Recuperación de Energía y Materiales – WTERT Chile
2016 Bi-annual Meeting of the Global WTERT Council
Columbia University, New York City, Octubre 2016

Facultad de Ingeniería
Alex Godoy-Faúndez
Director, Sustainability Research Centre & Strategic Resource Management
REM Chile / WTERT CHILE www.wtert.cl
• REM Chile born in 2014 supported by Prof. Themelis and Prof. Bourtsalas
• Host until 2016 – School of Engineering, Universidad del Desarrollo
• WTERT Chile (REM) is an initiative into CiSGER - www.wtert.cl
Objective
• Promote Sustainable Waste Management Systems... in Spanish
• Promote waste treatment technologies with potential to contribute to recovery of materials and energy generation in Chile for a sustainable waste management... in Spanish
• Bring support to public policies related to wastes
• Create network in Latam supported by WTERT Columbia
Research
LCA and MFA on WTE Techs supported by President’s Innovation Funds of Prof. Bourtsalas
WTE Potential Chilean Map
Matrix WTE Techs impacts, Climate Change
and local Law
• Teaching
  Thermodynamics
  Industrial Operations & Sustainability
• Outreach
Network

- PhD. Edmundo Muñoz, Academic Director, Environmental Engineering Program
- LCA and MFA applied to Materials & Energy Recovery

Network

- Dean, Rodrigo Navia, School of Engineering, Universidad de la Frontera
- Center of Waste Management and Bioenergy
- Associate Editor, Waste Management & Research, revista ISI publicada por SAGE Publications, London, UK, con el auspicio de la International Solid Waste Association (ISWA)
Network Objectives
• Strengthen Latin American networks

WTERT
Brasil
Argentina
Colombia
Perú
Cuba
CHILE - Country Facts

• GDP: USD 300 billion
• Population: 17 million
• GDP pc (PPP): USD 23,200
• Trade Openness: 67% of GDP
• Very good credit rating
• Continuous GDP rate growth
• Responsible public sector spending and strong international reserves
Chile doesn’t have an integrated waste policy. Economic growth was coupled with significant amounts of waste, creating environmental and social costs, specially in the regions:

- Aquaculture (Sludge)
- Forestry Industry (Wood)
- Mining Industry
- Urban Wastes
• FOCUS: INCREASE RECYCLING RATE TO 30%
• NAMA: Nationally Appropriate Mitigation Actions: Biogas
Sustainable Waste Management in Chile

Cabañas, F., A.C.(Thanos) Bourtsalas; Themelis, N. & Godoy-Faúndez A. 
CiSGER, School of Engineering, Universidad del Desarrollo – EEC, Earth Institute, Columbia U 
WTERT Columbia –WTERT Chile

- FOCUS: INCREASE RECYCLING RATE TO 30%
- NAMA: Nationally Appropriate Mitigation Actions: Biogas

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Wastes (1000tons)
Municipalities are responsible for the collection, transport and final disposal of MSW.

Most use private sector services, contracted by bidding.

Each acts independently and negotiates its own price – No fixed price (average USD$ 20/ton to final disposal)

Charge citizens through a “property tax”

Ministry of Environment put focus on increase recycling rate – Social Issue

Main concern is air pollution
Green or Clean Point (Drop off)
How to Certify a Waste Worker?

Worker

Accredited center for evaluation and validation

Certifier

Non-competent worker

Considerations include knowledge, skills and abilities in the workplace

Certification ceremony

Training agency

Certified worker

Registry of certified people

REP

chilevalora
WTE and Air Pollution?
- We don’t have specific rules for air emission (e.g. Foundries & Thermoelectric Plants)
- Green Movements talk about zero waste and circular economy without WTE
- WTE’s perception = Open Burning

WTE and local energy for smart grid
- Spot price around USD$47.6/MW. Energy is not a business
- WTE like backup system (Ministry of Energy)

WTE scales
- Big plants, big problems.
- Modular and mobile equipments (recover land – landfills)
- Need an Integrated Waste Policy including all techs
- Need to investigate new technologies such as waste-to-energy (WTE) to different scales for industrial wastes and co-treatment
- Need to investigate WTE technologies and Air Emissions
- Waste should be regarded as a resource for recovery of materials and energy and not simply as a disposal problem
- We need to move forward proposing public policies according to environmental impacts and local regulation.
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