

Bankability of geothermal projects

Geothermie Nederland

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Agenda

1. Sustainability within ING and team focus areas
2. Financing geothermal projects
 - Benefits of non-recourse financing compared to corporate financing
 - Typical project financing structure
 - Key focus areas of a geothermal project finance solution
3. Key take aways



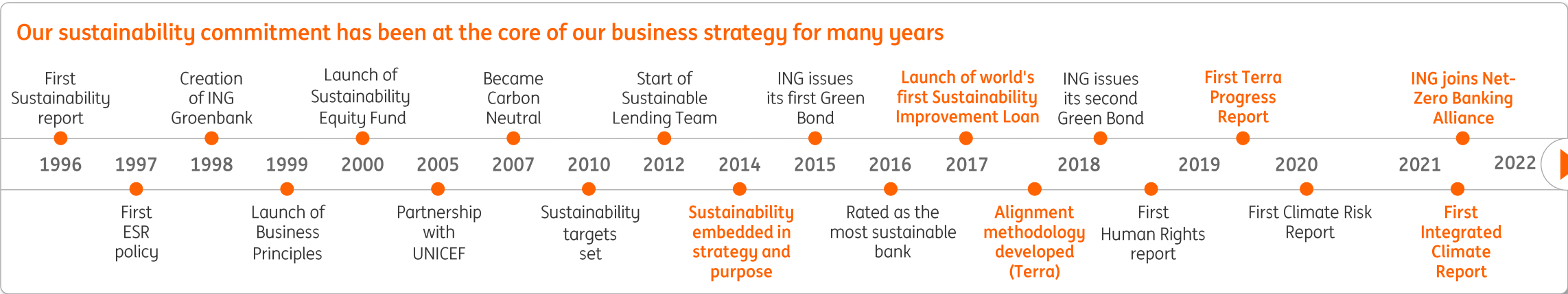


1.

Sustainability within ING and team focus areas

ING has a strong commitment to sustainability

With a sustainability track record of over 20 years, ING is a trusted sustainability banking partner.



Sustainability progress

5 of 9

Sub-sectors are on track with their 2022 climate pathways, another 2 are close to their pathway trajectories.

- on track Power generation
- on track Upstream oil & gas
- on track Commercial real estate
- on track Automotive
- on track Shipping
- close to on track Residential real estate
- close to on track Cement
- not on track Steel
- not on track Aviation

In 2021, ING closed

317

sustainable finance transactions, including circular economy bonds and sustainable supply chain financing

Renewables account for

64%

of our power generation financing at year-end 2020. This includes wind, solar, water and geothermal power.

Began using

100%

renewable electricity in our own buildings in 2020, and reduced carbon emissions by 75% since 2014.

Set new target to reduce our funding to upstream oil & gas by

12%

by 2025 from 2019, in line with the IEA net-zero 2050 scenario.

Lending to thermal coal mining has reduced more than

90%

to €30m in year-end 2020 from €316m in 2017.

Climate risk heatmaps completed for over

83%

of assets in Wholesale Banking.

In 2020, ING closed

139

sustainable finance transactions, including supporting the largest ever sustainability-linked RCF for AB Inbev.

Our reporting scope for mortgages reached

70%

from 50% by including Poland and Belgium.

Strategic direction



Steven van Rijswijk
CEO of ING

“ING aims to be a positive force in the fight against climate change. Our approach is inclusive and collaborative. We work together with our clients to facilitate their transition to low-carbon technologies.”

Sustainable Structured Finance

Structured lending for new business models, technologies and sectors in renewable energy, sustainable heating, circular economy, bio based economy and water

Example 1: Innovation in floating solar

- Non-recourse financing of floating solar system.
- The innovative aspect of this project is the ability of the PV system to rotate and follow the sun.
- This increases the power generation up to 20% compared to static PV systems.



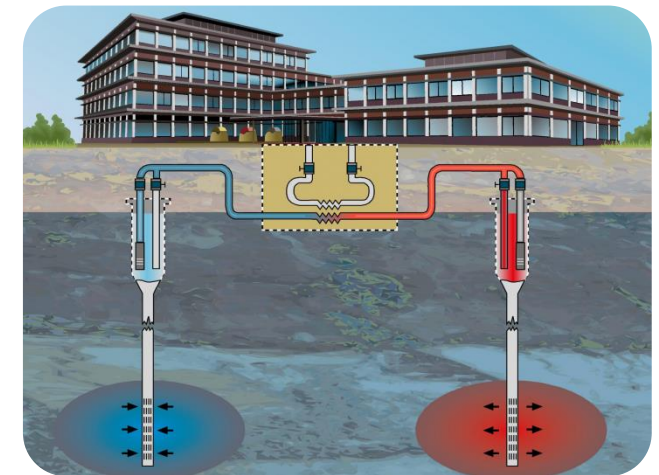
Example 2: Geothermal heat

- Non-recourse project financing for a geothermal project (18MWth) in the Netherlands.
- Replacement of natural gas (30mio M3 annually) by direct use of geothermal heat.
- Fixed price turn key EPC contract with full completion guarantee.



Example 3: Ground source heat pumps

- Non-recourse financing of a portfolio of ground source heat pumps owned by an Energy Service Company (Esco).
- This is a central heating and/or cooling system that transfers heat or cold to or from the ground.
- This project reduces the use of natural gas substantially













An aerial photograph showing a massive concrete dam with a curved spillway. A river flows through a deep, narrow canyon between steep, reddish-brown rock walls. The dam's spillway is visible in the foreground, leading down to the river. The river is a vibrant blue, contrasting with the arid, rocky landscape.

2.

Financing geothermal projects

Benefits of non-recourse financing compared to corporate financing

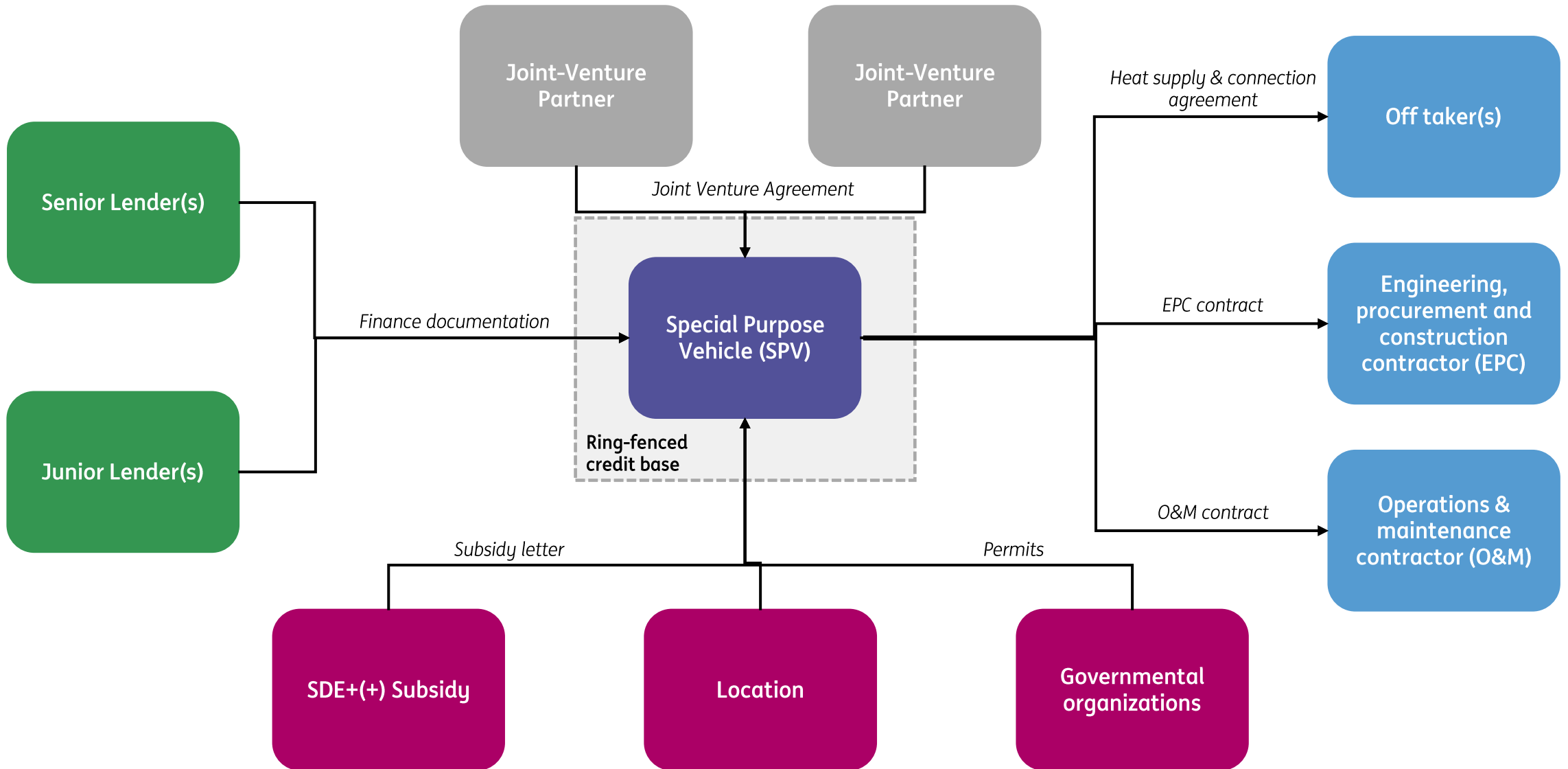
- ✓ Allows for **risk allocation** of new technologies and new business models to a SPV, Joint Venture or 3rd party
- ✓ Limited or **no impact on balance sheet** and outside debt restrictions in corporate facility
- ✓ Possibility of **longer tenors** of financing depending on the contracts
- ✓ Requires **limited equity contribution** due to higher gearing and possibly equity sharing with JV partners

Consideration	Non-recourse Financing	Corporate Financing	Comments on Non-recourse financing
Risk & Balance sheet impact			<ul style="list-style-type: none"> ✓ Risk allocation of new technologies and new business models ✓ No consolidation into financial statements in case of JV or 3rd party
Equity return			<ul style="list-style-type: none"> ✓ Limited equity contribution ✓ Longer financing tenors ✗ May require the sharing of return with JV partners or 3d parties
Credit base			<ul style="list-style-type: none"> ✓ No historical performance and financials needed ✗ Requires contracted cash flows
Flexibility			<ul style="list-style-type: none"> ✓ No lender consent needed under corporate facility ✓ Smaller scale transactions possible (>€5m) ✗ Extensive documentation and conditions for financing
Transaction cost			<ul style="list-style-type: none"> ✓ Eligible for green discount (depending on the project – Dutch Market) ✗ Additional banking and due diligence fees

 More favourable  Less favourable

Typical project financing structure for geothermal projects

Geothermal source and heat distribution network in one SPV



Key focus areas of a geothermal project finance solution

1 Agreements

- Off take contract(s) with a large pool and/or financially strong off takers.
- Long term contracts for a longer period than the tenor of the loan.
- Very limited termination grounds.
- Step-in rights senior lender(s) in major project contracts.
- No or limited risk on price, volume and quality.
- SDE+(+) should be obtained (lender might help with a support letter).

4 Construction & Operation

- Construction preferably based on fixed price turnkey EPC contracts and/or completion support from the sponsor(s).
- Drilling risk should be covered by the sponsor (i.e. equity), insurance (RNES) or EPC contract.
- Long term O&M and technical service agreements including performance undertakings and/or guarantees.
- Sufficient insurance in place (construction all risk and corporate liability).

2 Sponsor & Borrower

- Financially strong sponsor.
- Investment takes place in a SPV dedicated to the project.
- Depending on the transaction structure sponsor guarantees might be required.
- All assets, material contracts and shares of the SPV should be pledged to the lenders.
- Joint venture agreement when more than one sponsor.

5 Stakeholder management

- Permits that can already be obtained should be irrevocable at financial close.
- Large geothermal projects might involve more than 1 bank as senior lender.
- Involvement of senior lender(s) in negotiation with agreements helps for bankability.
- Agreements with united off takers (cooperatives).
- Agreements with the municipality and involvement of locals.

3 Financial Projections

- Debt sizing based on minimum debt service coverage ratio (DSCR) and debt to equity ratio's.
- Tenor up to 15 years depending on the terms and conditions of agreements.
- Stress tests on aspects like: higher capex, inflation, delay, standstill, higher opex, lower production volume.
- Maintenance and general reserve accounts for expected and unexpected (re)investments.
- Sufficient contingency budget.

6 Due diligence

External due diligence:

- Technical
- Legal
- Insurance
- Model
- Environmental aspects



3.

Key take aways

Key take aways

- 1 Geothermal projects are bankable and early involvement of lender helps the project
- 2 Agreements are key for project finance: long term contracts , no price/volume risk and limited termination grounds
- 3 Drilling risk should be covered by the sponsor (i.e. equity), insurance or the EPC contractor
- 4 Major benefits of project finance are risk allocation, no or limited impact on balance sheet and longer tenors
- 5 Financial projections should be robust, predictable, have sufficient contingencies and reserve accounts



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