



# Sustainability performance of the energy systems

ETSAP  
ExCo-meeting  
22. October 2015

Kari Aamodt Espegren, IFE  
Helena Cabal, CIEMAT

# Objective

- Improve the possibility to analyse the socioeconomic and social aspects of a sustainable energy system

## Motivation:

- Sustainability indicators are a measure of sustainability performance of the energy systems and can deal with different aspects of sustainability: economic, social and environmental.
- While environmental sustainability indicators have been broadly investigated and applied to energy systems, the research on the applications of socioeconomic and social indicators are still lagged behind in their incorporation.

## Benefits for ETSAP:

- This project contributes to improve the analysis of the interaction between the energy system and the economy and society through improving the tools to assess social and socioeconomic aspects of the energy systems.

# The project will focus on electricity generation (from renewable, fossil and nuclear)

The project is split into the following tasks:

1. Selection of social and socioeconomic sustainability indicators for electricity generation
2. Quantification of the selected indicators
3. Implementation of the selected indicators into TIMES models
4. Preliminary study on the effect of the introduction of social and socioeconomic sustainability indicators by using TIMES-Spain, TIMES-Norway and other TIMES/MARKAL-models
5. Joint workshop to present the preliminary results and methodology

# METHODOLOGY

Selection of the most relevant sustainability indicators of electricity generation technologies through a literature review and own experiences

Quantification of the selected indicators using the Multiregional Input-Output (MRIO) methodology and the Social Hotspots Database (SHDB)

## SOCIOECONOMIC ASSESSMENT

### INPUT-OUTPUT METHODOLOGY

World Input –Output Database- FP7 project  
 Projected until 2011  
 40 countries + Rest of the World  
 35 activity sectors  
 Socio-economic (VA and jobs) accounts  
 Environmental accounts

Investment → Socioeconomic effects

#### WIOD main data tables

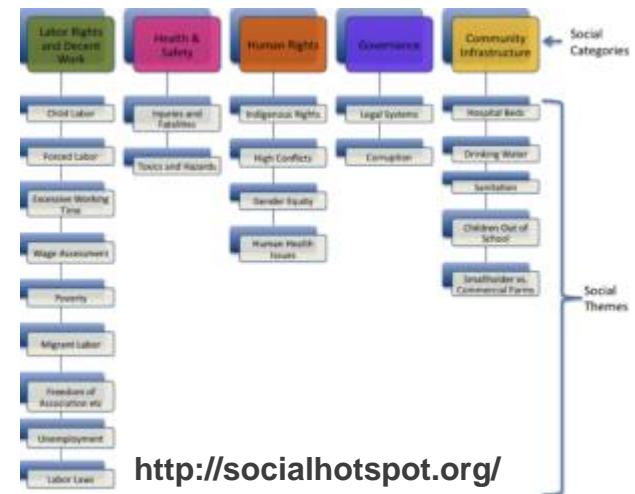
Data type
<a href="#">World Input-Output Tables</a>
<a href="#">National Input-Output Tables</a>
<a href="#">Socio Economic Accounts</a>
<a href="#">Environmental Accounts</a>

[http://www.wiod.org/new\\_site/home.htm](http://www.wiod.org/new_site/home.htm)

## SOCIAL ASSESSMENT

### SOCIAL HOTSPOTS DATABASE

Data on social risks by sector, country or risk theme  
 227 countries  
 57 economic sectors  
 Social issues: human rights, working conditions, community impacts and governance issues  
 Nearly 150 risk indicators grouped within 22 themes



<http://socialhotspot.org/>

# Deliverables

D1. Report on socioeconomic and social sustainability indicators

- Electricity generation technologies

D2. Workshop – open for all interested ETSAP partners

- Presentation of the methodology
- Presentation of the preliminary results

# Budget

<b>Personel Costs</b>			
<b>Tasks</b>	<b>Estimated Person-Days</b>	<b>Average Cost per Person-Day</b>	<b>Total Cost</b>
Selection of social and socioeconomic sustainability indicators	10	850	8500
Quantification of the selected indicators	10	850	8500
Implementation of the selected indicators into TIMES models	20	850	17000
Case study on the effect of the introduction of sustainability indicators	20	850	17000
Joint workshop to present the results and methodology	8	850	6800
		850	0
		<b>Total=</b>	<b>57800</b>

<b>Other Expenses</b>	<b>Estimated Costs</b>
<b>Travel and accomodation budget for workshop</b>	2000
<b>Venue hire and catering</b>	1000
...	
<b>Total</b>	<b>3000</b>

<b>Total Project Cost</b>	<b>60800</b>
---------------------------	--------------