

# Assessing health impacts of energy transition technologies



**Mortara Simone Fortunato**

*Head of Global Health - Competence Centre / Eni  
Italy*

[simone.mortara@eni.com](mailto:simone.mortara@eni.com)

[www.eni.com](http://www.eni.com)



# Introduction

- *Eni's new mission* was developed to better capture the company's goal of **promoting a just transition**
- The Company's business model on energy transition requires significant changes in the organization. There are direct and in-direct implications to Eni's of managing health aspects in the projects
- In this new model, the **Health of workers, their families and communities remains at the heart of the business**
- **Continuous research and innovative approaches** are essential for the good governance of the health system both for workers, their families and for the communities surrounding the Company's industrial activities
- **Eni's objective in advancing research on Energy Transition and Health is to ensure alignment and consistency with:**
  - *Eni's mission and strategy*
  - *The SGDs*
  - *Eni's positioning in Health*
  - *Strengthening Eni's role as Global and lead player in the just and energy transition context*
  - *National and international regulation*



# Eni - Technologies and Risks Evaluation for Energy Transition

## PROPRIETARY AND BREAKTHROUGH TECHNOLOGIES

A portfolio of technologies to meet decarbonized energy needs



### RENEWABLES & NEW ENERGIES

- MAGNETIC FUSION
- ENERGY STORAGE
- WAVE ENERGY

*on the path to clean and reliable energy*



### DECARBONIZED SOLUTIONS

- CARBON CAPTURE UTILIZATION & STORAGE

*deploying safe, easy to apply and cost-effective solutions for CO<sub>2</sub> capture, utilization and storage*



### CIRCULAR & BIO PRODUCTS

- ADVANCED BIOFUELS
- BIO-FEEDSTOCK
- HYDROGEN
- WASTE VALORIZATION

*for a rapid transition to low-carbon mobility and circularity*

## 1. EVOLUTION OF THE HEALTH SYSTEM

- Roles and responsibilities for wellbeing
- Human Capital Management
- New and emerging health technologies
- Health priorities of the current decade (2030)
- Pandemic preparedness, response and recovery

## 2. REGULATORY ANTICIPATION AND RISK OF LACK OF CONSISTENCY ON POSITIONING ON EMERGING HEALTH ISSUES

- Direct Impacts of Climate
- Ecosystem-Mediated Impacts of Climate Change
- Other environmental stressors related to new energy

## 3. INCREASING ATTENTION AND REQUESTS FOR DISCLOSURE BY STAKEHOLDERS AND SHAREHOLDERS

- Sustainability
- Health co-benefits of climate change and energy policies

# Eni - Energy Transition and Human Health



1



2



3



4

## Epidemiological Assessment and Industrial Hygiene - the interaction between environment and health and health impacts of industrial activities

- Data on health effects for solar and wind power is scarce :
  - ✓ CSP : few studies available ( model-based) ; no direct evidence of possible effects.
  - ✓ Wind power : relatively large number of studies ( self-reported information on outcome and often also on exposure) potentially causing recall bias. No clear associations reported in the few studies with some form of validation of exposure.
  - ✓ No longitudinal (cohort) studies have been conducted in subjects exposed to wind turbines.
- Good quality studies needed on health effects of renewable energy.
  - ✓ Should include populations and patients with well characterized exposure.
  - ✓ high-quality information on outcome, and assessment of potential confounders.
- Retrospective studies might produce useful results, but prospective longitudinal ones would be the strongest.
- A variety of LCA studies have been conducted for other technologies reporting low levels of emissions, few studies included a comparison with fossil-based technologies.
- Comprehensive assessment of exposure levels (residential and occupational) from operating plant
- Ad-Hoc model-based studies of potential health effects based on exposure estimates

## Infectious diseases, emerging diseases and regional/global health emergencies

- Strengthening Preparedness systems and drafting Emergency Preparedness Plans in a One Health perspective.
- Reinforcing epidemiological emergencies monitoring, in collaboration with International Public Health Institutions.
- Promoting Use and provision of technologies and digital platforms supporting Public Health during emergencies.
- Fostering Public-Private Partnerships.
- Consolidating for evidence-based communication systems implementation to keep citizens/workers informed and updated.
- Boosting Development of evidence-based decision making at corporate level.
- Strengthening political will to build health surveillance models in collaboration with International Health Institutions.

## Health and Social Health Models and Systems

- Review of the literature on welfare models
- Analysis of the weight of private consumption in the healthcare sector in Italy
- Definition of the key transformational drivers (aging population, new available services thanks to scientific progress, prevention centrality, community focus)
- Framing of Eni's corporate health-welfare model with respect to existing configurations

# Area 1 & 2 - Life Cycle Analysis (LCA) on Biofuel-based Energy



## OBJECTIVES & SCOPE

- o Evaluate Occupational related-health risks
  - o Evaluate environmental health risks and opportunities(\*)
- \*) Environmental health risks and opportunities are not included in the current study.

## Next Step

Adapt the company health management system with focus on :

- o Health surveillance programme
- o Occupational Health with appropriate health risk assessment and Industrial Hygiene monitoring programme

# Area 3 : Infectious Diseases, Emerging Diseases and Global Health Emergencies

## PROJECT 1 - HEMORRHAGIC FEVERS

### GOAL AND OBJECTIVES

- Set tool for a better control of hemorrhagic fever epidemics (Ebola, Lassa fever and Marburg), through the identification of environmental and population risk factors

### OUTCOME

- Risk factors associated to hemorrhagic fever
- Practical tools to assess three risk ranges for the development of epidemics of hemorrhagic fever specific to the geographical areas
- Controls measures geographically customised

## PROJECT 2 – CLIMATE CHANGE

### GOAL AND OBJECTIVES

- Reduce the risks associated to burden of diseases through adequate public health actions

### OUTCOME

- Identification of highest priority pathologies associated to climate change based in the geographical area's context
- Description of the public health interventions to reduce / control pathologies associated to burden of diseases or clinical conditions
- Define factors or KPI to evaluate and estimate the associated efficacy of each public health intervention

# Area 4 : Accountability in and Definition of Corporate Welfare Model

## CORPORATE WELFARE MODEL ACCOUNTABILITY AND ENI SALUTE CASE DEFINITION

- 2<sup>nd</sup> & 3<sup>rd</sup> year research path envisaged based on 1<sup>st</sup> year outcomes.

## YEAR 2 - EVALUATE CULTURE OF HEALTH IN ENI

Develop a “user’s perspective” through a survey of employees’ cohort. Objectives:

- Corporate accountability & guidelines development.
- Tailoring corporate services to the expectations and needs of potential users

## YEAR 3 - SET HEALTH CULTURE CORPORATE STRATEGY

- Focus on the uniqueness of "Eni Health Case" in the literature of oil & gas companies
- Introduce the historical relationship between the corporate welfare services choices and the different historical phases of the NHS.



# Area 4 : Future Trends of Health Culture

ASSESS TRENDS WITHIN THE FOLLOWING TOPICS AND SETTING PROGRAM BASED ON BUSINESS IMPACT

## Healthcare System

- Improve healthcare for our workers in terms of quality and value
- Extend/optimize healthcare coverage and access
- Explore opportunities within public and private health systems

## Community Health

- Improving Environmental and Health resilience through the culture of Health Impact Assessment
- Diseases Prevention and Health Promotion through needs assessment
- Social Determinants of Health including health disparities with focus on vulnerable groups

## Healthy Families and Children \*

- Childhood Obesity
- Economic Inclusion for Family Wellbeing
- Valuing Caregivers and Families

*\* Pertaining to employee families.*

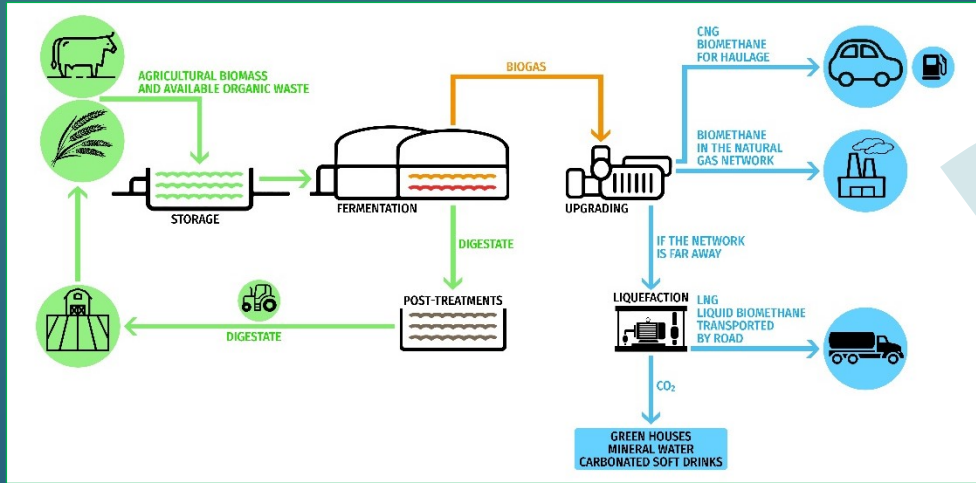
## Leadership for Better Health

- Health Leadership Development with internal and external stakeholders
- Nurses and Nursing\*

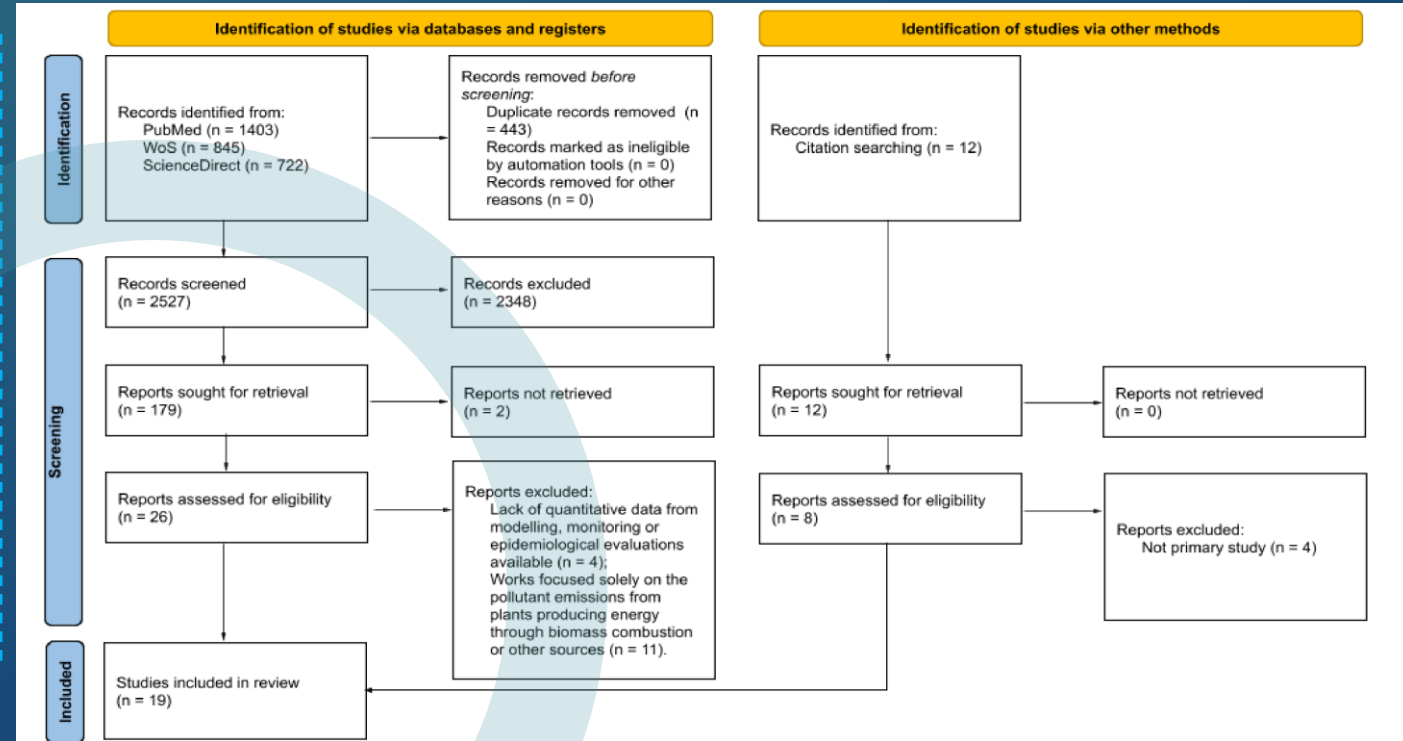
*\*Pertaining to Company provided health services*



# Health Impact from Biogas Production Process and Biomass Combustion



Surrounding community & environment



Field assessment would be the next step – ongoing

- Pre-screening of actual company biogas facilities and locations
- Selection would be based on general context with focus on :
  - Potential health issues
  - Existence of surrounding subpopulation
  - Data availability

The potential occupational and community hazards associated to biogas plants from literature review:

- biogas plants included in the study highlighted the release of VOCs, gaseous pollutants and particles such as : 1,2–dichloroethane ; Benzene ; ethylbenzene; 1,1,2–trichloroethane; tetrachloroethylene ; styrene; tetrachloromethane; and limonene
- design control measures may be recommended to reduce emissions i.e. methane from the digestion tank
- epidemiological screening highlights the importance of health surveillance program on workers and residents as to their lifestyle for more efficient assessment of potential health effects
- Biological risk (e.g. airborne micro–organisms) has to be further assessed using the available methods (e.g. CAMNEA Method)
- Eutrophication at the digester and the presence of heavy metals concentration in digestate should be further assessed

Limitations in the definition of consistent benchmarks:

- limited number of studies including on–field and site data collection and monitoring
- specificities of the national standards and the use of different technologies do not enable a direct comparison among different studies

# Stakeholders – IOGP-IPIECA

## Systematic literature reviews to further investigate :

- Technical features and local standards
- On-field monitoring
- Quality of data collected
- Context specific features

## IOGP Health Committee and Energy Transition taskforce to:

- Advance awareness and knowledge on the health-related risks, impacts and opportunities identified by the energy industry in the evolving context of the energy transition.
- Leveraging on IOGP's Energy Transition Directorate and key topics: The four Energy Transition topics are: Electrification, Carbon Capture Transportation and Storage, Minimization of all flaring and venting activities, Best available technology in energy efficiency

## Outcome:

- Summarize the current status of knowledge in the energy sector on the health risks, impacts and opportunities associated with the energy transition
- Evidence of the efforts done by the sector so far on lowering carbon emissions
- Provide business leaders with information that will enable them to consider the health impacts in future decision making

## Where we are:

- Scope and objectives of TF approved
- Index of the highlevel document approved
- Questionnaire: final version to be shared and approved
- Breakout sessions (two groups) on chapter 2 and 3 of approved index to be started

## Conclusion and Way Forward

- Complete this year program for better understanding of health-related risks and impacts linked to the energy transition
- Selection of next year program based on priorities and the level of impact on the business
- Reinforce the stockholder engagement through the different networks

# Let's continue the conversation!

Post questions and comments in the IAIA23 app.

**Simone Mortara**

*Head of Global Health Competence Center*

*Italy*

Simone.mortara@eni.com

[www.eni.com](http://www.eni.com)

