

Designing and enabling framework for district energy in Chile



DISTRICT ENERGY IN CITIES

A GLOBAL INITIATIVE TO UNLOCK THE POTENTIAL OF ENERGY EFFICIENCY AND RENEWABLE ENERGY



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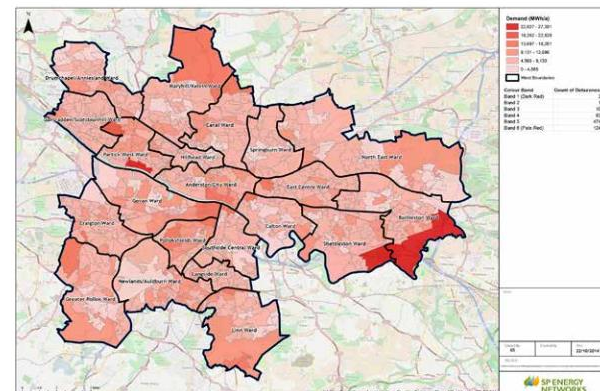


SUPPORT THE DEVELOPMENT OF A CITY ENERGY MASTER PLANNING

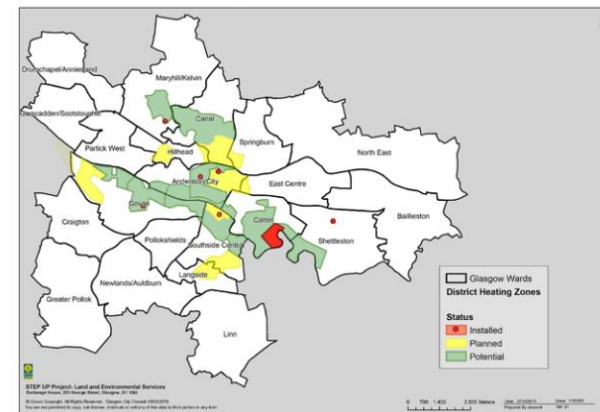
A city-wide mapping and energy master plan will help the city to:

- map pollution, waste heat, heat/energy-use (fuel type and consumption), building types, technologies used (individual woodstoves, community stoves with central heating, boilers)
- establish priority zones for DH development and develop zonal policies and define license areas
- Define a city-wide strategy developing scenarios of pollution growth and energy use and analyze which technology would deliver best results in terms of pollution/GHG reductions.

Map 5 Total residential energy demand in Glasgow (Source SPEN)



Map 2: District Heating Zones in Glasgow





DEVELOP FINANCIAL MECHANISMS TO FACILITATE INVESTMENT

Unlocking investment by:

- Facilitating project development (e.g through **grants** for feasibility studies and project commercialization). Grants could be refunded through a “revolving fund”.
- Making priority buildings for DH efficient and ready for connection
- Analyzing the risks of the different elements of a DH project (construction, load, cogeneration electricity revenues) and setting up a tailored made **soft loan and/or guarantees** programme to meet the returns on investment expected by each investor type.





DESIGN A SUSTAINABLE POLICY FRAMEWORK

A sustainable policy framework would allow to:

- Level the playing field against alternative technologies
- Promote renewable and efficient district energy that addresses air pollution and fuel poverty
- Pollution regulations
- Incentivize CHP plants (e.g explore the possibility of FiT, tax incentives)
- Protect individual consumers from volatile new fuel prices
- Definition of rights-of-way for DH networks
- Delegate authority to municipalities to enable them define franchise zones/license areas
- Regulate the sale of heat (standard contracts, customer protection, tariff structures)
- Strengthen ongoing national initiatives on improving the local biomass supply changes





Panel 1 :Tackling air pollution and addressing the needs of the residential sector

Panel 2 :What financial instruments would help kick-start the first district energy networks?

Panel 3 :How to encourage the development of CHP plants within the Chilean electricity market?

Chile GCF Concept Development



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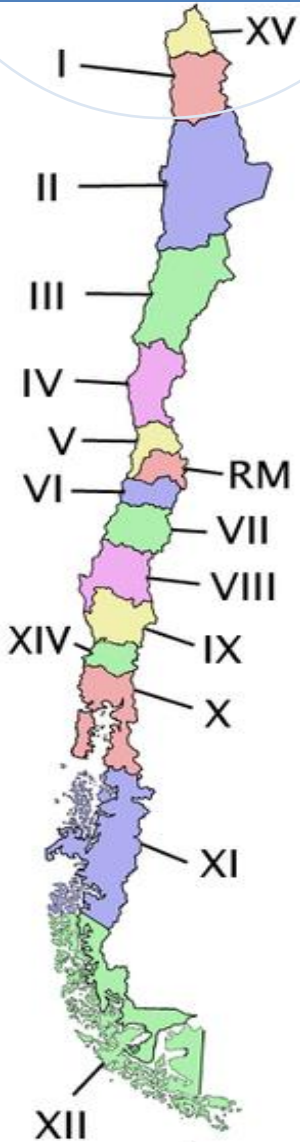
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FINANCIAL INSTRUMENTS FOR DH INVESTMENT

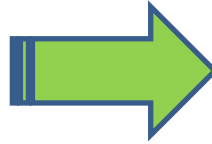


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Policy objectives

- Manage urban air pollution
- Deliver low cost heating
- Energy efficiency



By promoting:

- Investment in DH/ CHP with:
 - Renewable/ waste heat
 - energy efficient technology
- lower heating costs

Heat sales

Heat sales volume

- Connection subsidies
- Heat take off guarantees
- Area concession/ bidding
- VAT (renewable, energy efficiency target)

Consumer protection

- Heat tariffs
- Service standards/ licencing
- Demand side efficiency subsidies

**DH
CHP**

Electricity sales

- Electricity feed in tariffs
- Power purchase agreements

Energy source

- Waste heat
- Biomass
- Geothermal
-etc

Project development cost

- Pre-Feasibility studies
- Commercialisation

Project capital costs

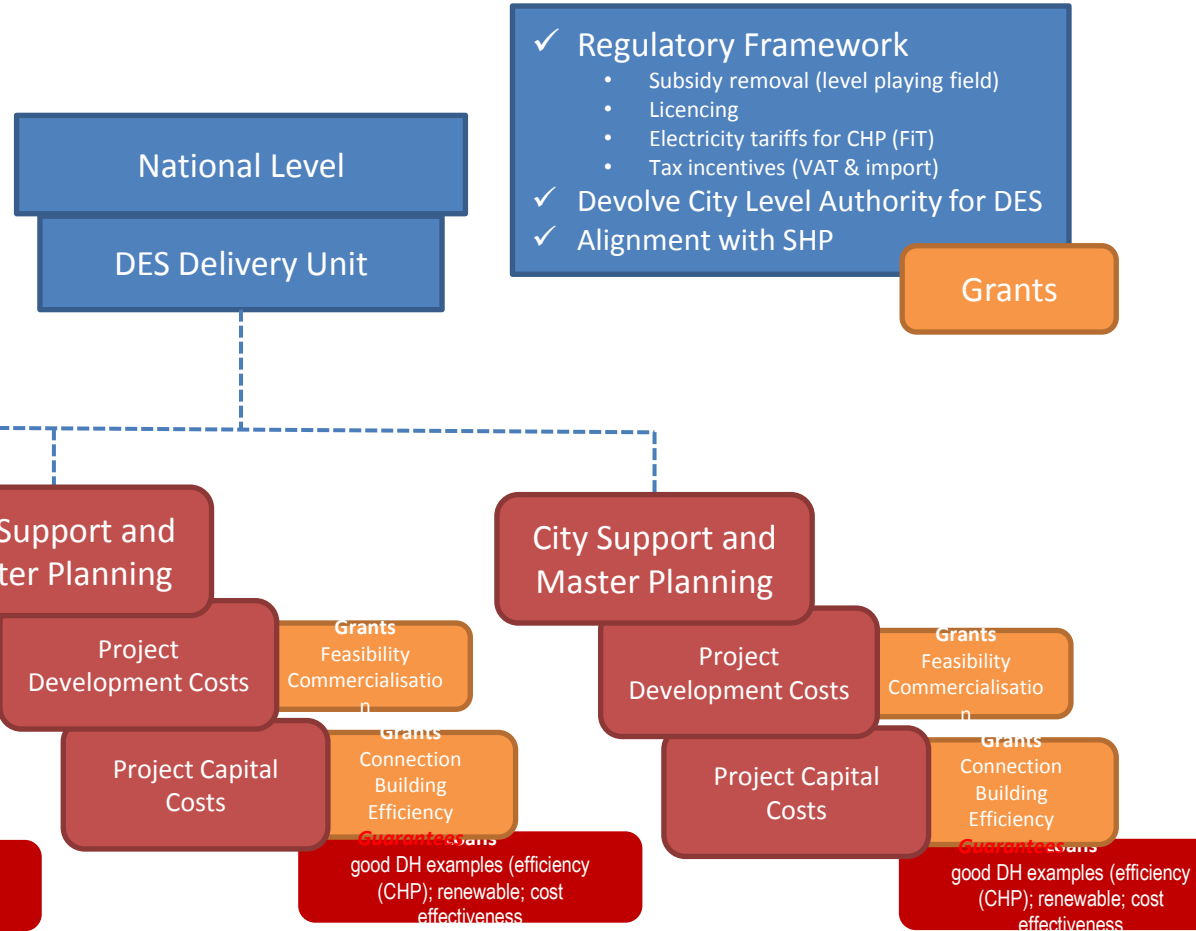
- Feasibility/ commercialisation subsidy
- Capital programmes for desirable technologies
- Import subsidies

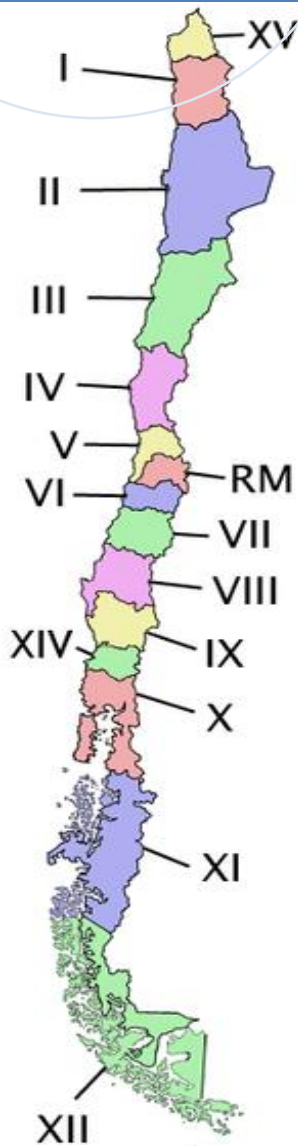
Operating costs

- Removing/ reducing carbon intense fuel subsidies

Chile District Heating Initiative

- DES Delivery (coordination) Unit at National Level
- Regulatory framework and devolvement of authority of DES for municipalities
- City Support and Master Energy Planning
- Alignment of the Sustainable Heating Programme
- Project Development Costs
- Project Capital Costs





Financial Instruments

- Grants
 - Feasibility
 - Commercialisation
 - Connection and building efficiency -low income groups/ ESCO
 - Master planning zonal targeting
 - Building efficiency
- Loans
 - Capital programme for good DH examples (efficiency (CHP); renewable; cost effectiveness)
- Guarantees
 - Heat off take
- Tariffs
 - Stabilisation for heat pumps
 - Stabilization of wood chip prices
- Feed in Tariffs
 - Electricity sales back to grid
- Tax incentives
 - VAT for DH heat sales
 - VAT/ import tax for strategic equipment

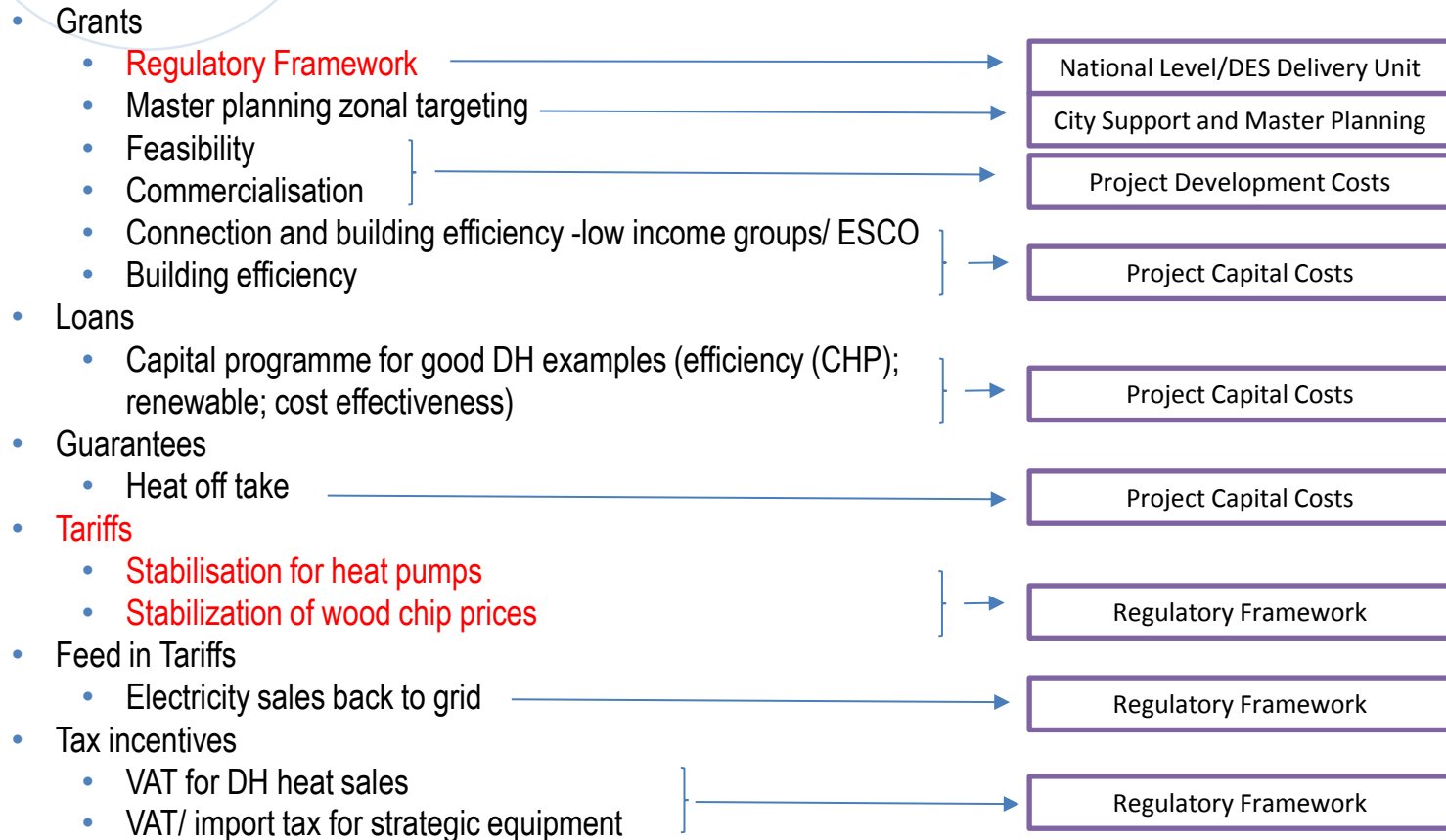
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Financial Instruments



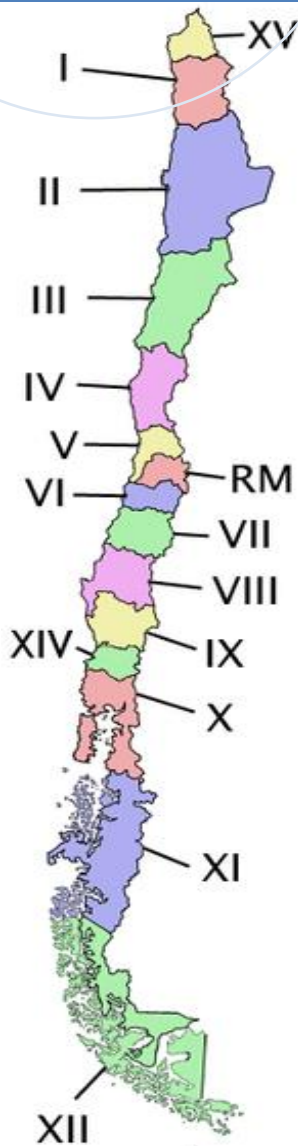
GCF Model

Arguing for Loans

FINANCIAL MODELS



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Example Categories

- Building use and consumption patterns
- Building/ block density
- Heating technologies (existing and planned)
- Energy sources

Example: Temuco Pre-feasibility work

A. High potential areas (3 to 4 year payback)

- High density buildings/ blocks
- Central heating systems (for easy connection)

B. Medium potential areas (payback period ?)

- Lower density buildings
- Mixed heating technologies (central heating & woodstoves)

C. Low potential areas

- Low density
- Wood stoves

FINANCIAL MODELS



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