



Tilia's model and contribution in the new energy context

Reshaping energy?

Paris Dauphine, March 13th 2015

Cyril Roger-Lacan, CEO, Tilia

Companies which didn't reinvent energy ...



- ... relied heavily on efficient markets and e.trading to shape energy's future
- ... relied on « one size fits all » technologies or energy sources
- ... didn't take citizens expectations and information sharing claims seriously
- ... lost their monopolies while keeping monopolistic organisation and culture
- ... nested in traditional utility siloes
- ... believed in technological mesmerism

long list to be extended ...

A new local context

New possibilities are found in **holistic approaches**, which both

- **bundle** various dimensions of energy (better use of resources; better production, energy efficiency) and
- **connects** energy with other basic needs / local policies / public infrastructure (transportation, housing, water cycle management, waste recycling)



Those policies require a **new local public governance**, and **new PPPs** which strengthen, rather than weaken, public management capabilities: **innovation flows in if local energy systems are gradually redesigned to make it happen**

Change conditions: pillars of the Tilia model



- ✓ A new proposal to municipalities, regions, communities, public utilities, or industrials is needed, that rebalances and refocuses PPP
- ✓ Joint conception, co-development and co-implementation of marketable energy innovation with pour partners/clients
- ✓ Accepting open book project management and value sharing schemes, promoting transparency
- ✓ Extending value creation assessment to community value, steering multi-stakeholders process
- ✓ Bundling technological and non technological innovation



- Reflecting deep on local conditions, opportunities and constraints: « contextualising » energy.
- Setting goals, prioritising explicitly before investing, setting project targets
- Planning is not acting : implementation focus is necessary: we share risks in this implementation phase
- Money is there, but good projects are scarce : marketable energy innovation is labor intensive

Our fundamental drivers



- Community empowerment
- Local capacity building
- Municipal capitalism
- Deepening the scope of energy optimisation
- Rebalancing public private partnership
- Measurable results

Using and reinjecting wasted heat from large industries in the district heating grid of a major European harbour (800.000 inhab)



Scope

- Investment project to supply a large area out of fatal heat extracted from warm effluents from industrial processes
- Partnership between the metallurgy industrial company (heat supplier), the local energy supplier, the public body in charge of the harbor utilities and Tilia as the designer, the coordinator and a co-investor of the project
- Investment (adaptation of the industrial process to enable a more important heat flow, wood and gas cogeneration units, heat transportation pipes) : 22 M€

Achievements do date and challenges (project 2012-2032)

- Creation of a JV between the municipal company, Tila and other stakeholders
- Preparation of a 22M euros, high return investment
- price reduction impact for customers joining the network
- potential larger heat production capacity included in the technical solution to supply the urban growth of the harbor (Olympic village project)
- new possibilities of cold supply identified and quantified
- Compliance with strict CO2 emission standards (89g/kWh)
- Other positive environmental impacts from the reduction of hot effluents rejections into the river



Project development of a reference smart district heating and cold supply grid from geothermy (investment: 50Meuros)



Scope

- Project management for the energy modelling strategy (phase1) and for the heating network building and operation (phase 2)
- Main project of a leading research and university cluster. Complex energy requirements (laboratories, experimental stations, schools, service, accommodations)
- Lack of coordination between numerous developers and builders as regards energy strategies. Conflicts of interests as regards
- Demanding and heterogeneous energy profiles from different heat and cold offtakers

Achievements and challenges (project lasts form 2013 to 2021)

- Design of an innovative, sustainable, shared and mutualised grid solution based on geothermic operation, renewable energies and consumption optimisation
- Reconciling high environmental requirement (>50% renewable energy; consumption optimisation thanks to multi-level thermal exchanges) with financial constraints (capital and operating public budget of numerous offtakers, financial debt constraints of the public company financing the grid)
- Project management including complex public environment with important and numerous stakeholders (4 ministries, several municipalities, national public agencies (CGI, ADEME, Grand Paris))
- This will be a European showcase of heat smart grid projects



Development of a large municipal/regional energy company's (500 000 inhab) strategy and new green investments focus



Scope

- Business with a strong technical culture, deeply rooted on strong historical positions but facing many challenges
- High pressure on productivity linked to the opening of historical markets
- Reorganisation of historical activities and integration of new service structures
- Company value reconstruction through new activities development and productivity efforts

Achievements

Conception and Implementation of a renewed municipal energy company concept, relying on new business partnerships with local stakeholders, new customer relationship and focus on local sustainability investments

Strategy for better using regional resources in such fields as geothermy, electric renewable energies, or biomass.

Roadmap for new investments in those activities, partially financed through efficiency gains on existing activities (150 M euros (NPV))



Comprehensive performance enhancement and renewables development of a large municipal energy company (3.4 M inhab)



Scope

- Large-scale regional energy company covering all fields of the energy value chain
- Excessive diversification in the years leading up to the start of the project
- Process optimisation potential as a consequence of the electricity and gas markets liberalisation
- Need for a strategy in renewable energies

Achievements

- Joint elaboration and implementation of a scheduled optimisation plan in all key activity the company fields (operative, staff, commercial, legal...) during the 2012-2017 period requiring the engagement and extensive participation from all the levels of the organisation, and key stakeholders
- Clear roadmap and regards production from renewable energies : investment priorities, organisation and financing
- Implementation of a control and management performance system
- ✓ **30 M Euros of recurrent savings (NPV: 400 M Euros)**



Reset of a medium-size town (15000 inhab) energy concept / development of a new production facility based on methanisation of agricultural waste + cogeneration



Scope

- Full analysis of the local potential for heat usages
- Full analysis of local available energy resources and benchmarking of various solutions in order to improve the production costs and environmental footprint of existing facilities
- Mid-term modelling of the local energy demand as well as economic and tariff modelling

Achievements (2010-2015...)

- Elaboration, benchmarking and prioritisation of a whole range of potential municipal projects, Design, development and financing of a new methanisation-cogeneration system and optimisation of the district heating network
- Identification of new heat offtake potential from large, unconnected potential customers; identification of new customers, support to the constitution of the agricultural JV (waste providers)
- Contract negotiation with waste providers and heat off-takers, support to the procurement, construction and operation of the new methanisation and cogeneration plants
- ✓ **Return on equity for the investing municipal entity > 25%**
- ✓ **30% decrease of the heat bills**
- ✓ **40% decrease of CO2 emissions**



New energy concept for a high tech industrial equipment manufacturer –co-development of a modern tri-generation facility



Scope

- High tech industrial equipment manufacturer facing technical problems as a result of unstable temperatures in his process, having negative quality impact in the industrial process
- Need to stabilize energy costs in the long term
- Need to secure a reliable source of energy supply

Main achievements

- Proposal of a tri-generation solution together with a complete redesign of the air conditioning of the site.
- Technical-economical analysis, with the comparison of several scenarios leading to an optimal design with maximized benefits in terms of quality, costs, risk mitigation and environmental impact.
- Tilia co-invested in the project and helped coordinate the work between the different stakeholders, leading to a seamless delivery and commissioning of the installation. Tilia also provides support to the operation
- As a result of this project energy supply was secured for the long term and energy costs were edged.
- ✓ **15% yearly energy cost savings**
- ✓ **60% reduction of CO2 emissions**

