



MANNVIT

1963 | 2013 | 50

Wellhead power plants

Elín Hallgrímsdóttir

26th April 2016



An international consultancy offering a wide range of services in the fields of engineering, project management, geoscience, environmental studies, IT, construction material research and EPCM contracting.

- Founded in 1963
- Employee-owned
- Management Systems certified: ISO 9001, ISO 14001, OHSAS 18001



Vatnaskil
Land & Water Resource Consultants Ltd



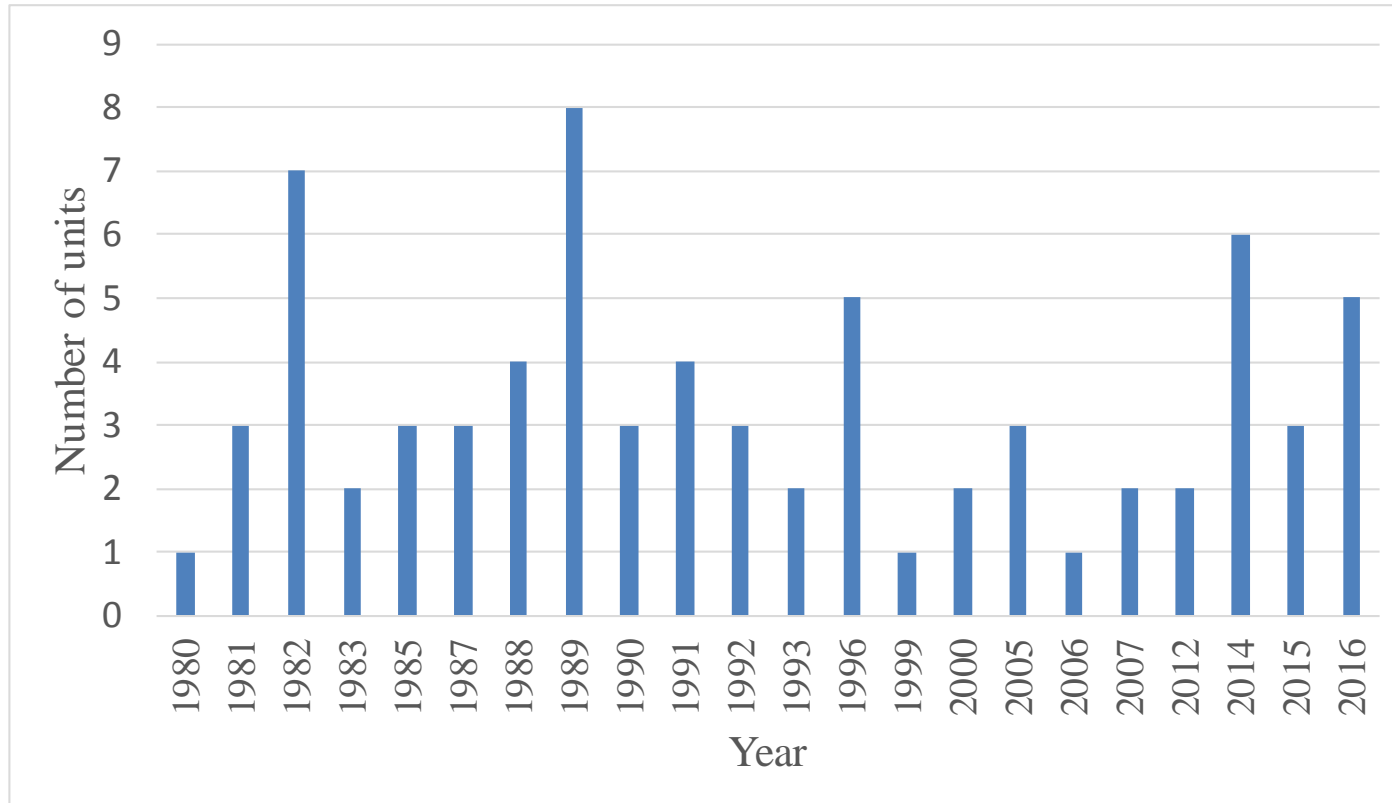
Small 0-15 MW plants from 1980-2016

1963
2013

50



MANNVIT



- Reference list from MHI, Fuji, Alstom, Ansaldo, Siemens, GEG, GE, Elliot

Wellhead power plants

Purpose

- Permanent plants
 - Long term utilization
 - Optimally utilize the resource
- Temporary plants
 - Early generation
 - Standard plants



- Source: Lýður Skúlason



Wellhead power plants

Temporary

- Pros
 - Early generation
 - Continuous well testing
 - Small units, standard
- Cons
 - Grid connection
 - Decline
 - Relocation
 - Distributed operation

Permanent

- Pros
 - “Early” generation
 - Continuous well testing
 - Small units, customized
- Cons
 - Grid connection
 - Make-up drilling/decline
 - Distributed operation
 - Spare parts



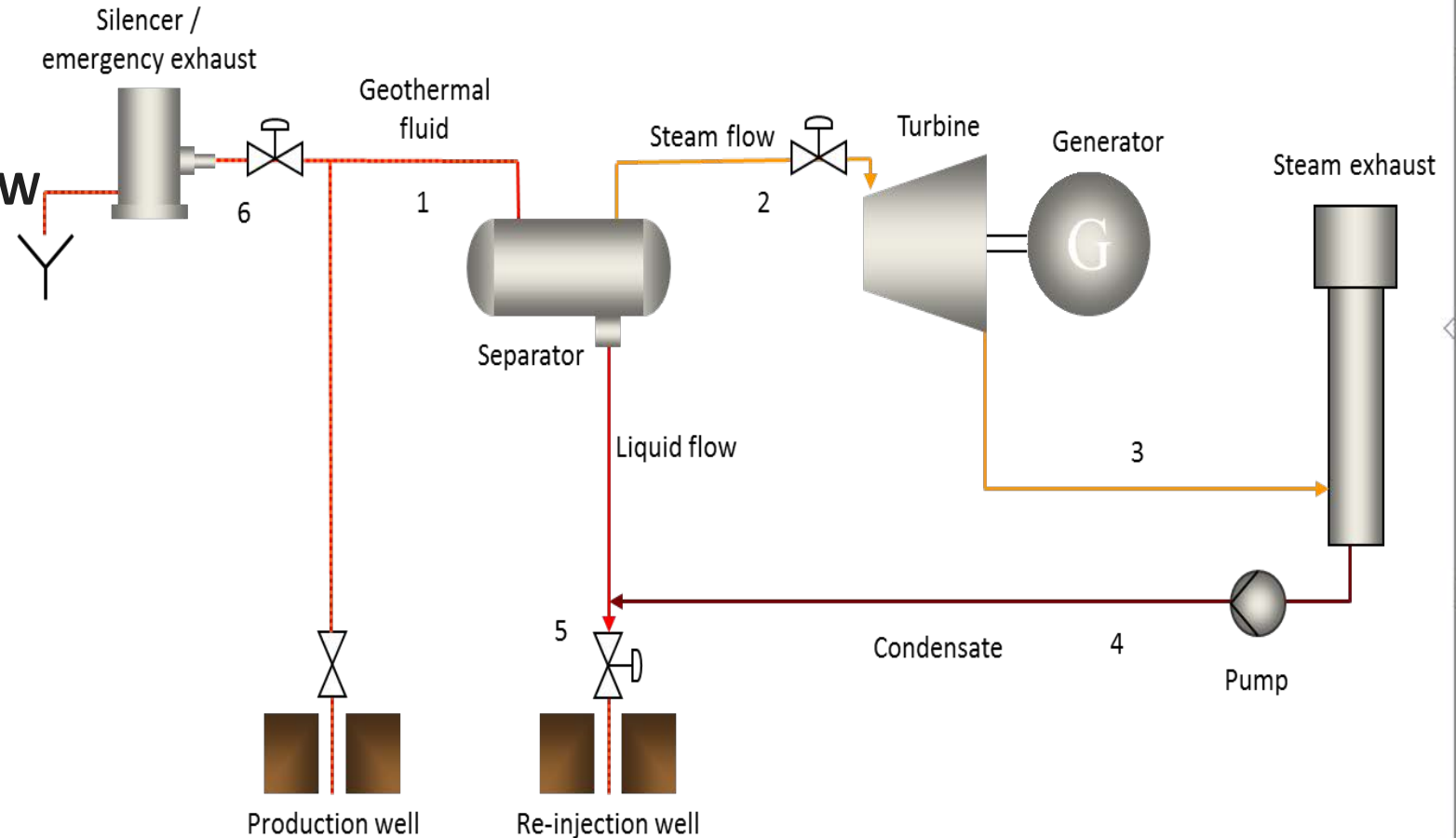
Feasibility

- Cost
 - Well cost
 - Re-injection
 - Equipment
 - Grid connection
 - Capacity factor
 - Relocation (for temporary)
 - Make up wells (for permanent)
- Feed-in tariff
- Depreciation period
- Well characteristics



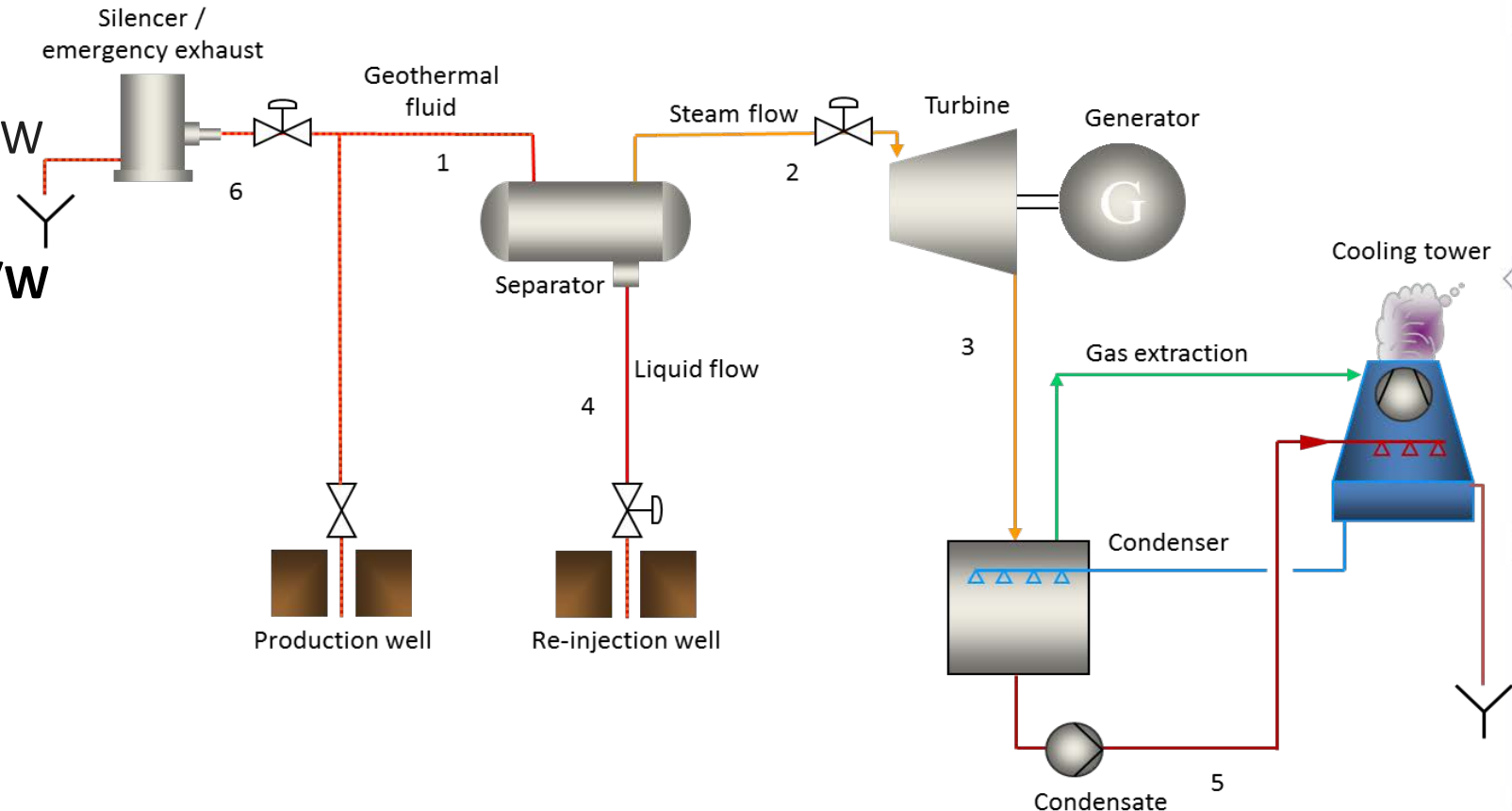
Technology – 5 MW plant

- **Backpressure**
 - **1,5-1,9 USD/W**
- **Condensing**
- **Binary**



Technology – 5 MW plant

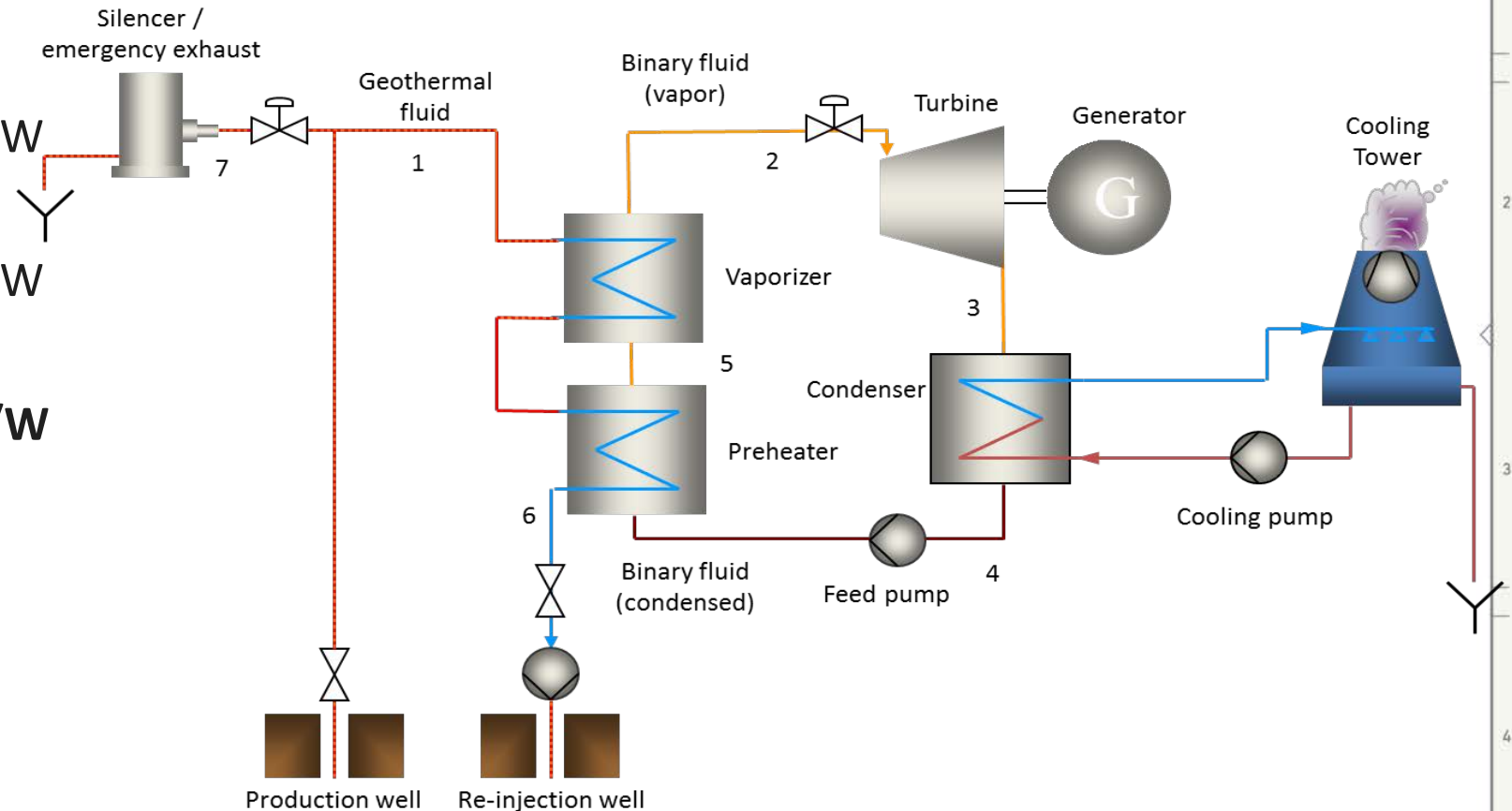
- Backpressure
 - 1,5-1,9 USD/W
- Condensing
 - 1,8-2,4 USD/W
- Binary





Technology – 5 MW plant

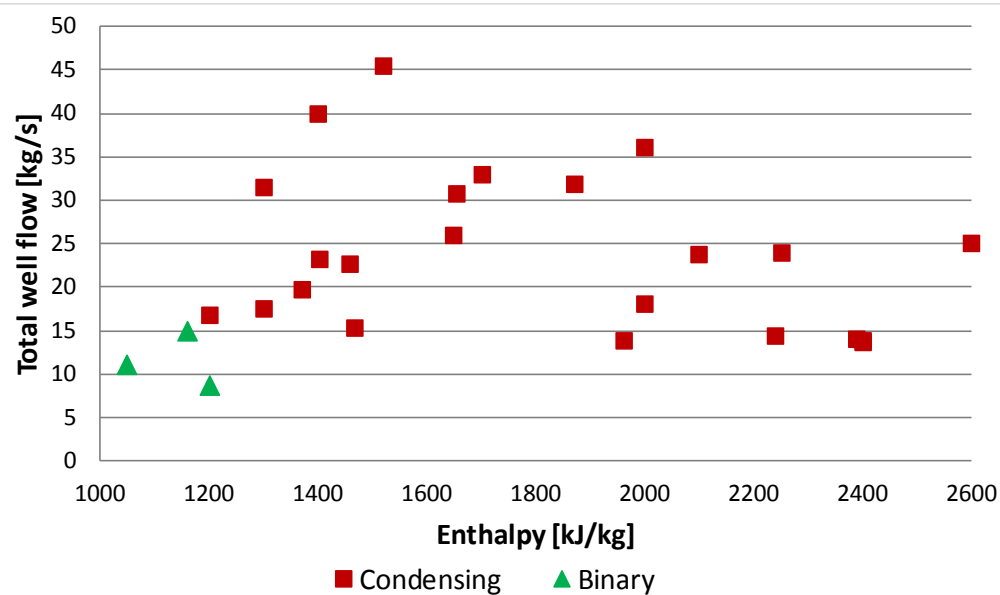
- **Backpressure**
 - 1,5-1,9 USD/W
- **Condensing**
 - 1,8-2,4 USD/W
- **Binary**
 - 2,4-3,0 USD/W





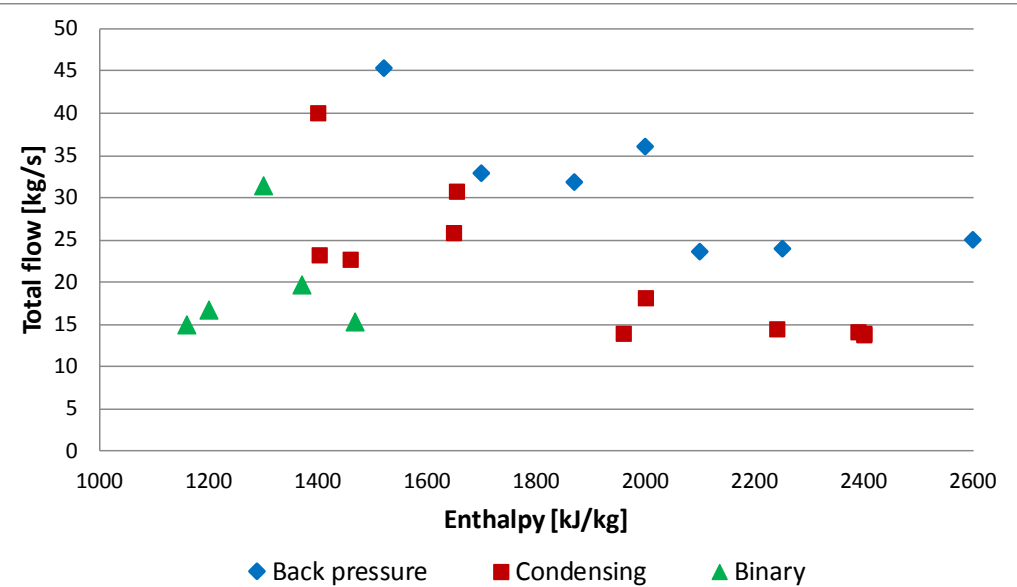
Technology - selection

Permanent



Source: Mannvit feasibility studies

Temporary





Environmental & social impact

- Temporary vs. permanent
 - Infrastructure
 - Wellpad
- Gas emissions
- Noise
- Grid connections
- Steam pipelines



Summary

- Temporary vs. permanent
- Capital cost
- Selection of technology
- Environmental and Social impact

www.mannvit.com



Size of small plants

