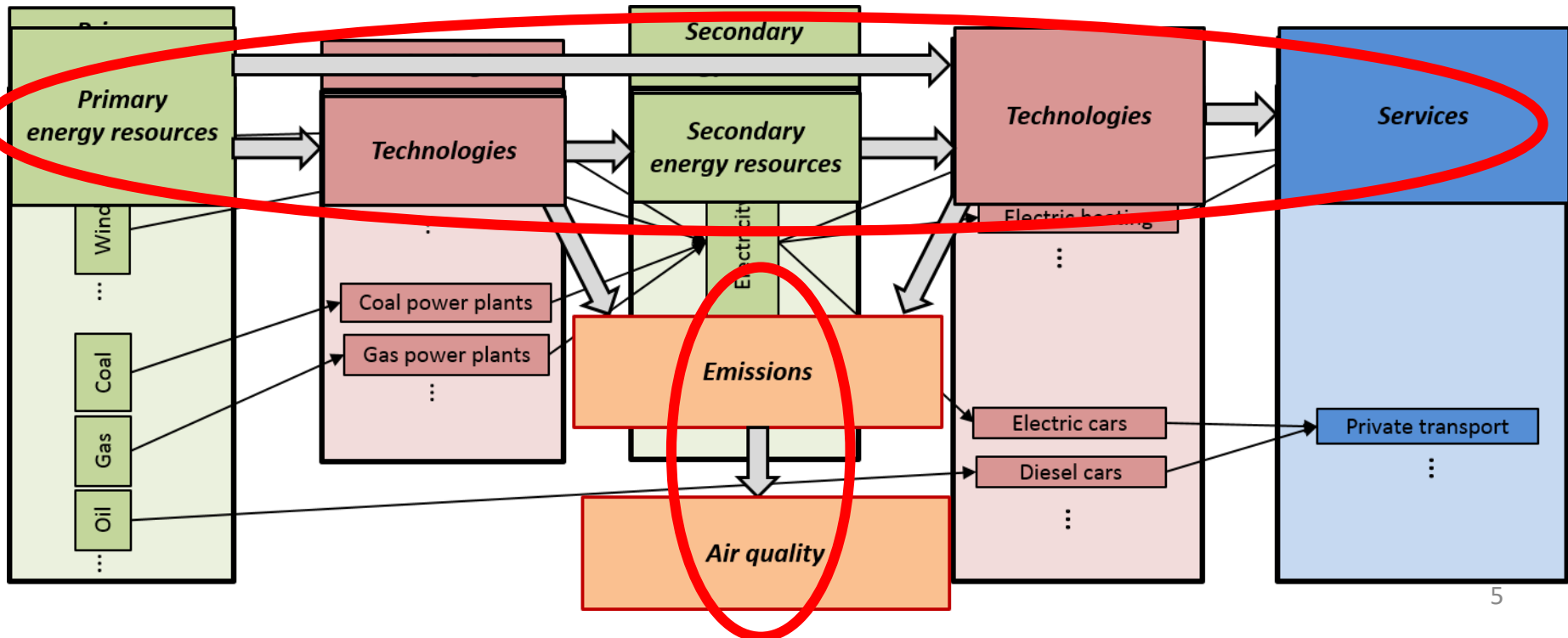
Gala diner

R4D project between Swiss and Cuba

This project is about:

Effective Methodology for the Assessment of Integrated Energy Strategies

It aims at designing a novel integrated assessment methodology for energy strategies, combining process system design methods with emission and air quality models.





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15:00	Round tables (discussion and debate): Powering your country only with wind, water and solar: utopia or better sustainable solution for the future of the world?
17:00	

Why “Energy, Climate and Air”?

Energy is a key global issue:

- ❑ The global energy supply is a big part of our economy:

US\$ 15'000 billion per year representing **20-27% of the GWP**

in comparison, agriculture accounts for only 3% (US\$ 2'300 billion per year)

Source World bank IAEA, 2013

- ❑ Since 85% of the world energy consumption is supply by fossil fuels combustions it has serious consequences for the environment:

Air Pollution Deaths Cost Global Economy **US\$ 225 billion** per year

Source World bank, 2013

Since 2008, **21.5 million people** have been forcibly displaced each year by weather-related sudden onset hazards

Source UNHCR, 2016



4 Topics

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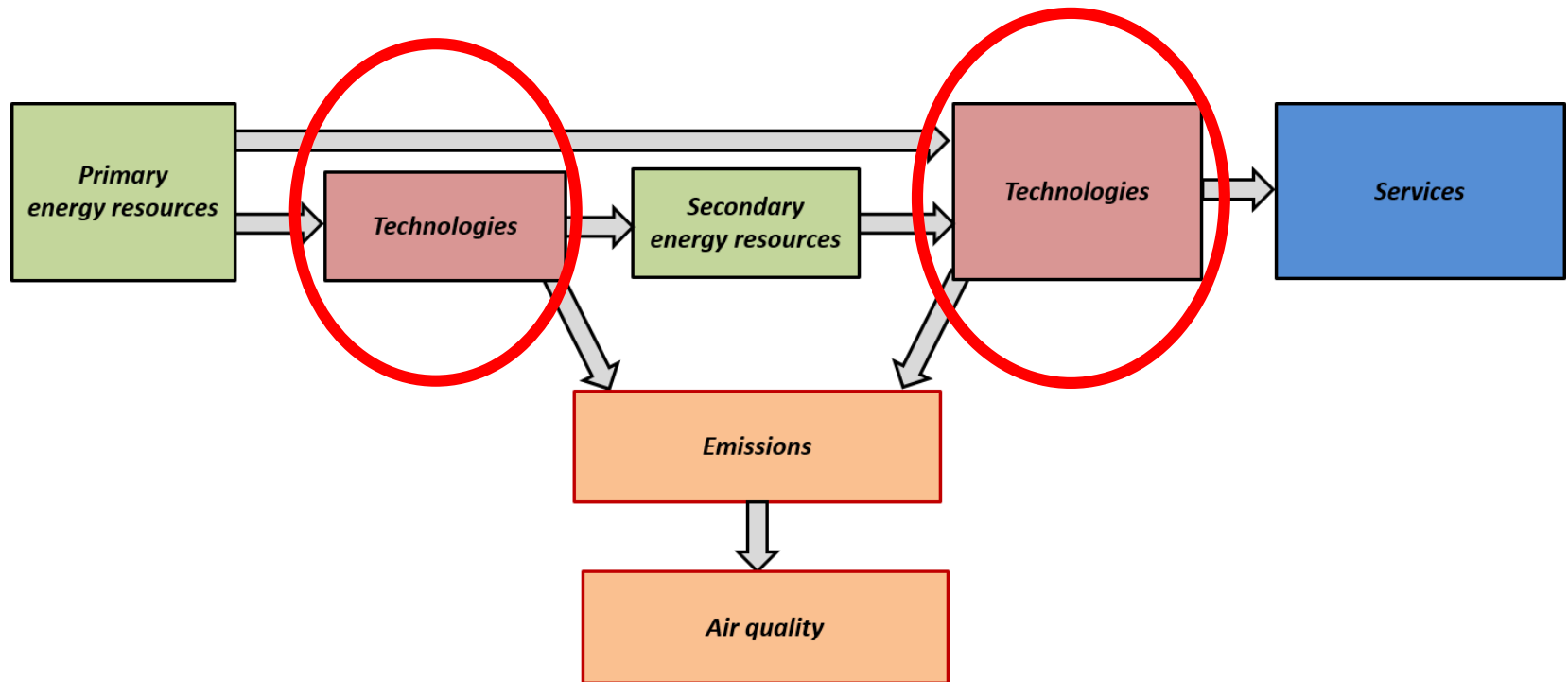
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Technical Measures

Most of the time, the strategies being considered by the authorities to reduce our environmental footprint is to **improve technologies**:



Key Speakers

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Thursday

Friday

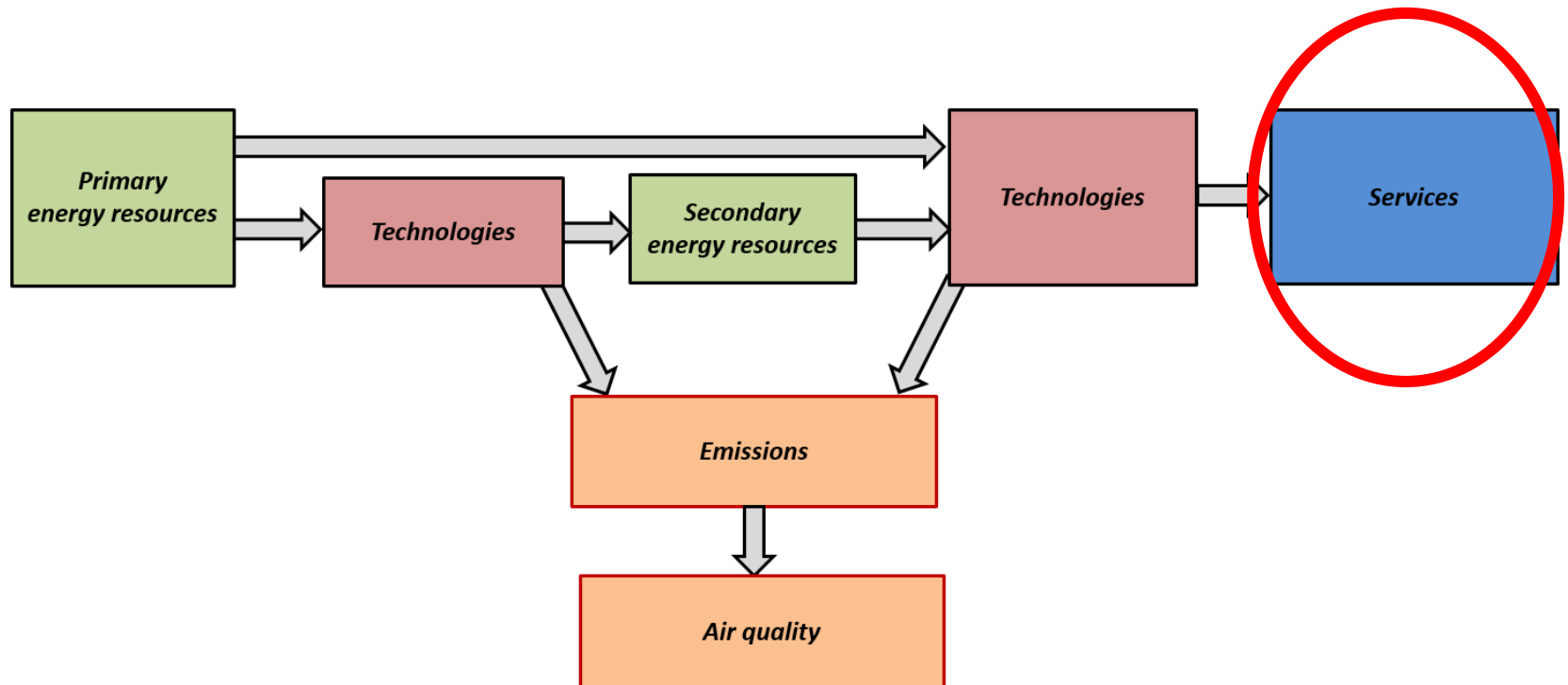
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Non Technical Measures

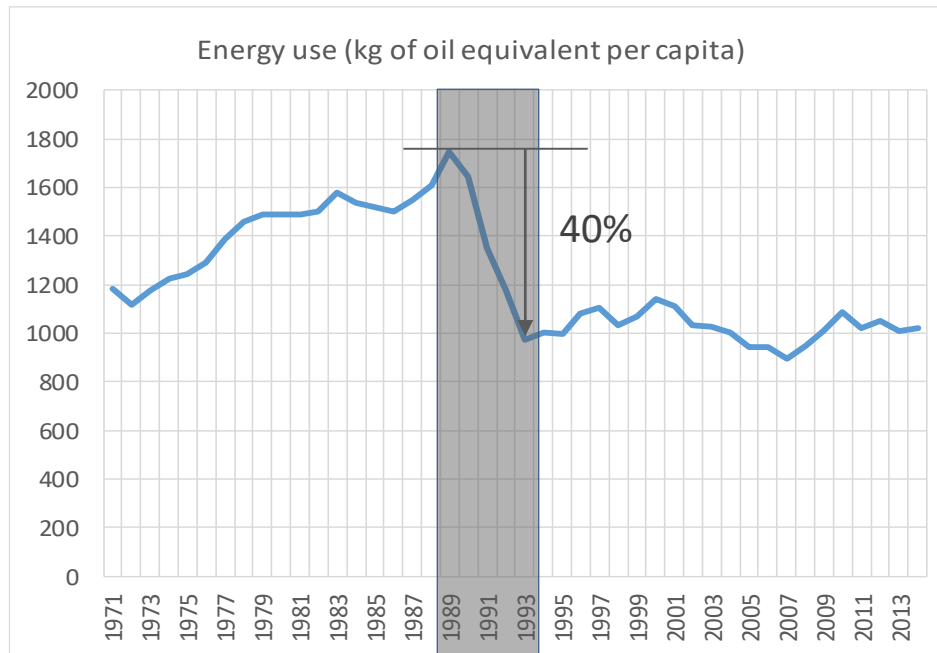
Will technological changes be **able to sufficiently reduce** our environmental footprint?



Why Cuba?

Cuba is an Island under Embargo

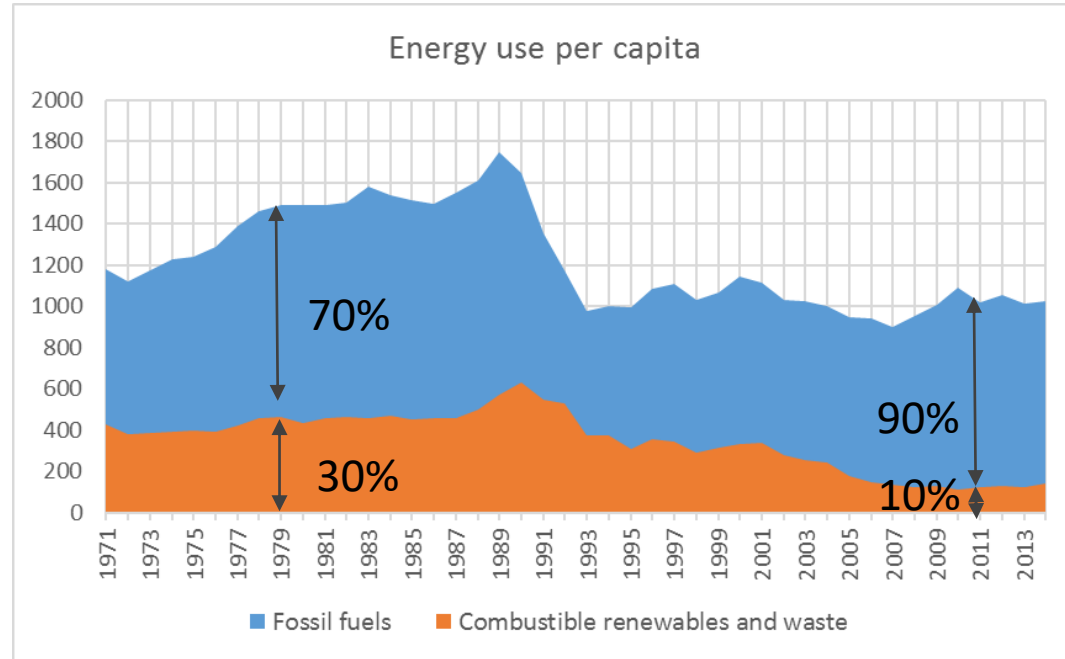
- 1959:** Cuban socialist revolution succeed.
American trade embargo and support of Soviet Union are set up.
- 1991:** Soviet subsidies and trade links are withdrawn.
Energy consumption drops for more than **40%** in **4 years**.
Energy supply by Cuban resources **becomes an essential issue** for the country.



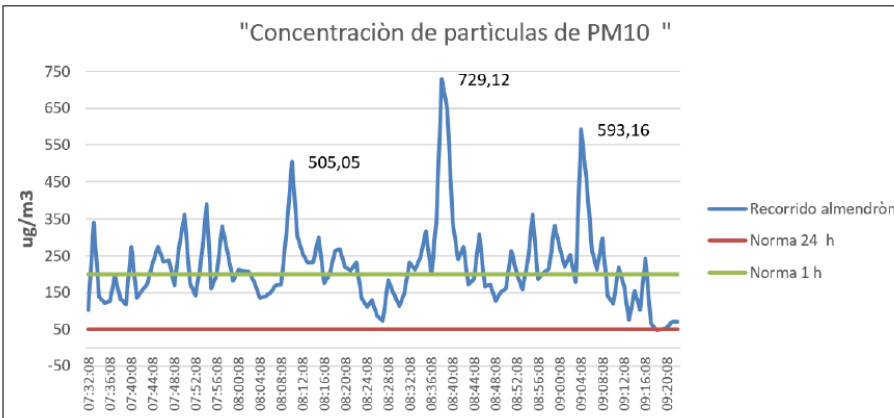
On the One Hand....

Stronger and stronger dependency to fossil fuels (90%)

Low technological renewal rate



Obsolete technologies generate environmental problems: example of air quality



From 2006 to 2013 the percentage of **Solar and Wind** energy remained around **0.1%**

...on the Other Hand.

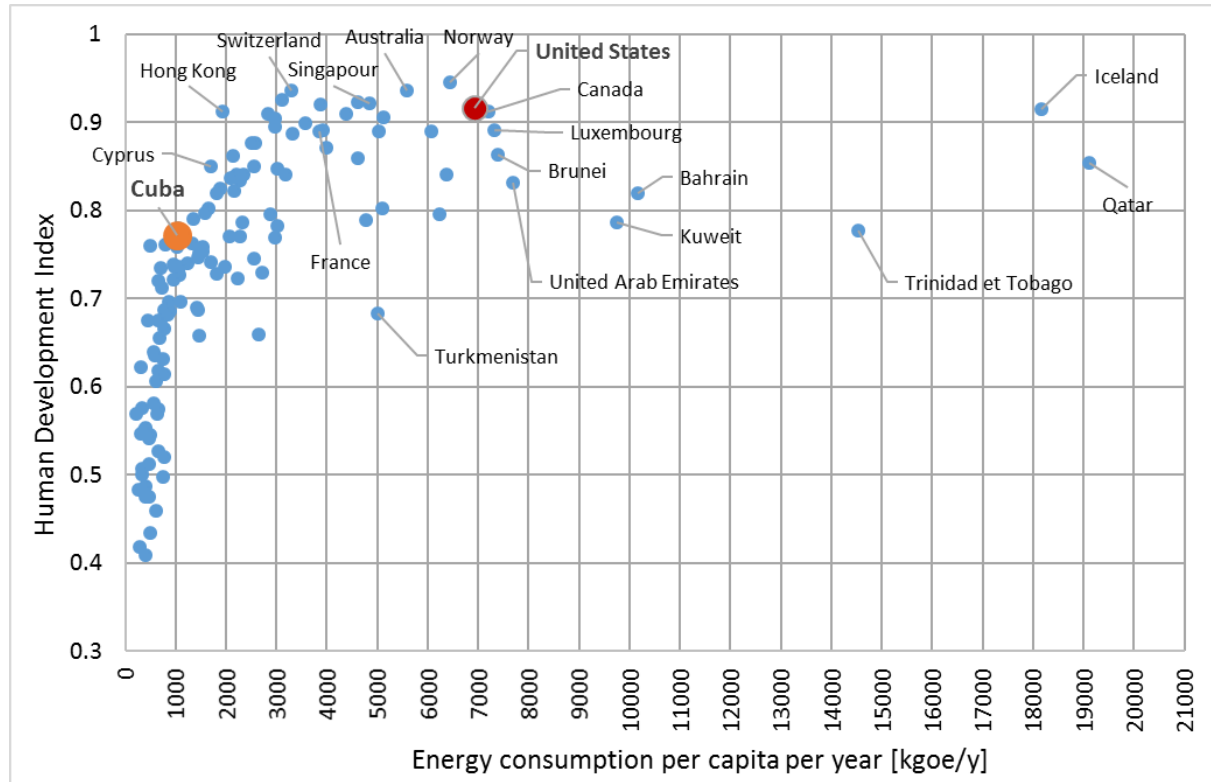


TABLE 1. KEY DEVELOPMENT AND SUSTAINABILITY FOR CUBA AND THE USA

	Cuba	US
Life expectancy	77.7	77.9
Literacy rate	99.8	99
Infant mortality rate (per 1000 live births)	6	6
% children with low birth rate	5	8
% of children enrolled in primary school	97	92
Public expenditure on education (% GDP)	9.8	5.9
Electricity consumption per capita (kWh)	1,380	14,240
CO ₂ emissions per capita	2.1	20.1

SOURCE: DATA FROM THE UNITED NATIONS HUMAN DEVELOPMENT INDEX REPORT 2007/2008

Source World bank and United Nations, 2013



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16:25	Rincón E. A. Design and environmental impact assessment of an improved CPC for Solar-Photo-Fenton processes
16:45	Alonso D. Evaluación integral de la contaminación atmosférica en instalaciones del sector energético
17:05	Jura Ouma J. Urban Air Pollution: Re-Engineering the cities with green technologies and integrated solutions
17:25	Cuesta-Santos O. Inventory of emissions from stationary sources in Cuba: tool to reduce air pollution.

Thursday July 5th	
09:00	Tápanes D. Inventario de emisiones de las principales fuentes fijas industriales de La Habana. Estrategias para su reducción.
09:20	Guevara M. A CFD modeling of particulate matter PM2.5 inside BRT public transport buses
09:40	Villaruel J. Diminución de la contaminación emitida a la atmósfera por transporte público en Cuba
10:00	Madrazo J. Implementation of an air quality modeling system to study the impact of future energy strategies in Cuba
10:20	Coffee break and poster session
11:00	Molina E. La contaminación del aire y su impacto sanitario: contexto global, algunos resultados nacionales y retos para su enfrentamiento.
11:20	Suarez I. Discretización espacial y temporal de las emisiones de compuestos contaminantes generados por el sector transporte en Chile
Topic 4: Impact of climate change on Caribbean and tropical societies	
11:40	Belalcázar L. C. Spatial and temporal evaluation of air quality variations with data from Modis and PM10: Colombia 2000-2015 period
12:10	Lunch break
13:45	Robock A. (key speaker) Geoengineering is not a solution to global warming for the Caribbean and tropical societies
14:05	Taylor M. The Caribbean 1.5 Project: Making the case for urgency
14:25	Glenn S. Expanding partnerships for integrated and sustained ocean observing in the Caribbean and Mesoamerican corridor: Promoting ocean health to meet the United Nations sustainable development goals
14:45	Hernández Manilla A. A. Escenarios bioclimáticos de la fenología de la papa (solanum tuberosum) en Cuba
15:05	McRae I. Bridging WUDAPT, urbanized WRF and ENVI-met research platforms to study the effects of urban morphology and meteorology on building-scale urban design.
15:25	Coffee break and poster session
16:05	Carrera Doral W. Tarea Vida. Políticas de país para el enfrentamiento al Cambio Climático
Topic 2: Energy demands in the Meso-Americas and the Caribbean (MAC) in a changing climate	
16:25	Gonzales J. (key speaker) Impacts of climate change on building energy demands in the intra-Americas region
16:55	Yoandy A. Wind resources assessment of Cuba in future climate scenarios
17:35	Clarens A. F. Integration of supercritical CO2-power cycles to improve grid resilience and sustainability
19:15	Gala diner

Friday July 6th	
09:00	Berriz L. Transición energética hacia energías renovables
09:20	Curbelo A. Soluciones energéticas para el transporte público
09:40	Pérez D. Estrategia de desarrollo energético basado a las energías solar y eólica
10:00	Alvarez L. Distribución espacial del índice de confort térmico
10:20	Coffee break
11:00	Clappier A. Escenario de referencia para el desarrollo energético de Cuba
11:20	Antuña-Marrero J. C. Long-term strategy for sustainable energy transfer in Cuba: GOAC's 30 year experience.
11:40	Moret S. Energy scenario for Cuba
12:00	Lunch break
13:45	Maréchal F. (key speaker) Can a country become independent of fossil resources ?
14:15	Aristzábal C. E. Implementación de tecnologías de aprovechamiento de energía fotovoltaica en instituciones prestadoras de servicios educativos: Caso de estudio ITM campus Robledo
14:35	Coffee break
15:00	Round tables (discussion and debate) : Powering your country only with wind, water and solar: utopia or better sustainable solution for the future of the world?
17:00	



I wish you a good conference

Les deseo una buena conferencia