

stba Contemporary City

The Regional City / City Region

Regionalism, Climate Change and Sustainability

Region

- Why City Regions
- Regionalism
- Regional Urbanization: Risk and Conflict
- Regional Vision and Design

Networks

- Energy
- Projects

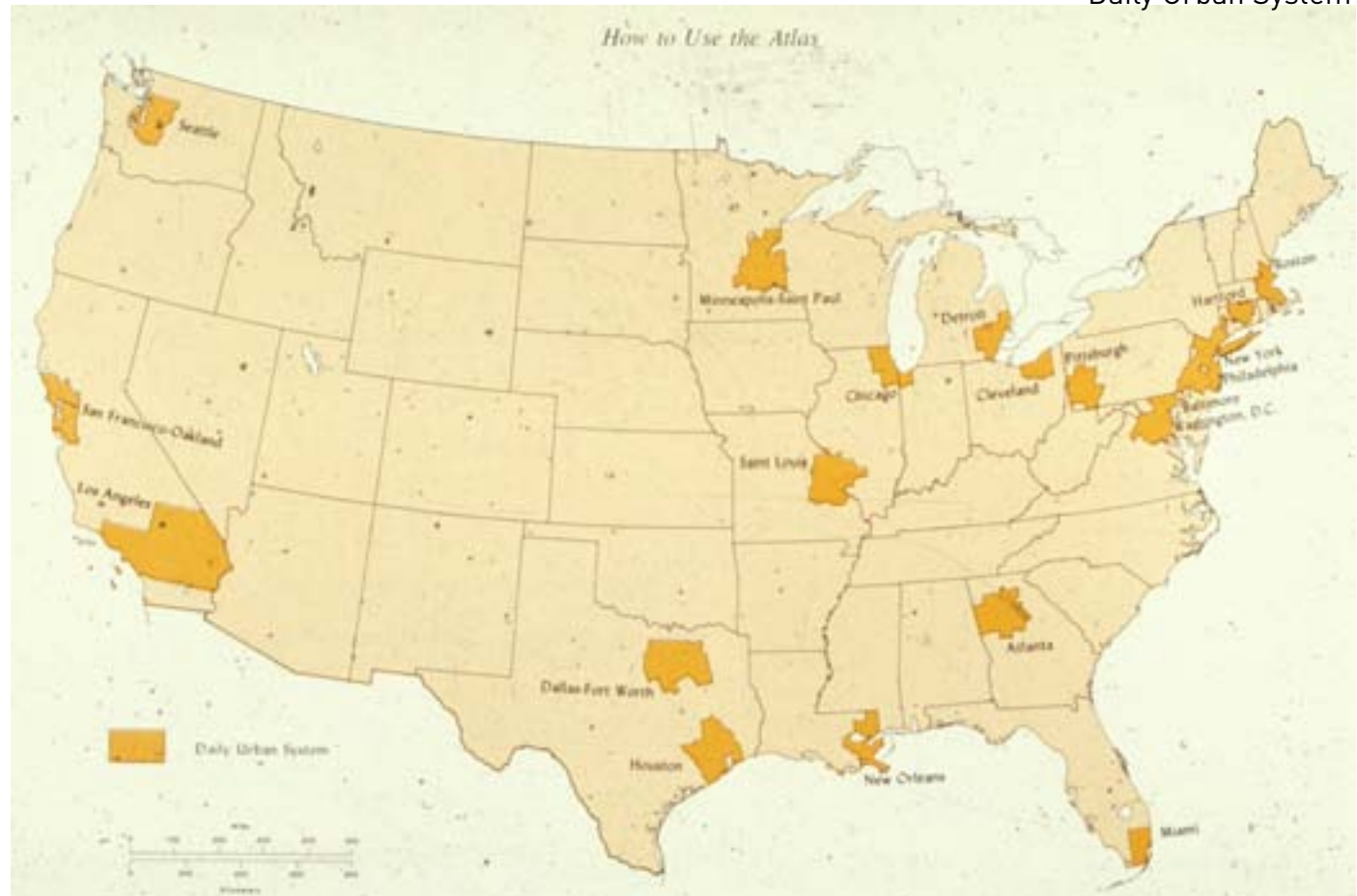
- Transportation
- Projects

Regionalism

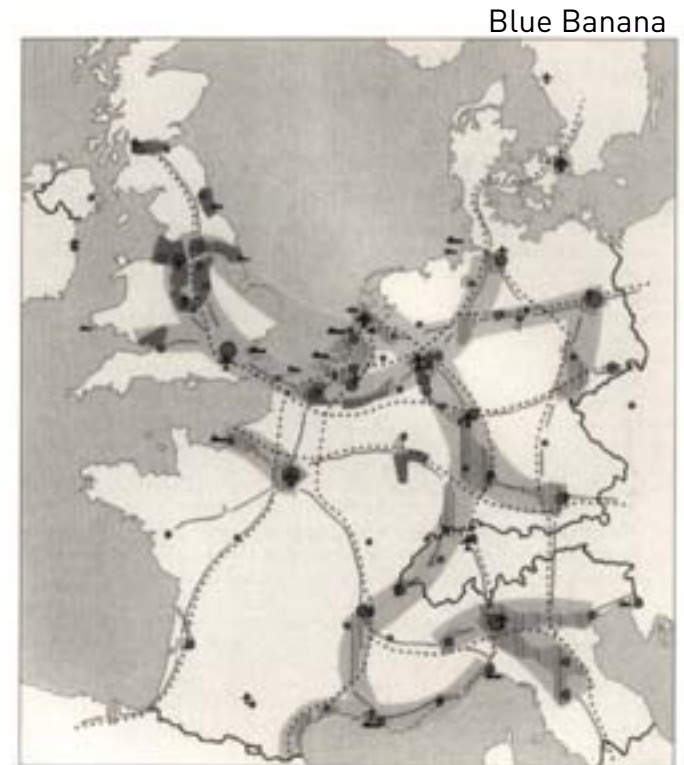
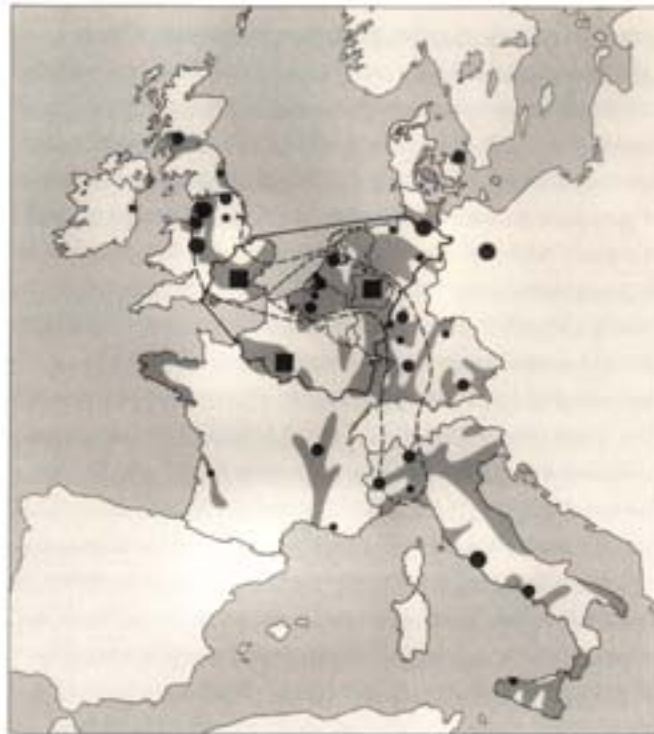
1920	Patrick Geddes and the Valley Section	<i>Garden cities</i>
1940	Lewis Mumford and the RPAA	<i>new towns</i>
1950	Suburban buildout	<i>sprawl</i>
1960	Jean Gottman, "Megalopolis"	<i>NE Corridor</i>
1970	Daily Urban System	<i>Los Angeles</i>
1980	Frampton, Critical Regionalism	<i>Tendenza</i>
1980	Edge Cities – regional sub-centers	
1990	CNU	<i>New Urbanism</i>
2000	Global City Regions	
2000	Bio- (Ecological) region	

Regional Urbanisation, 80's

Daily Urban System



Interregional Urbanisation, 90's



Left: urbanization (gray) in the European megalopolis; right: urban corridors in Europe

City Regions

Why City Regions?

“Humanity’s new home base.”

Building blocks of the 21st C

A single job and housing market.

Spatial, Economic, Ecological, Social

□

Community and Place

Progressive communal scale

Cities, Towns, Quartiers, Neighborhoods

Nested networks of consumption, conservation, recycling

Renewing the Region’s Communities

Renewing urban neighborhoods

The suburbs become mature

Integrated multi-scale Design + Planning Goals Regional City

NYRP 1996

The Third Regional Plan for The NY-NJ-CT 1996
Economy, Equity, Environment

Five campaigns:
Greensward, Centers, Mobility, Workforce, Governance

Principle:
Design with region's natural and cultural structure

NY Regional Plan, 1996

Part III. Five Major Campaigns

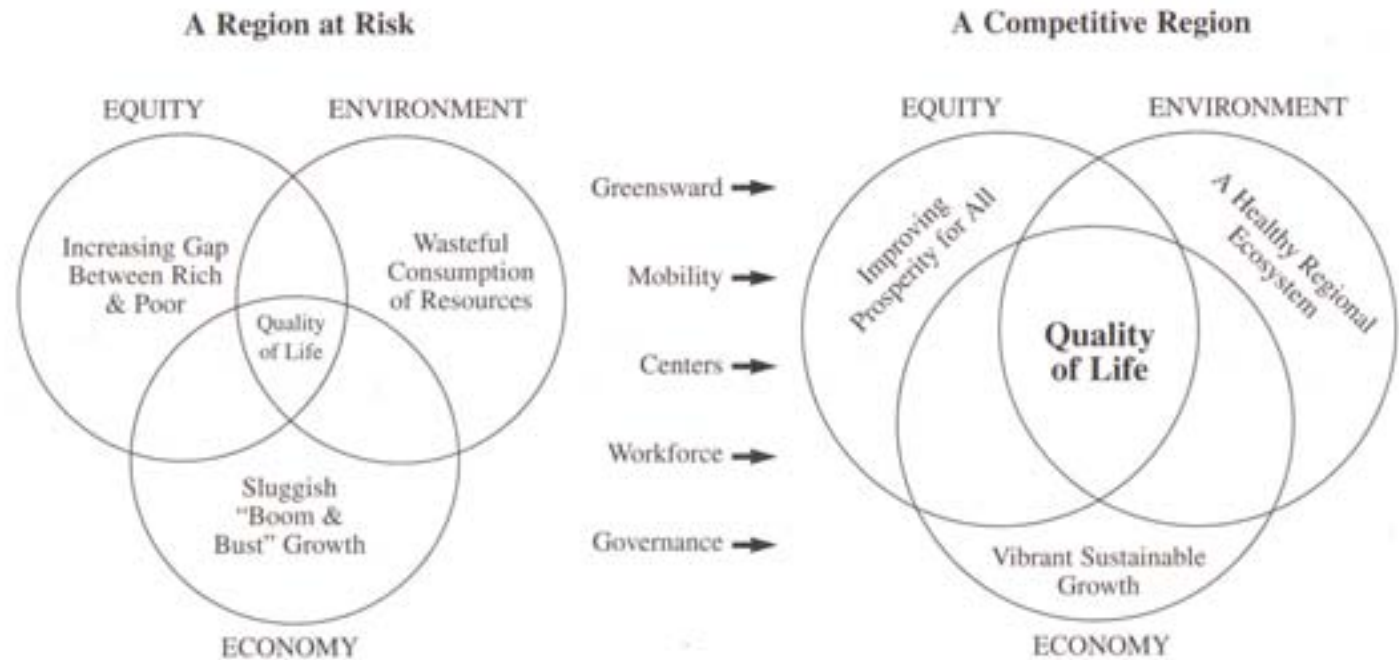


Figure 43: The Three E's Transformed by the Five Campaigns.

Regional Design: scenarios

NYRP 1996

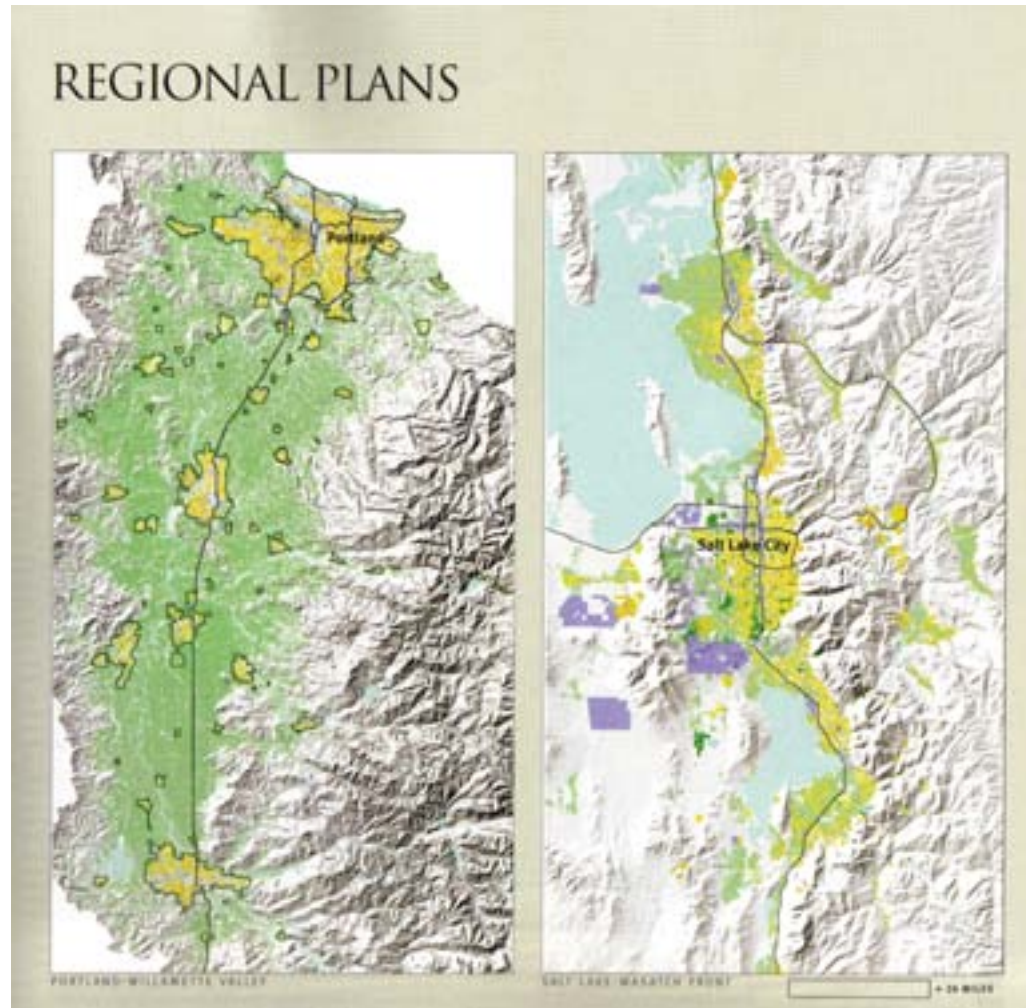


Plate 24: Three views of northern New Jersey: at the present (upper left), as it will look with current development patterns (upper right), and how it could look if developed in accordance with regional design principles (lower left).



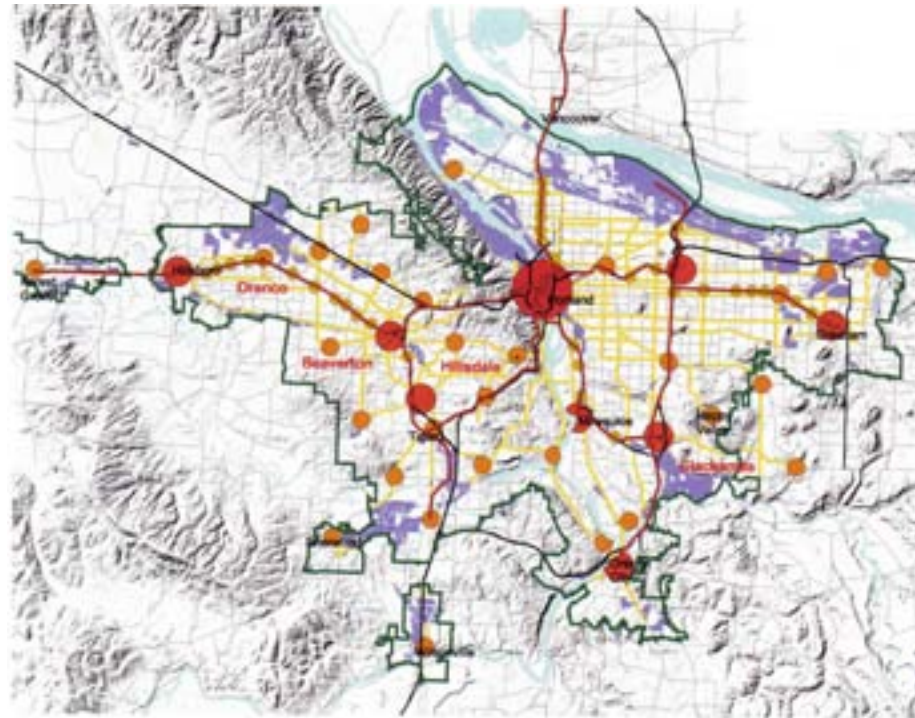
Plate 26: Three views of an suburban highway cloverleaf interchange: at the present (upper left), as it will look with current development patterns (upper right), and how it could look if reoriented around its village center and rail station (lower left).

Portland (Willamette Valley), P. Calthorpe



Portland Metro, P.Calthorpe

Portland Metro, P.Calthorpe



[PLATE 3] PORTLAND METRO CENTERS, DISTRICTS, AND CORRIDORS
OREGON

The layer of the 2040 Plan that directed urban development contains a hierarchy of centers: the Central City and six Regional Centers along with numerous Town Centers and Transit Oriented Developments (TODs). As focal points for transit and development, the Central City and the Regional Centers are projected to capture 38 percent of future job growth. Along light-rail routes, TODs and Town Centers cluster mixed-use environments. Other corridors within the region are designated along high-capacity bus transit routes and historic Main Streets. Combined, their development is projected to accommodate 59 percent of new jobs and approximately one-third of new housing. This compact form of centers and corridors is projected to quadruple the transit ridership in the region.

0 1 MILE

- CITY CENTER
- REGIONAL CENTERS
- TOWN CENTERS
- VILLAGE/TOD CENTERS
- TRANSPORTATION CORRIDOR
- EMPLOYMENT DISTRICT
- MAJOR HIGHWAY

Clackamas Mall conceptual infill strategy, P.Calthorpe

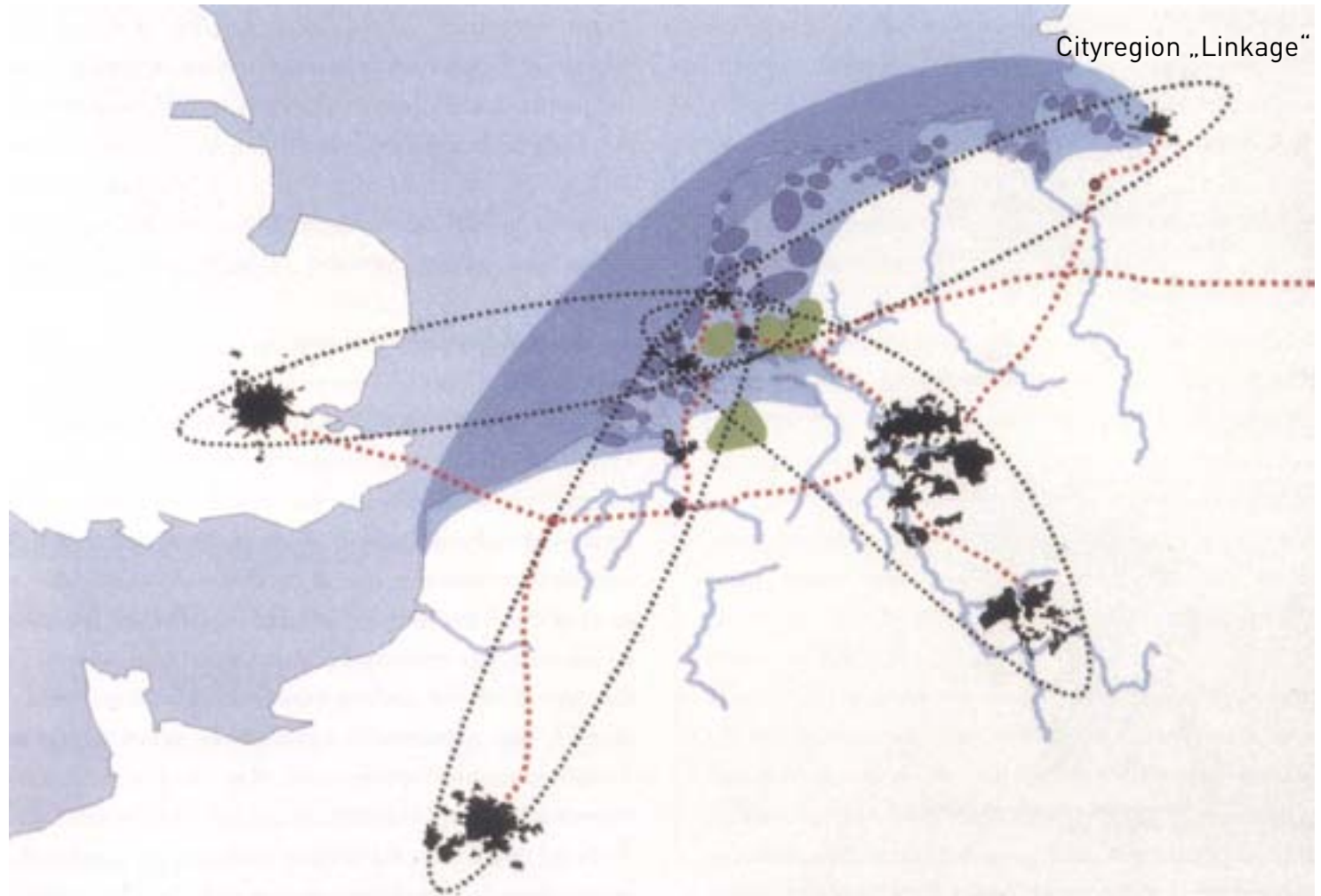


Randstad

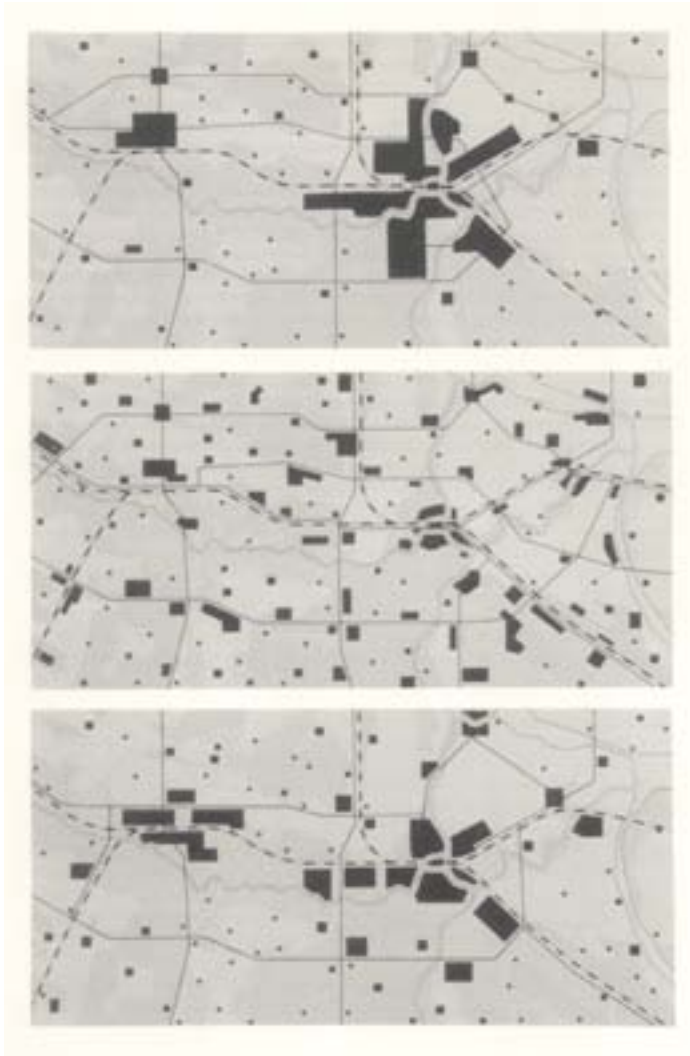


Figure 6.1 The Randstad, 1995

Randstad



Randstad



stba Contemporary City

Networks

Globalization – Regionalism - Networks

Networked infrastructures are the means to bridge distance (and time) via exchange, movement and transaction... that facilitates transport, communication, energy and water delivery.
(*Splintering Urbanism*, Graham and Marvin)

- Networks are:** A second nature
Political. Being connected or disconnected signifies social and economic status.
- Attributes:** Light + smart z.B. digital feedback technology
Clean, healthy and soft. Walking, biking, roller...
(no emissions)
- Resilient:** if one part fails, the system doesn't crash
(alternatives/diverse modes)

Science

Networked Infrastructure

I Geographies of man-made distribution systems of resources: a second nature

II Topology: politics of networks

- Tree/star or mesh? (urban form)

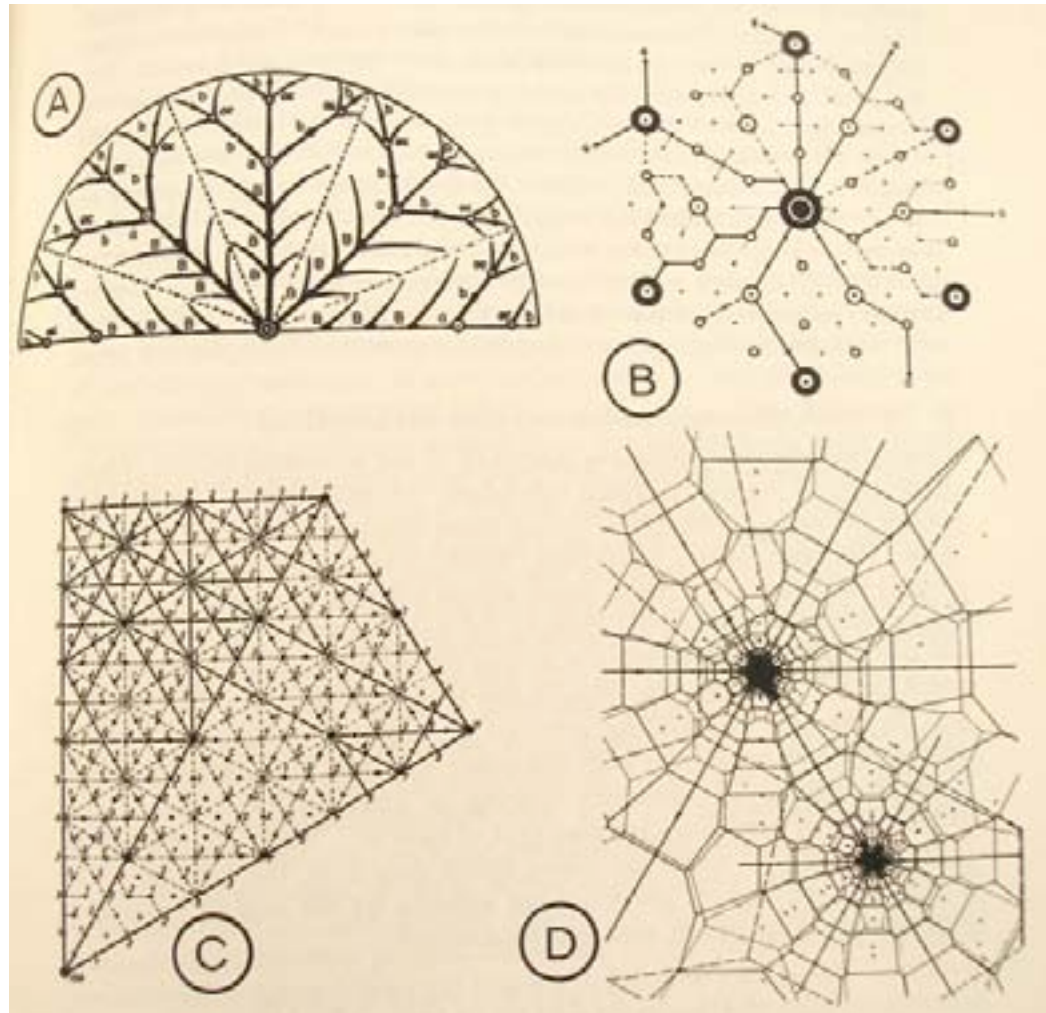
- Emergent circulation systems reduce the overall path length

- Inclusive or exclusive? A civilian occupation.

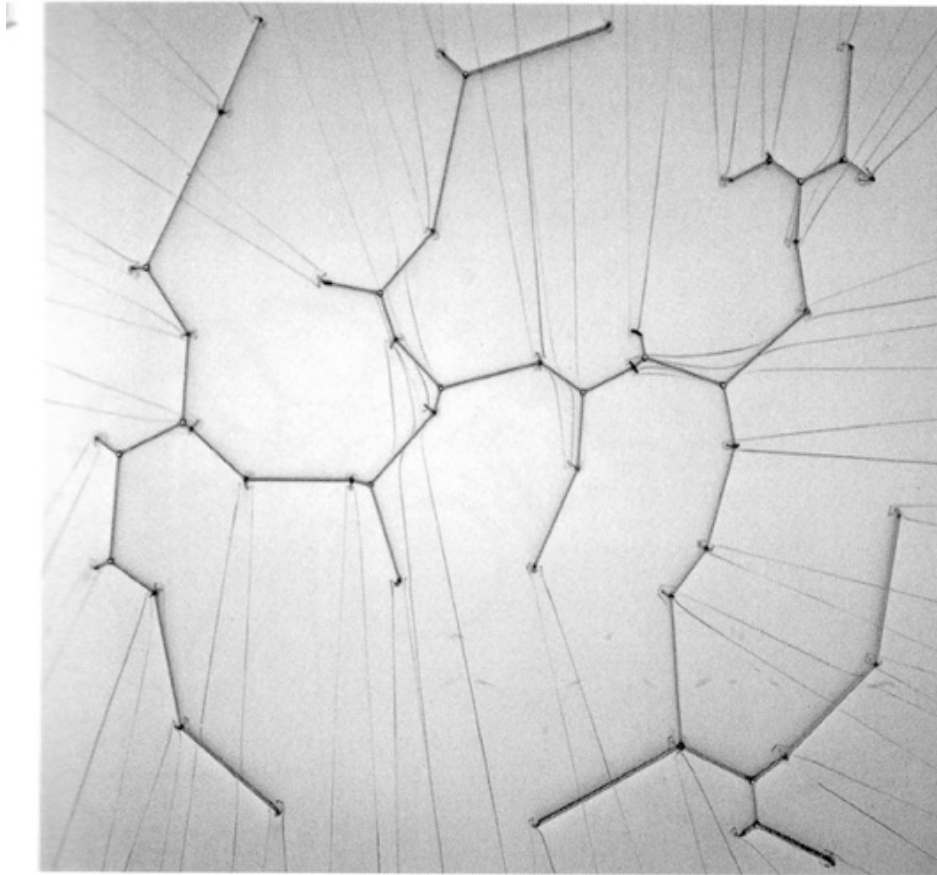
- Planned or bottom up? Heavy or light?

Landlines vs mobile subscribers (Africa)

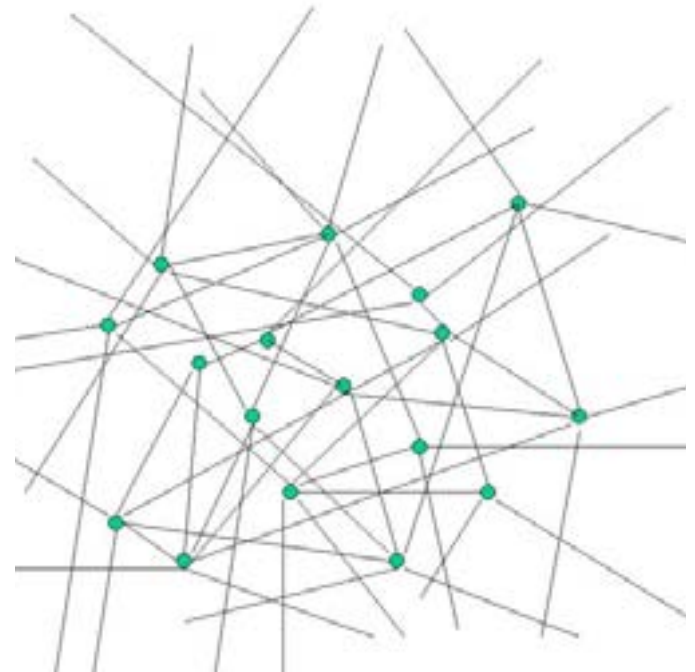
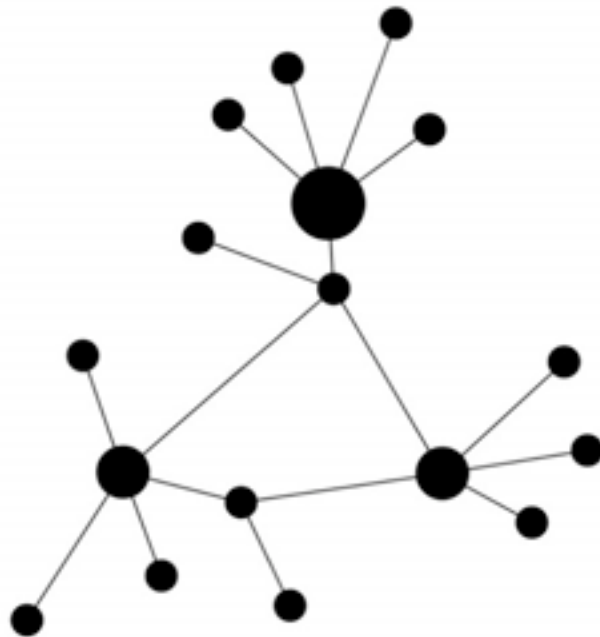
Tree/ star or mesh? (network-, infrastructure- and urban form)



Minimal path system, Frei Otto, 1962



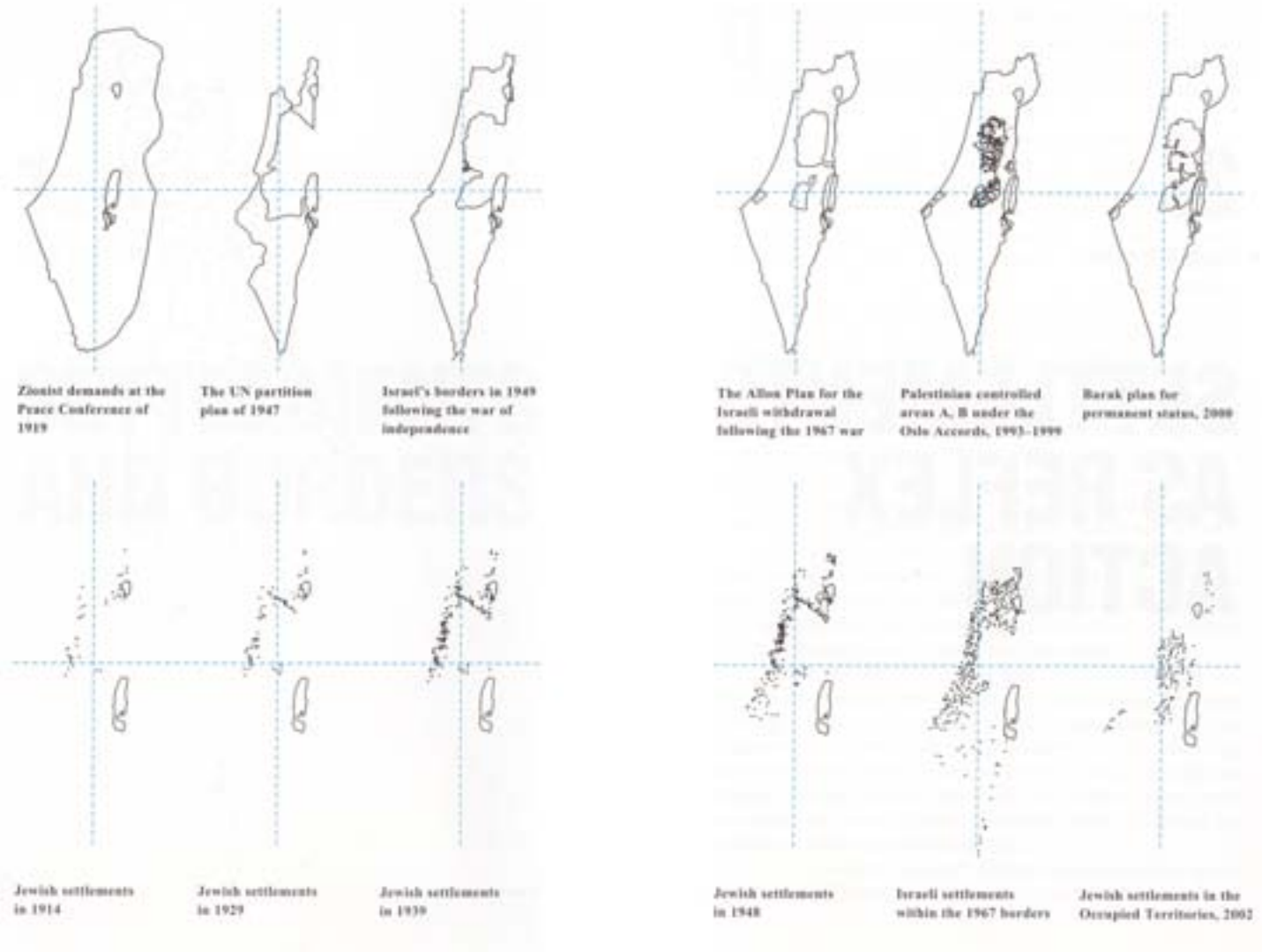
Rhizom



Design: Kartal Pendik, Zaha Hadid, Istanbul, 2006



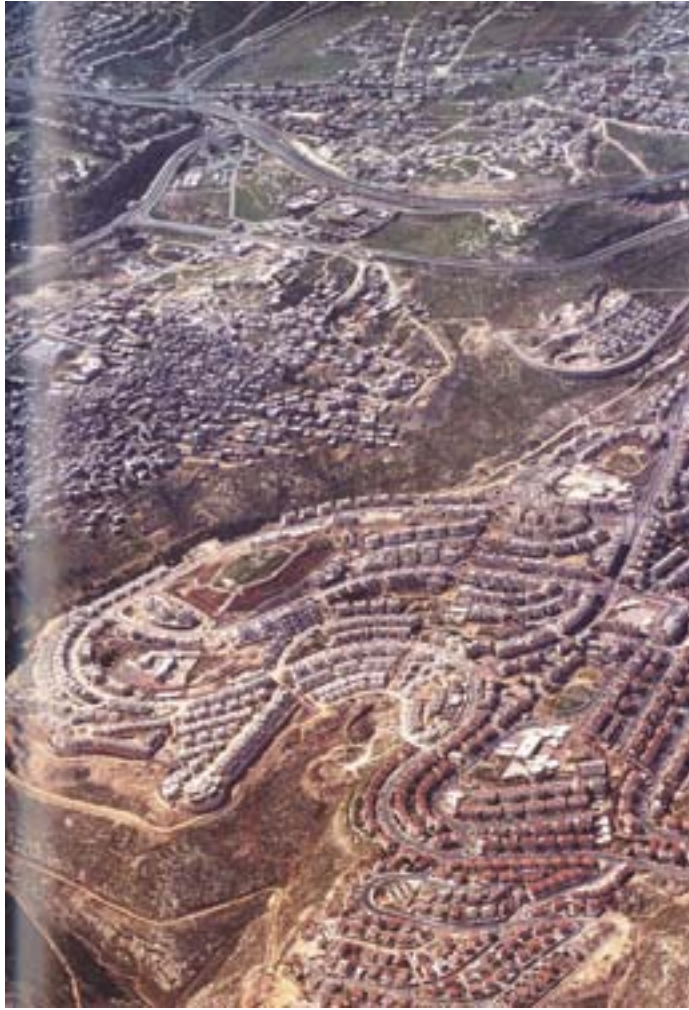
Inclusive or exclusive? A civilian occupation, Weizman/Segal



A civilian occupation, Mayyim, Weizman / Segal, 2002



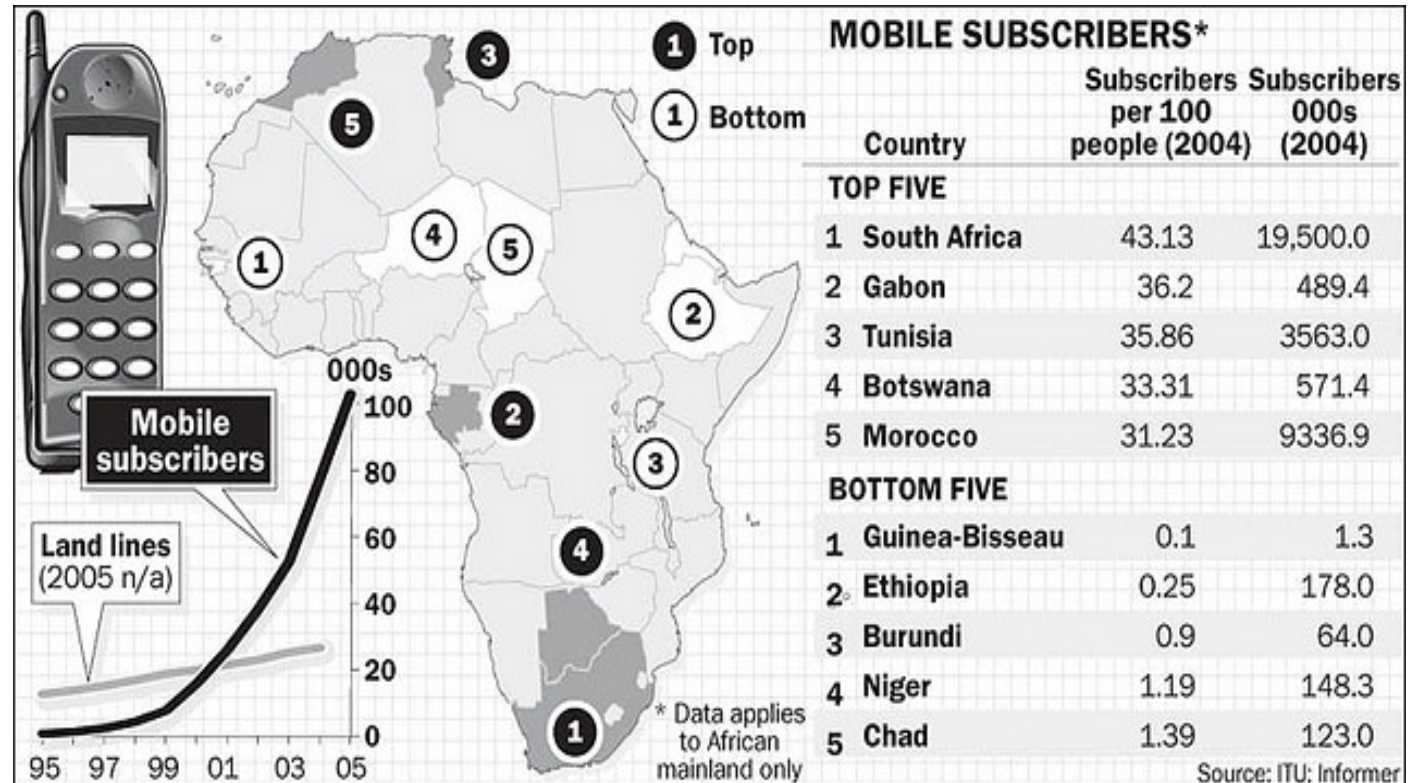
A civilian occupation, Shuafat and Pisgat, 2002



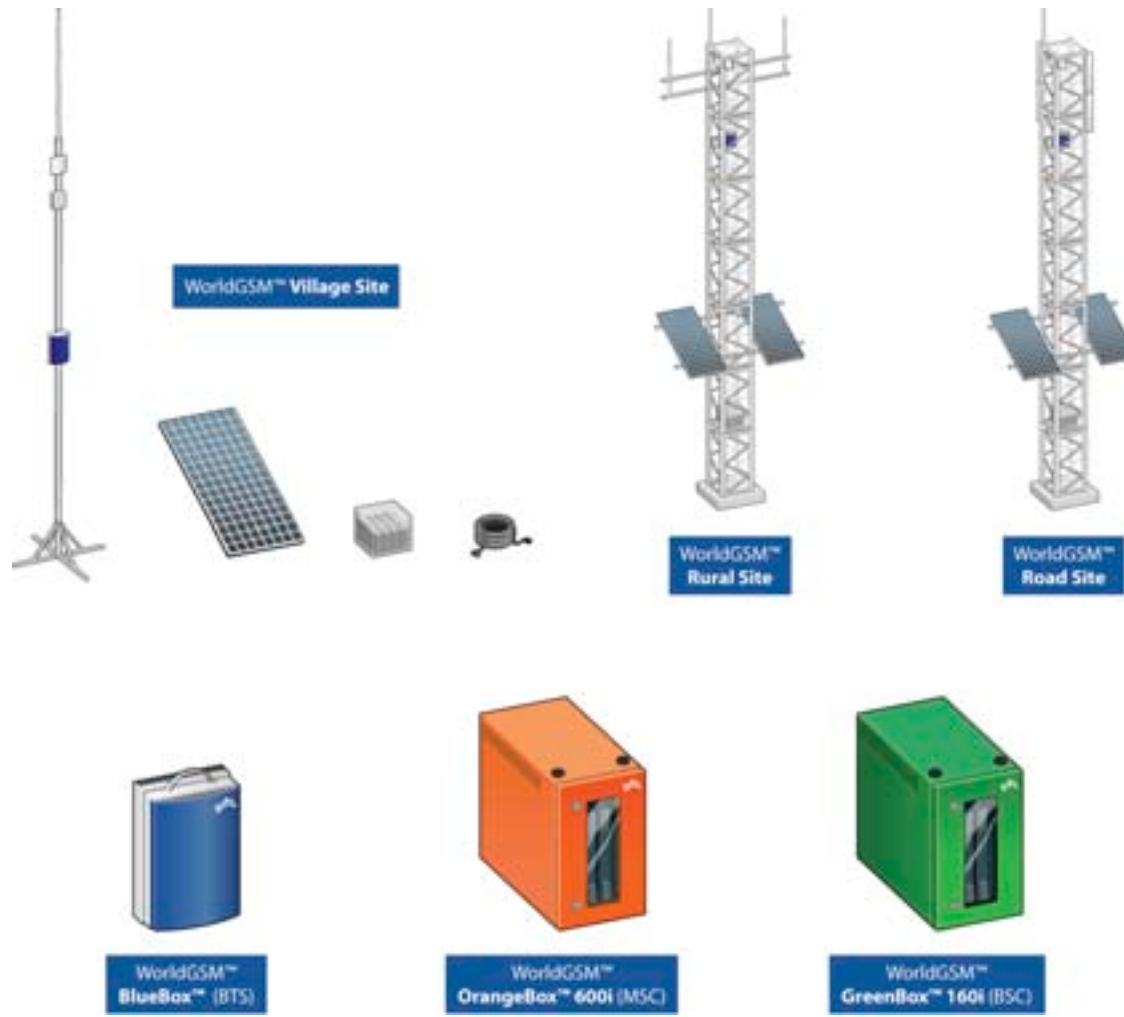
Composed View II, Daniel Bauer, 2003



Planned or bottom up?



World GSM (Global System for Mobile Communication)



Mobile banking



Science

Geographies of energy

I Forms of Energy

Efficiency factor and transmission losses

Today's typical energy form flow based on fossil sources

Use energy as directly as possible to avoid losses

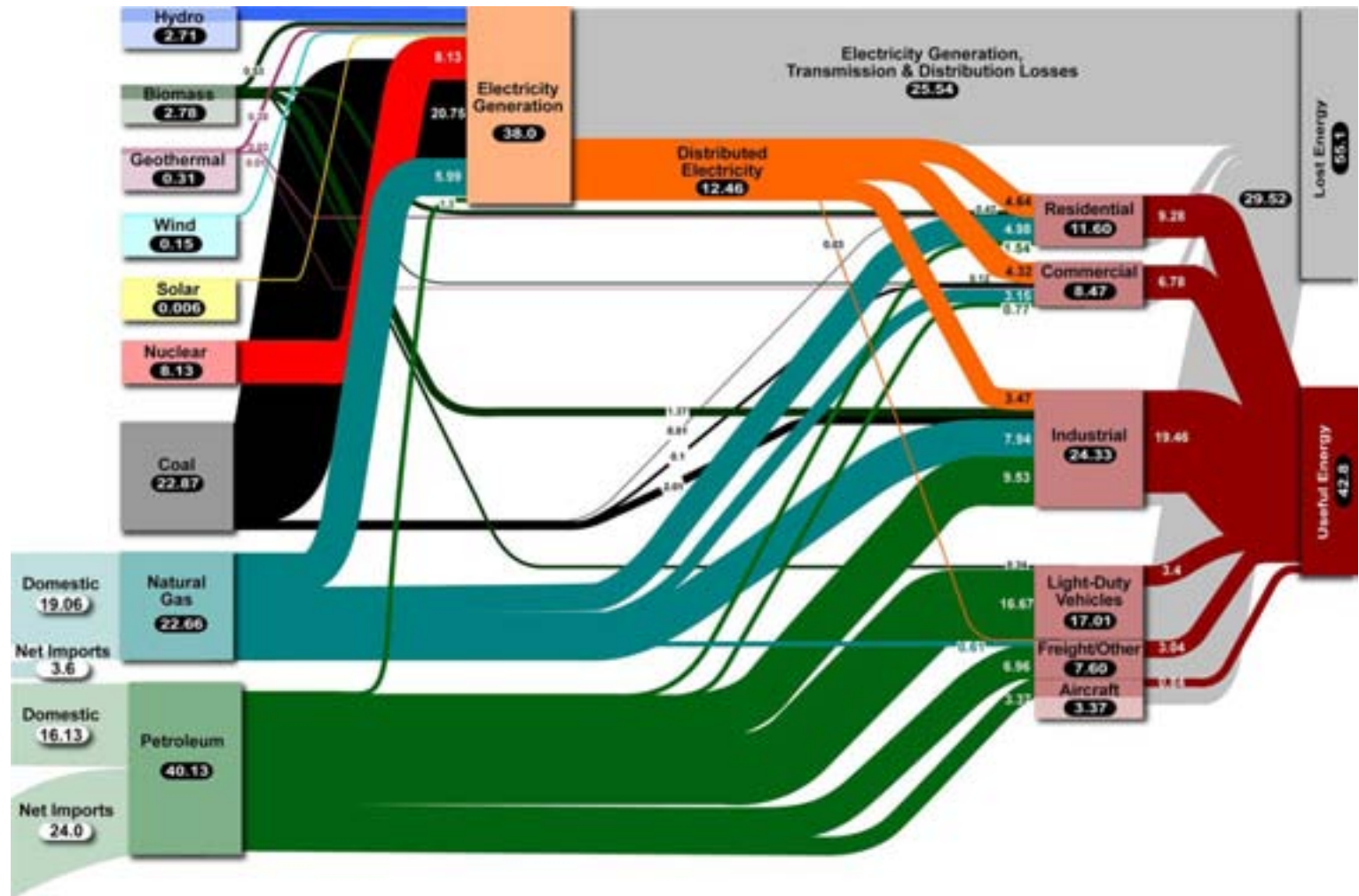
-Light

-Electrical energy

-Thermal energy

-Mechanical energy

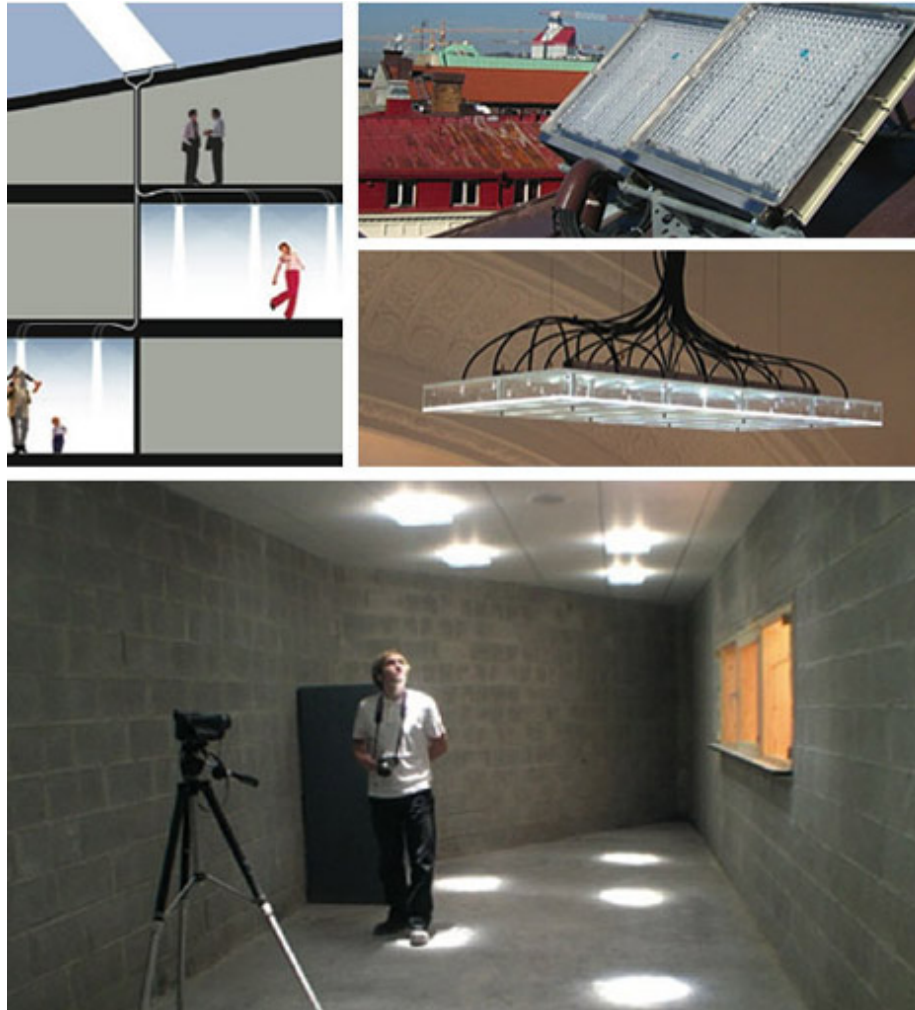
I Forms of Energy



Use energy as directly as possible – light



Parans light pipe



Use energy as directly as possible – electrical energy

Hydro power station

A run-of-river power station continuously produces electricity from flowing water in an impounded river. With a flow rate of, for example, 600 cubic metres of water per second it achieves an output of around 26 Megawatt. There are around 600 such power stations in Germany, some are more than 100 years old. Together, they feed more than 2 600 Megawatt electricity into the grid.

Diffuser

The shape and diameter of the inflow and diffuser have a decisive effect on the water flow and therefore on the efficiency of the turbine.

Water level

Tailwater

Power house

Transformer

Generator

Electricity

Water level

Headwater

Inflow

Turbine
In river power stations mostly a vertical Kaplan turbine, which has the best efficiency at high flow and small head.

Weir
controls the water level and flow rate

Level difference
between 4 and 30 metres

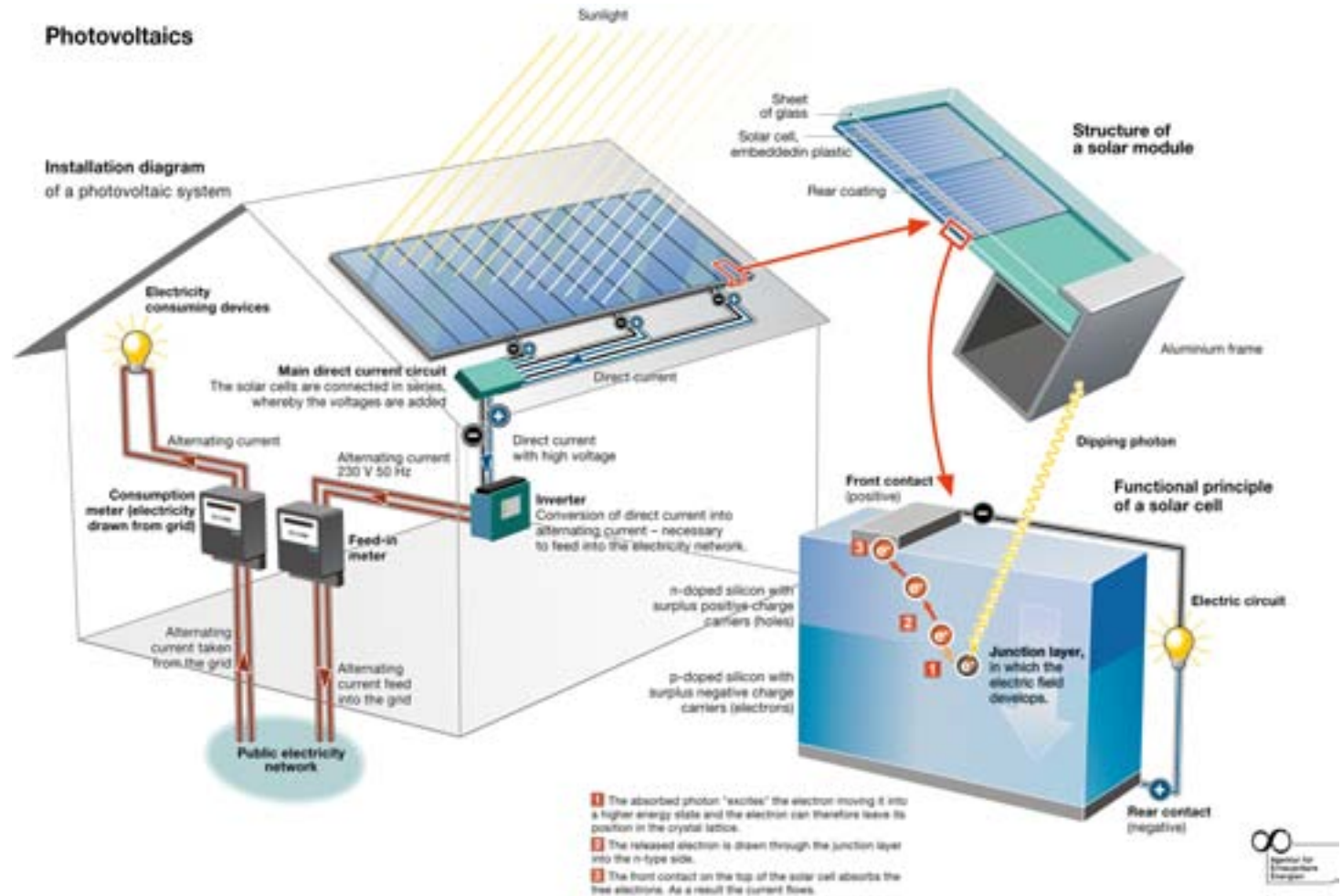
Impounded river course

Bypass or fish ladder
enables fishes and other aquatic animals to pass the weir.

Power house



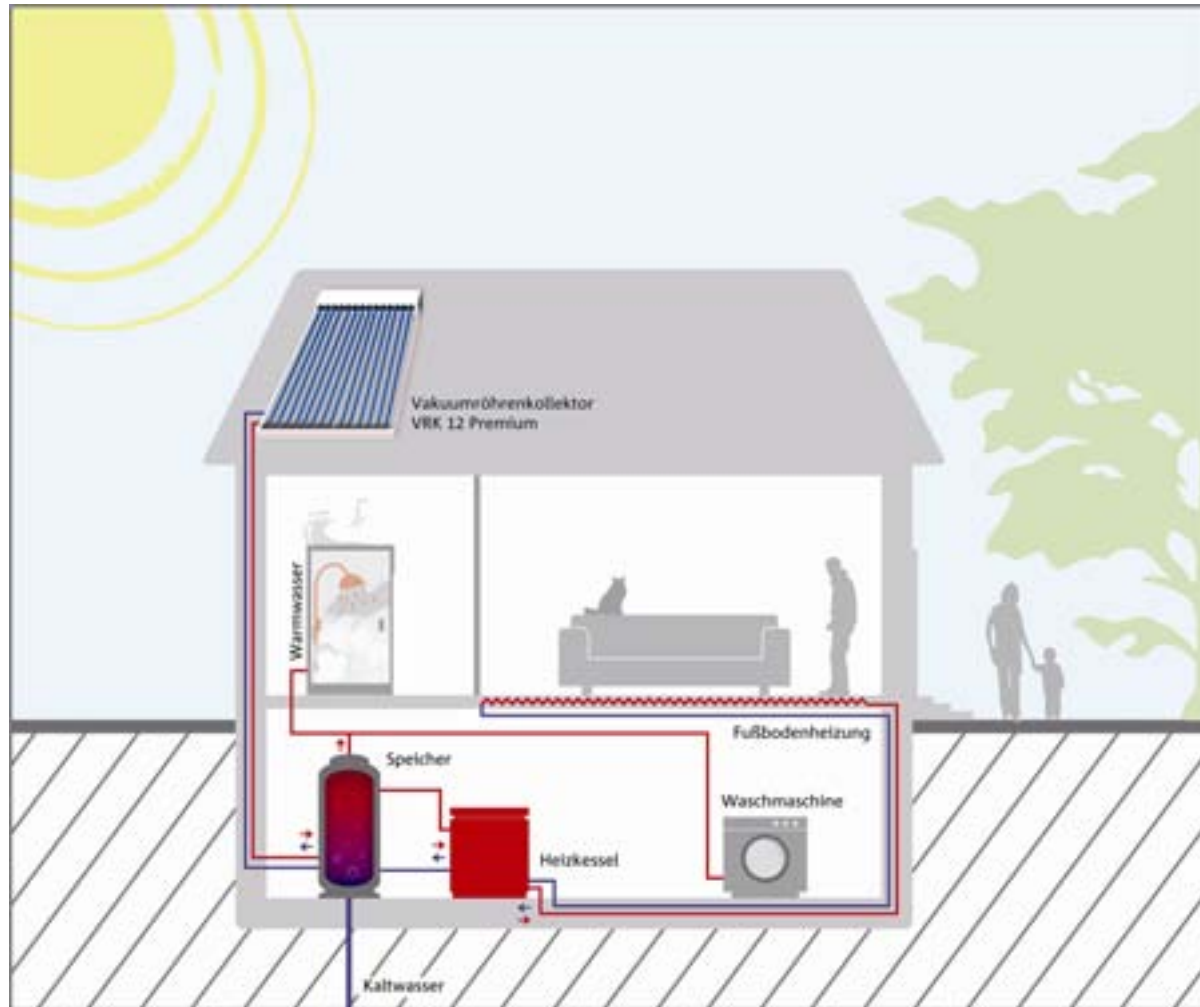
Use energy as directly as possible – electrical energy



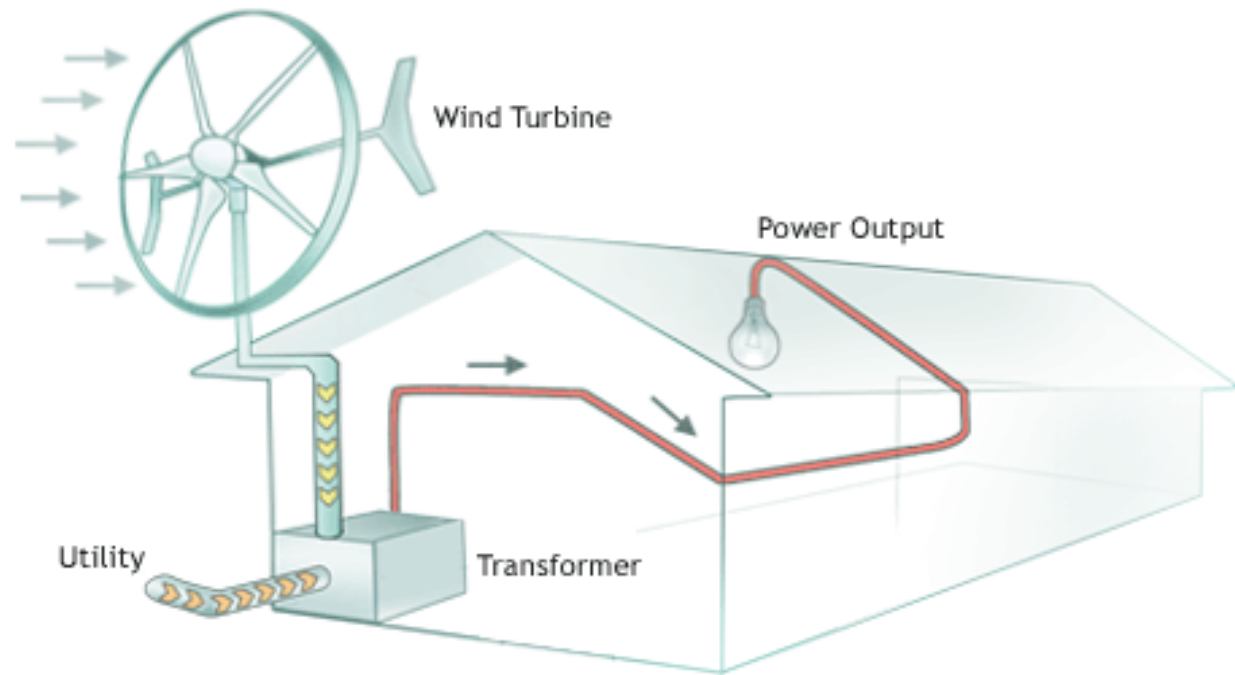
Use energy as directly as possible – electrical energy



Use energy as directly as possible –thermal energy



Use energy as directly as possible – electrical energy



Science

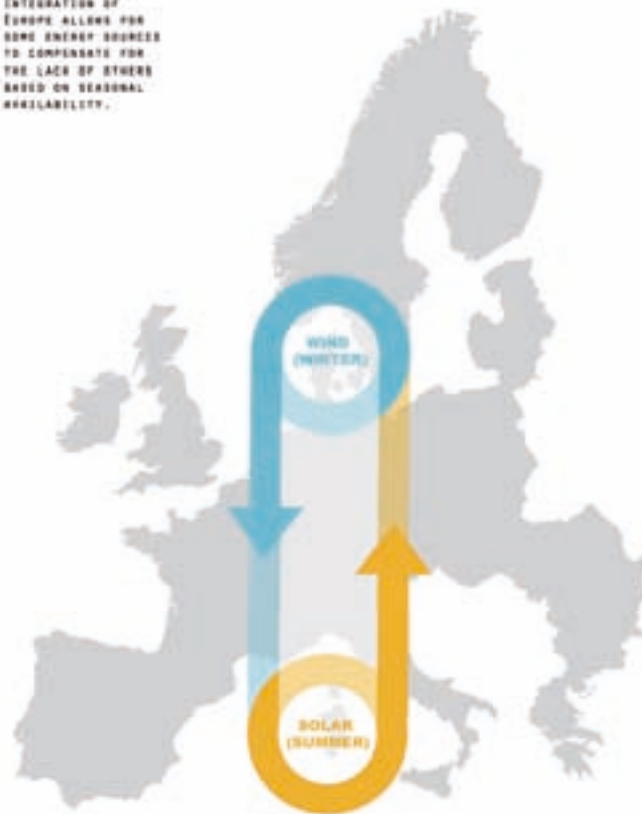
Geographies of energy

II Where to harvest which energy? How to store it?
-generating energy
-storing energy

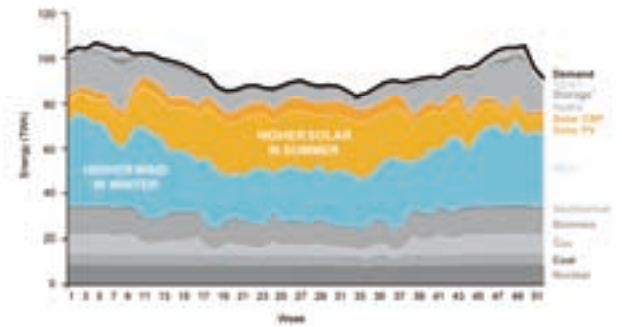
II Where to harvest and how to store? Roadmap 2050

RES DIVERSITY CONTRIBUTES TO CONSISTENT SUPPLY

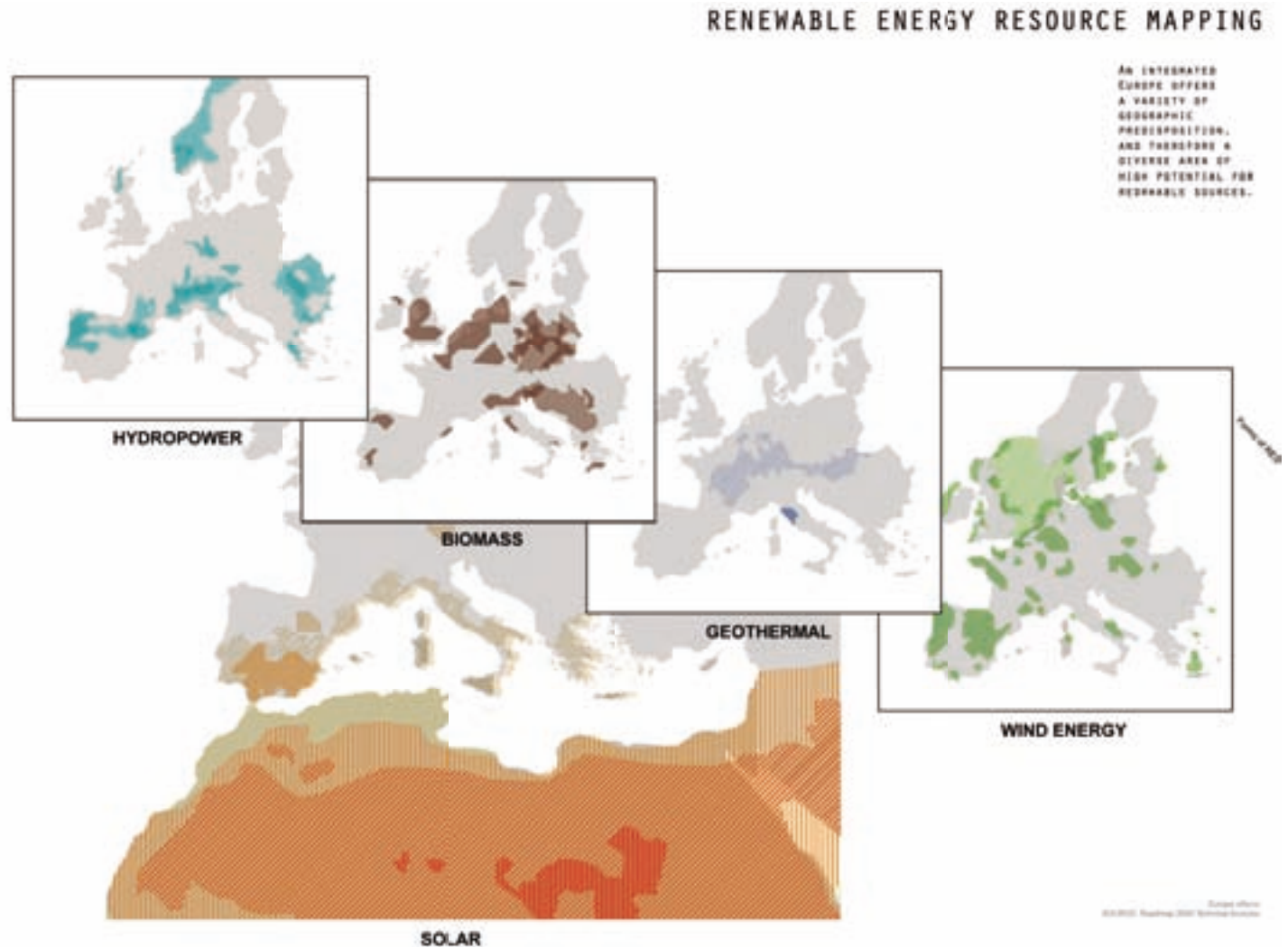
OVER THE COURSE OF THE YEAR, THE INTEGRATION OF EUROPE ALLOWS FOR SOME ENERGY SOURCES TO COMPENSATE FOR THE LACK OF OTHERS BASED ON SEASONAL AVAILABILITY.



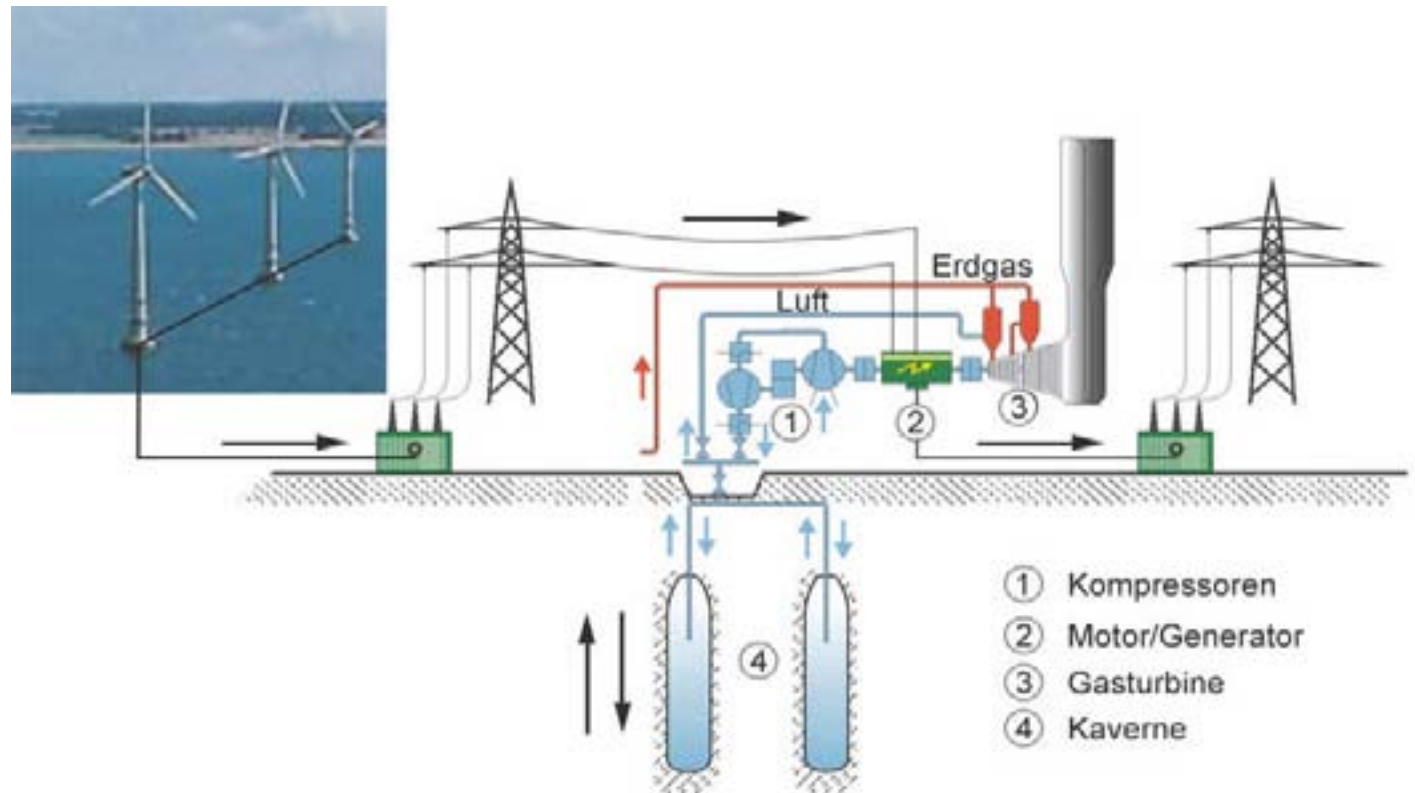
Overview of yearly energy balance, 80% RES pathway (TWh per week)



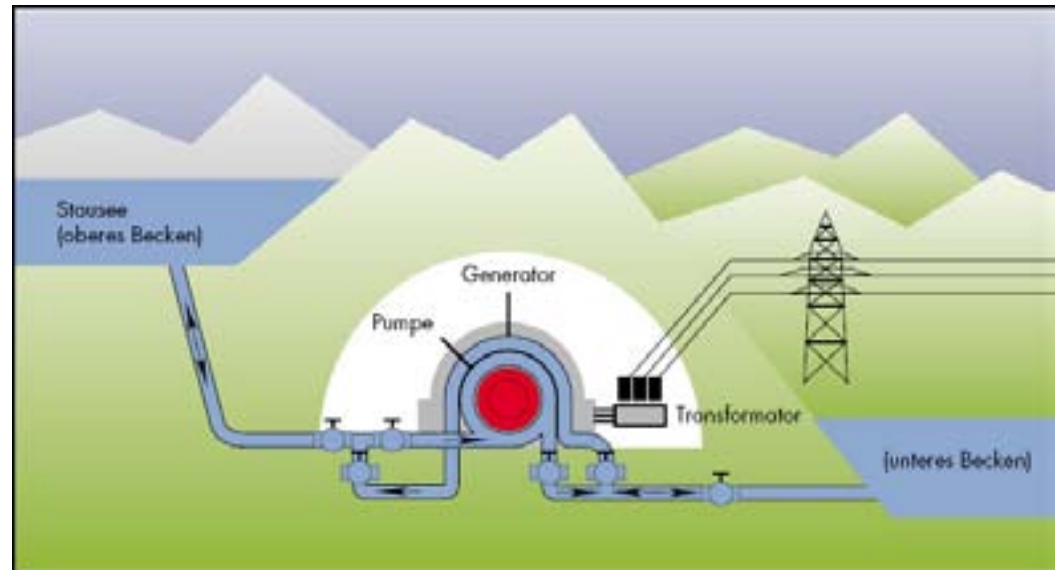
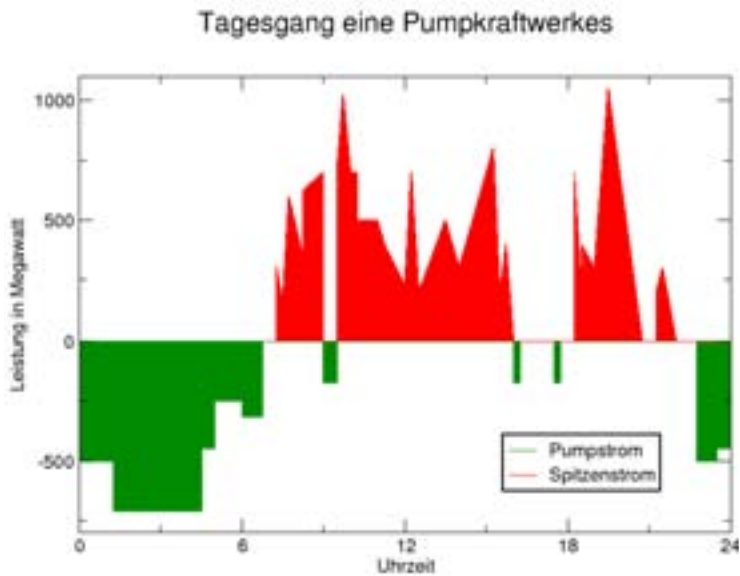
Generating energy, Roadmap 2050



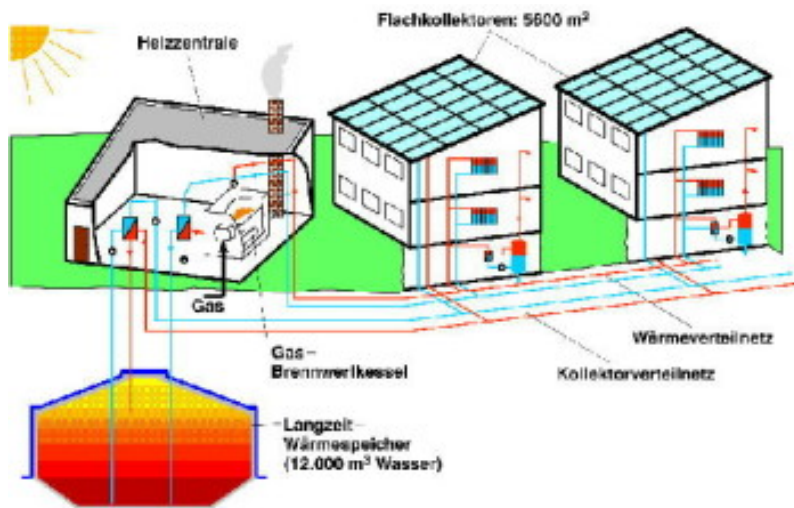
Storing energy - Compressed-air store



Storing energy - Pump storage lake



Storing energy - Heat storage tank



Science

Geographies of energy

- III Strategies of “network intelligence”- smart grid / multi nodal city
- Distribution
 - Diversification
 - Interaction / Resilience

III Strategies of „network intelligence“ – Distribution

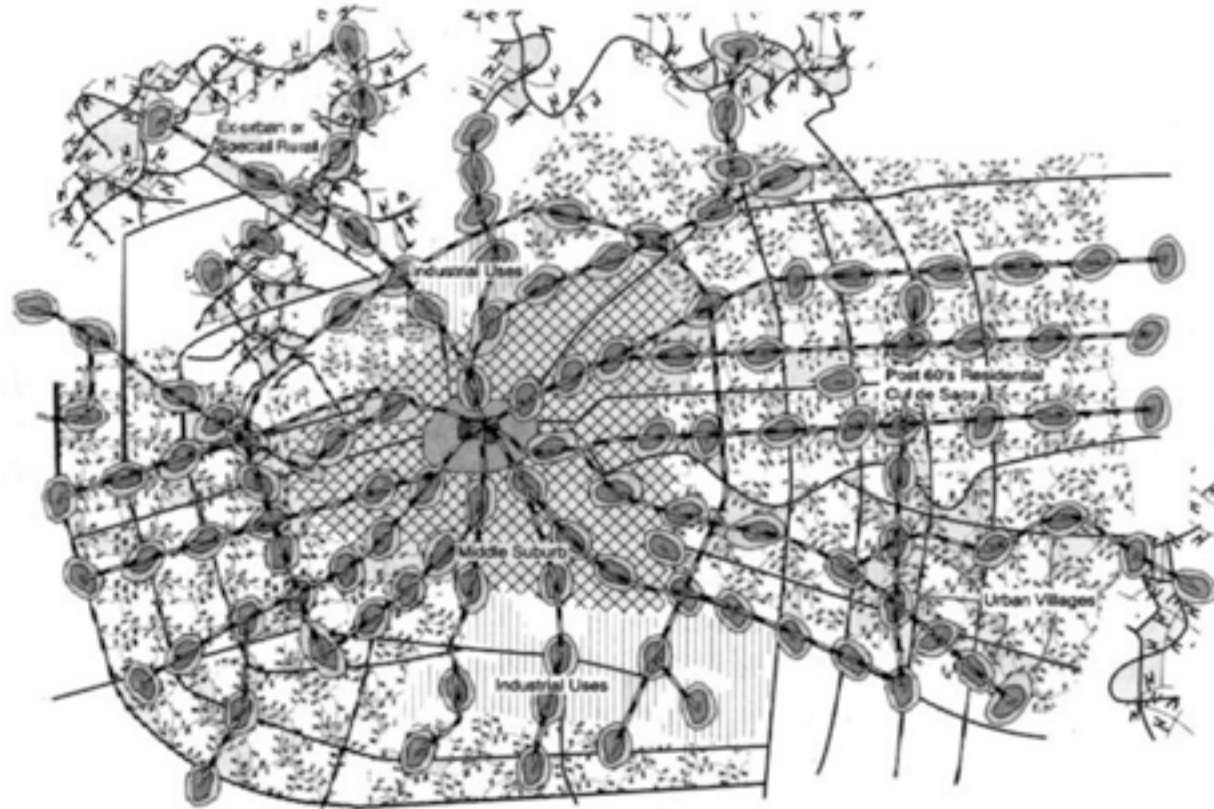
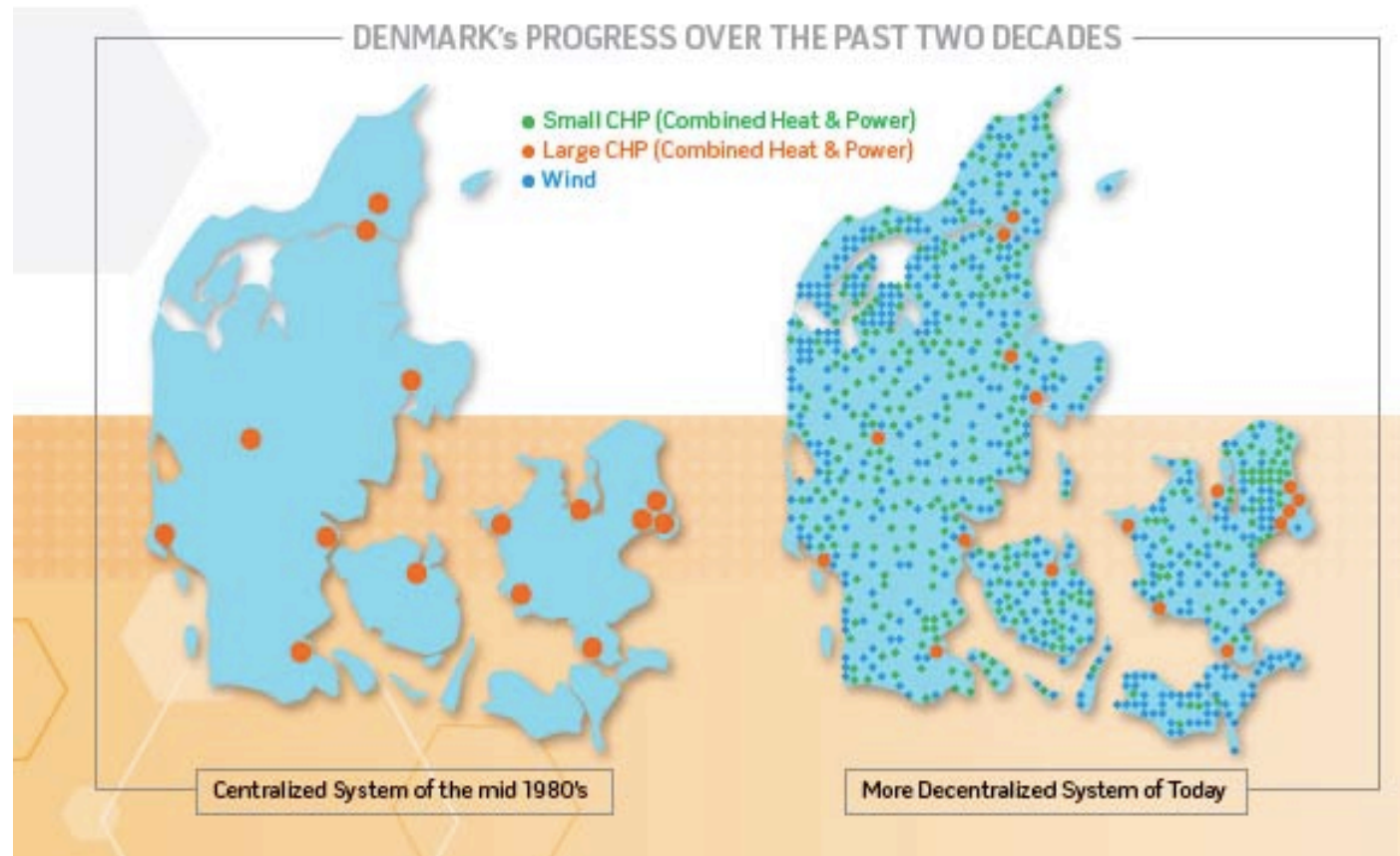
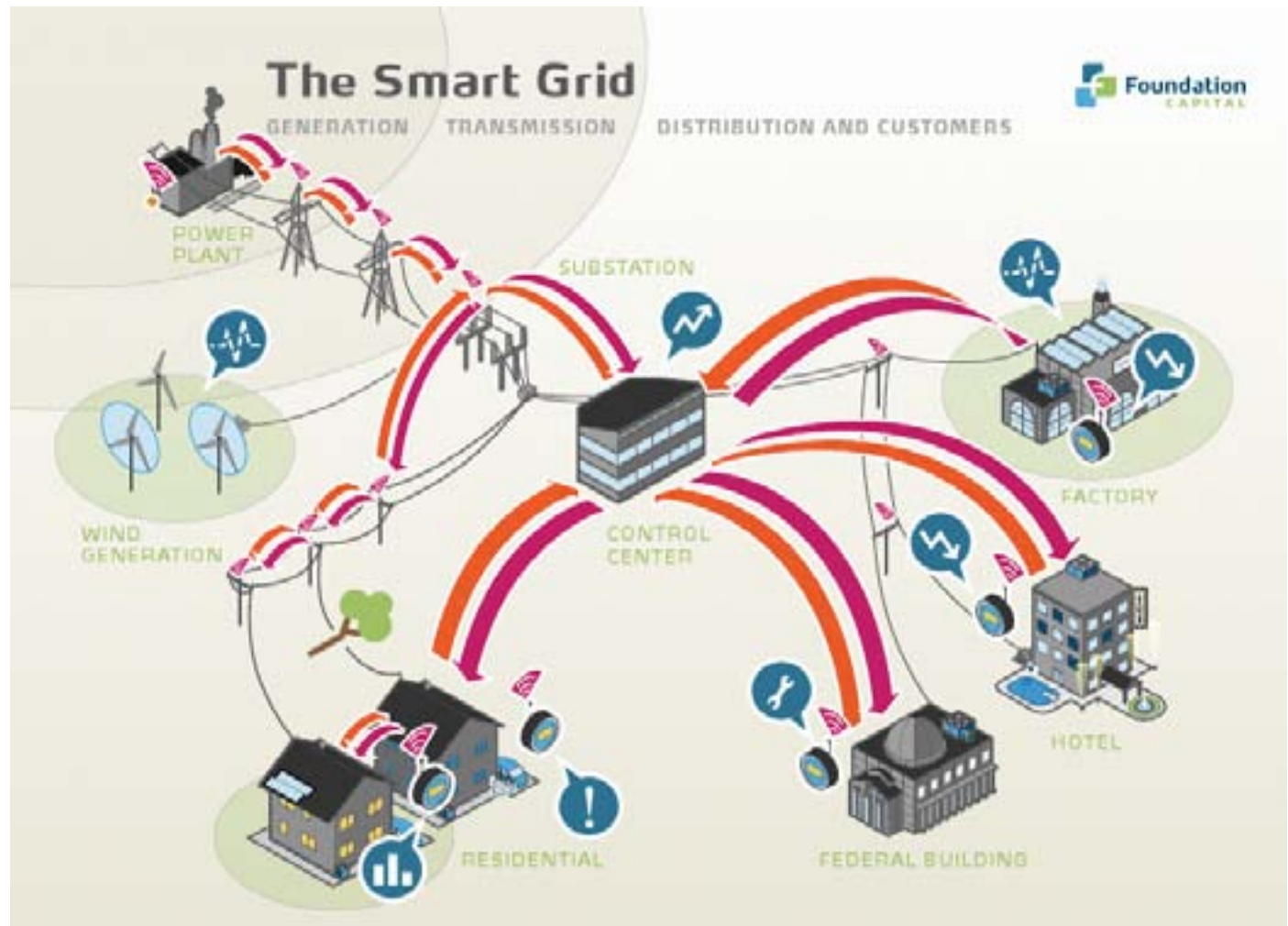


Figure 8. The Future Information City – urban villages (walking oriented) linked by quality public transport, throughout the suburbs.

III Strategies of „network intelligence“ – Diversification



III Strategies of „network intelligence“ Interaction/ Resilience



Networks: Energy

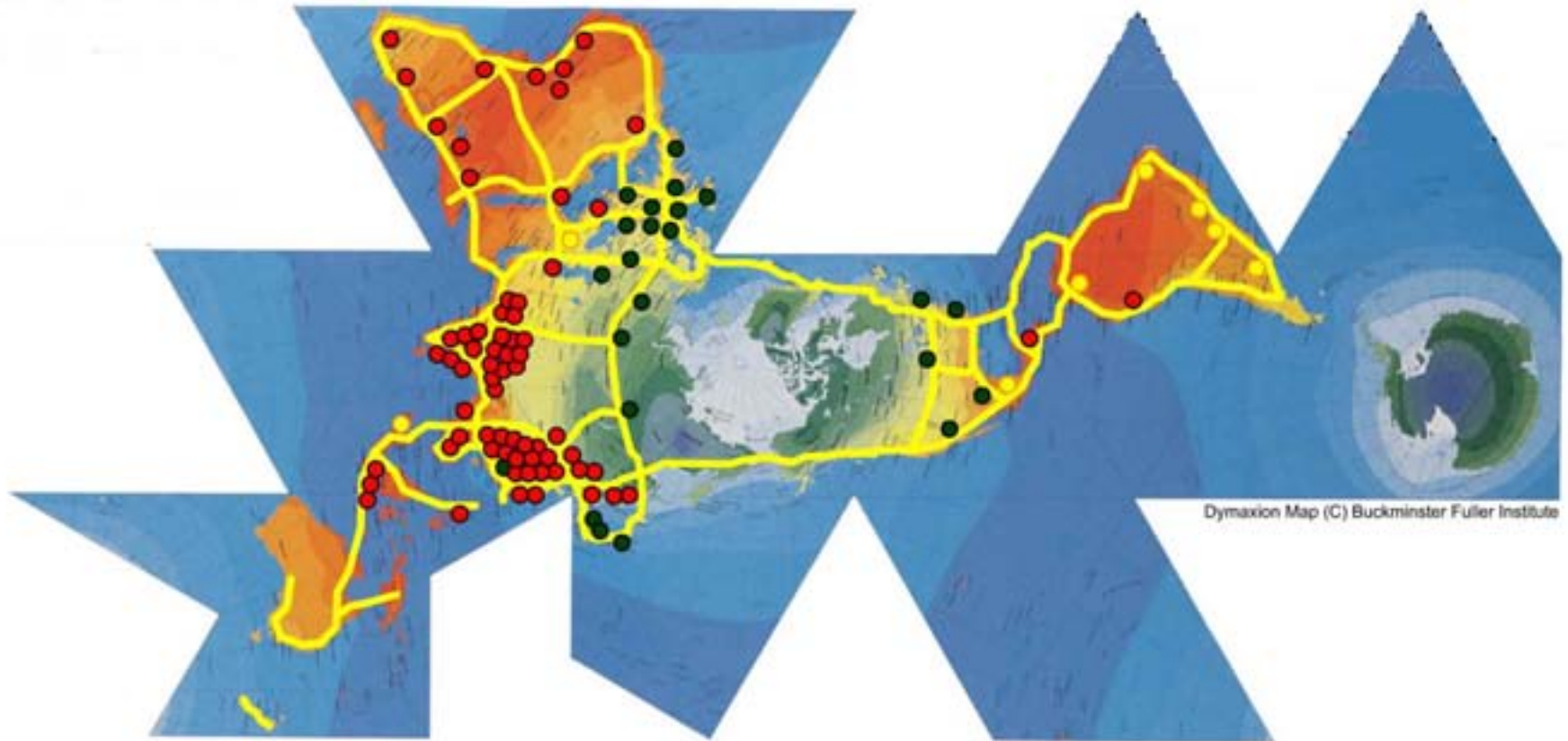
“...premier global strategy is the interconnection of global power networks between regions and continents into a global energy grid, with an emphasis on tapping abundant renewable energy resources—a world wide web of electricity.” (Buckminster Fuller, 1970)

□

Self-sufficient regions: Economies of clustered scale
(region to neighborhood)

Combined networks: Think heating, electricity and traffic together

Global Energy Grid Map, Fuller



Design: Energy

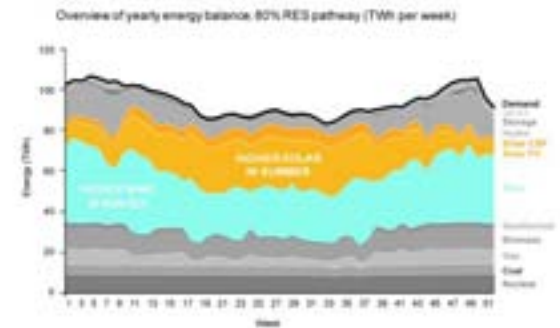
Superregional (Continental) Projects

- Eneropa, Roadmap, AMO
low carbon economy for Europe
- Desertec Sahara-Europe, Deutsche Industrie Partners

Regional Projects

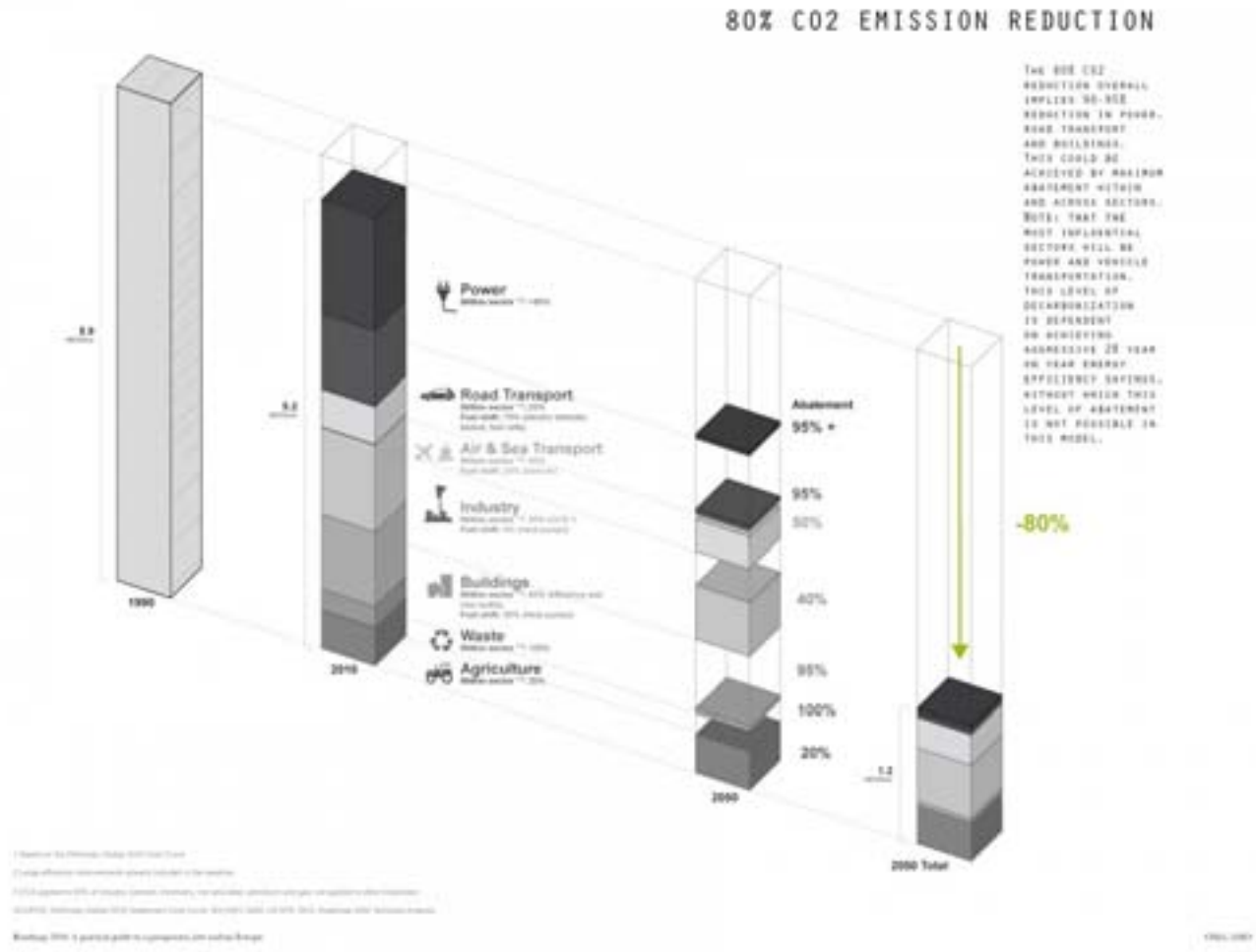
- Zeekracht, Masterplan for the North Sea, OMA
energy super-ring of wind farms
reefs – stimulating marine life nearby industry
production belt-landside industrial + institutional infrastructure
international research center

Roadmap 2050, AMO

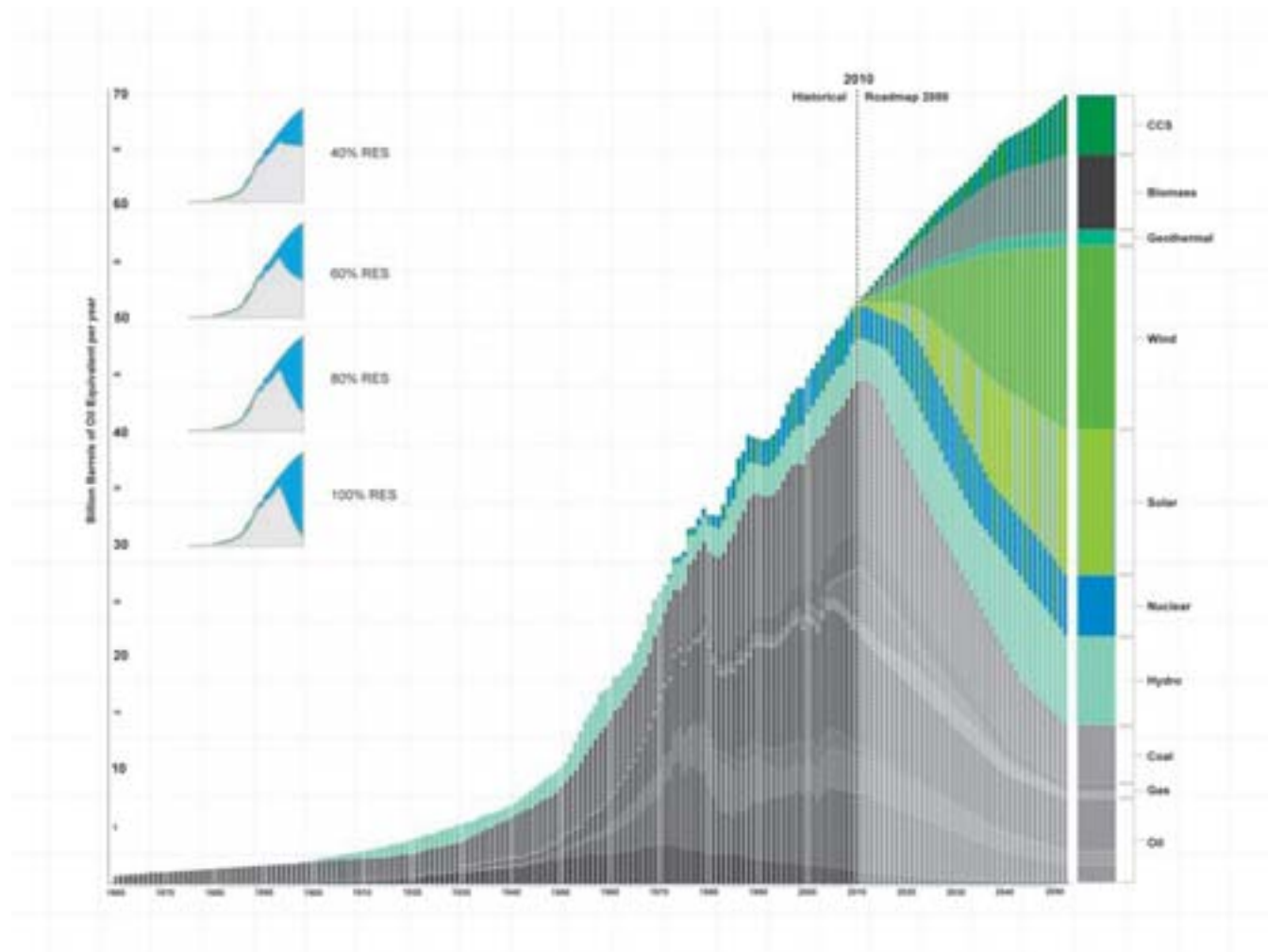


1 Storage reduction in the model leads to the resulting yearly storage demands shown in the legend.
SOURCE: Imperial College, 2009, based on ref.

Roadmap 2050, AMO



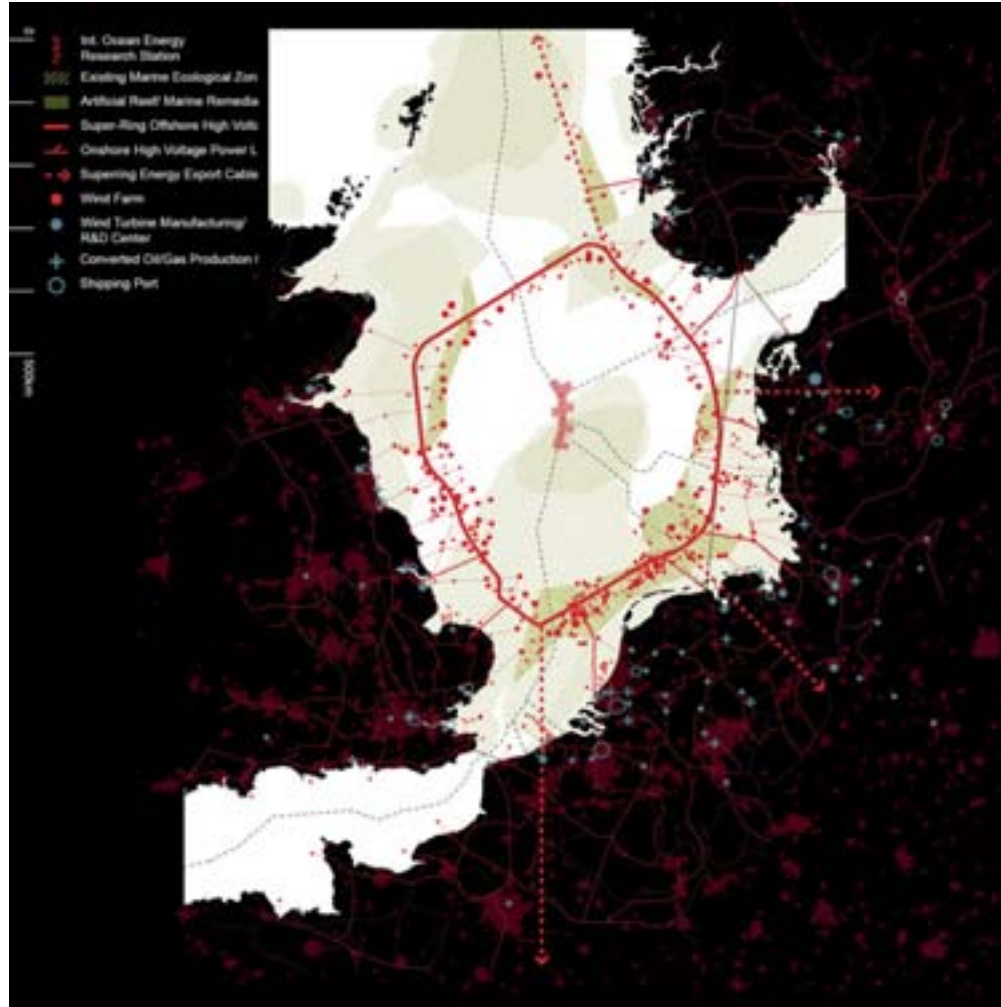
Roadmap 2050, AMO



DESERTEC



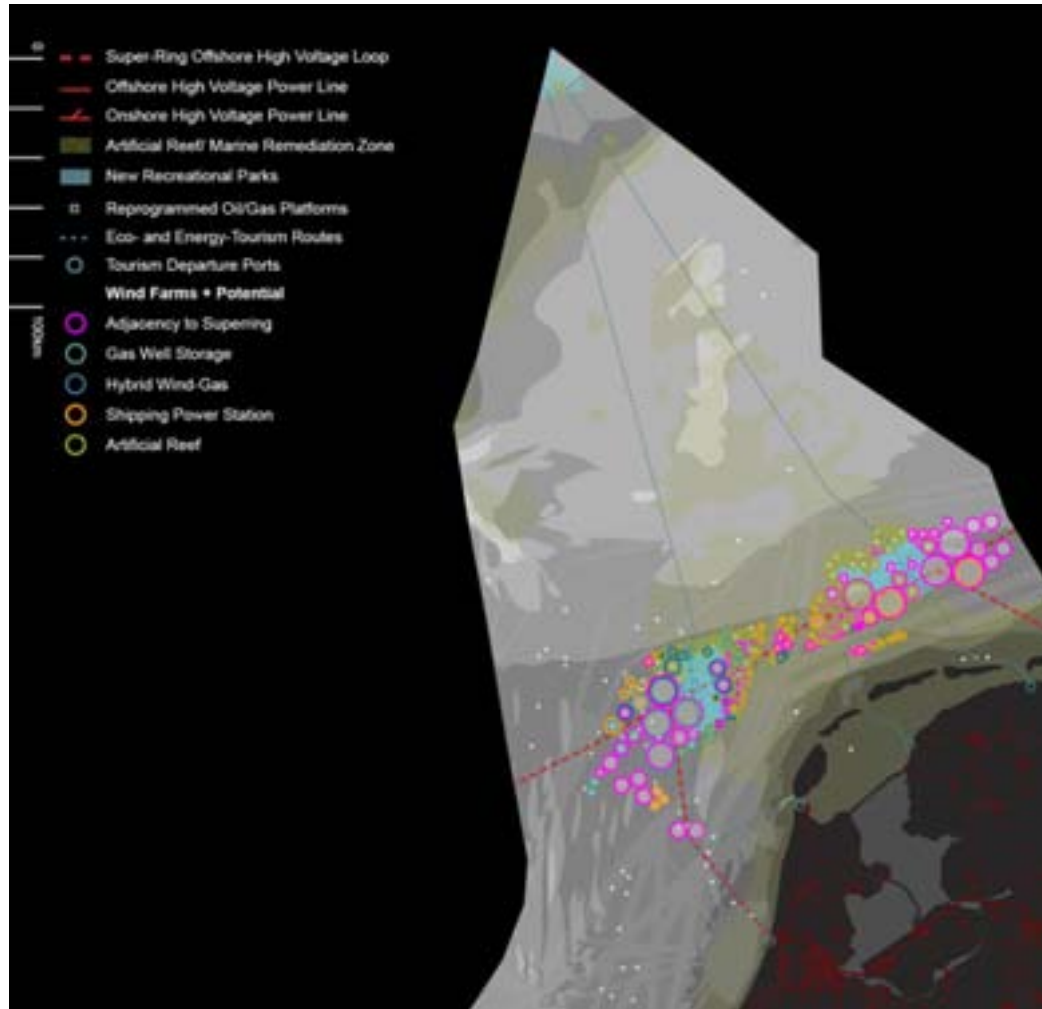
Zeegracht, AMO



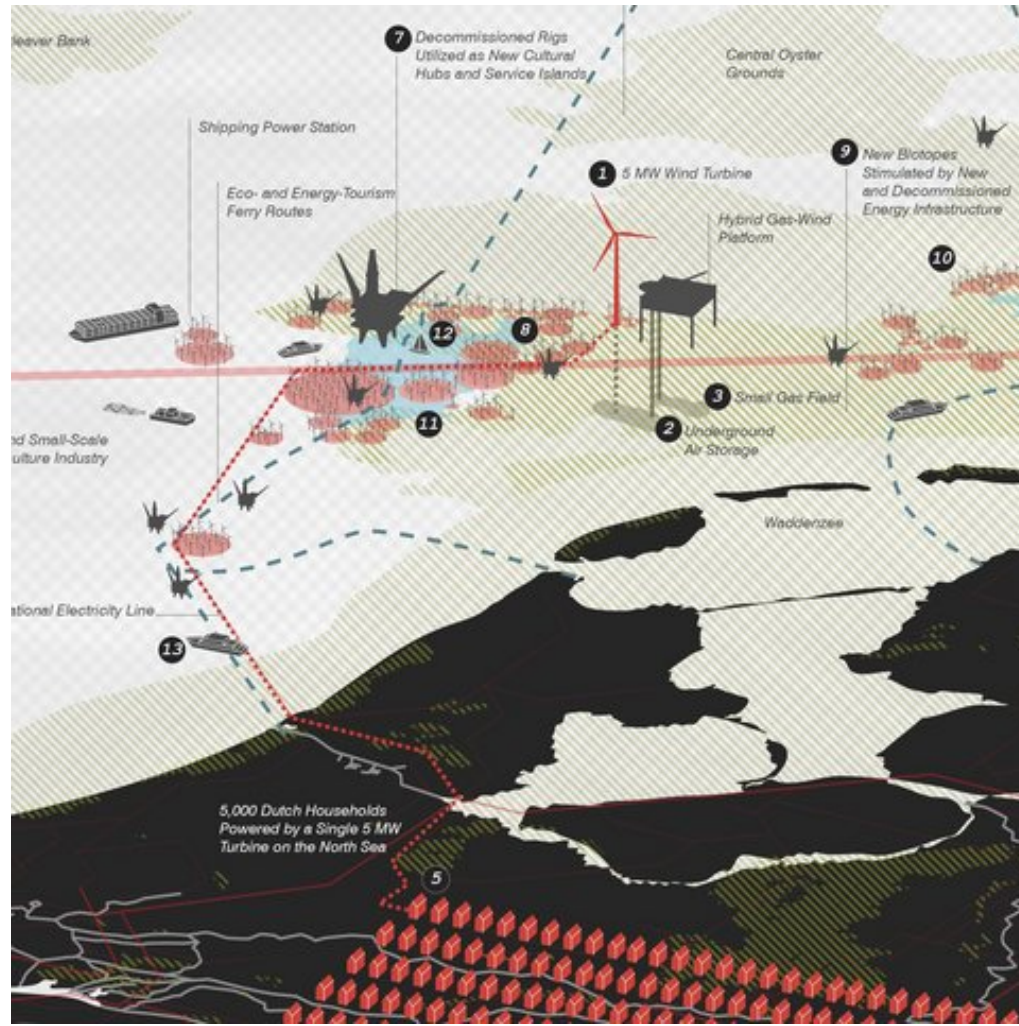
Zeegracht, AMO



Zeegracht, AMO



Zeegracht, AMO



Transportation

Mobility and Access

Mobility and Access for all

Resilient system provides alternatives for the private automobile

The multifunctional and multi-modal Station as proof of the city as a network

Nested transportation network: Curitiba, Ronda de Dalt

Intermodal stations: „Transferia“ as local centers

Design: Transportation

Superregional (Continental) Projects

- Euralille, Lille, OMA
N. European high speed rail system

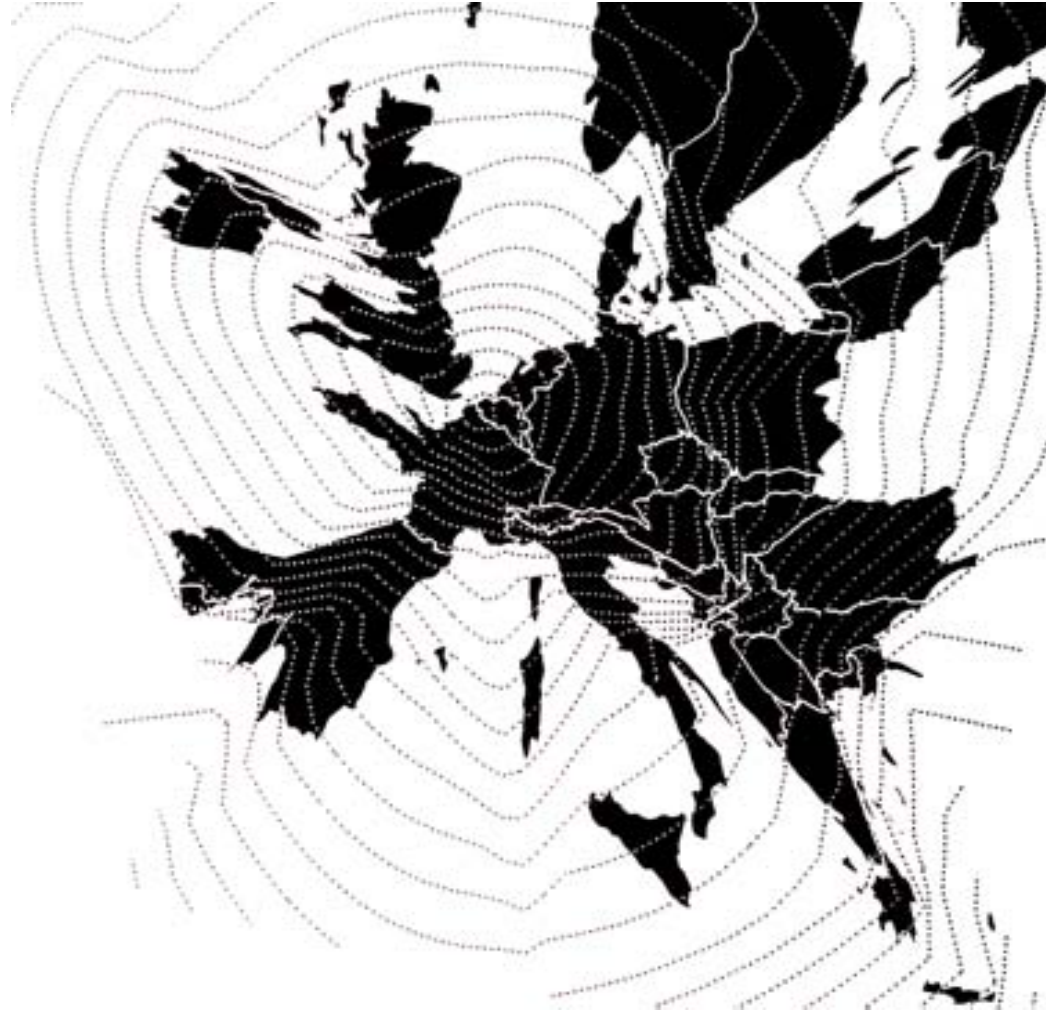
Regional Projects

- Transferia, Randstad, OMA
suburban intermodal stations

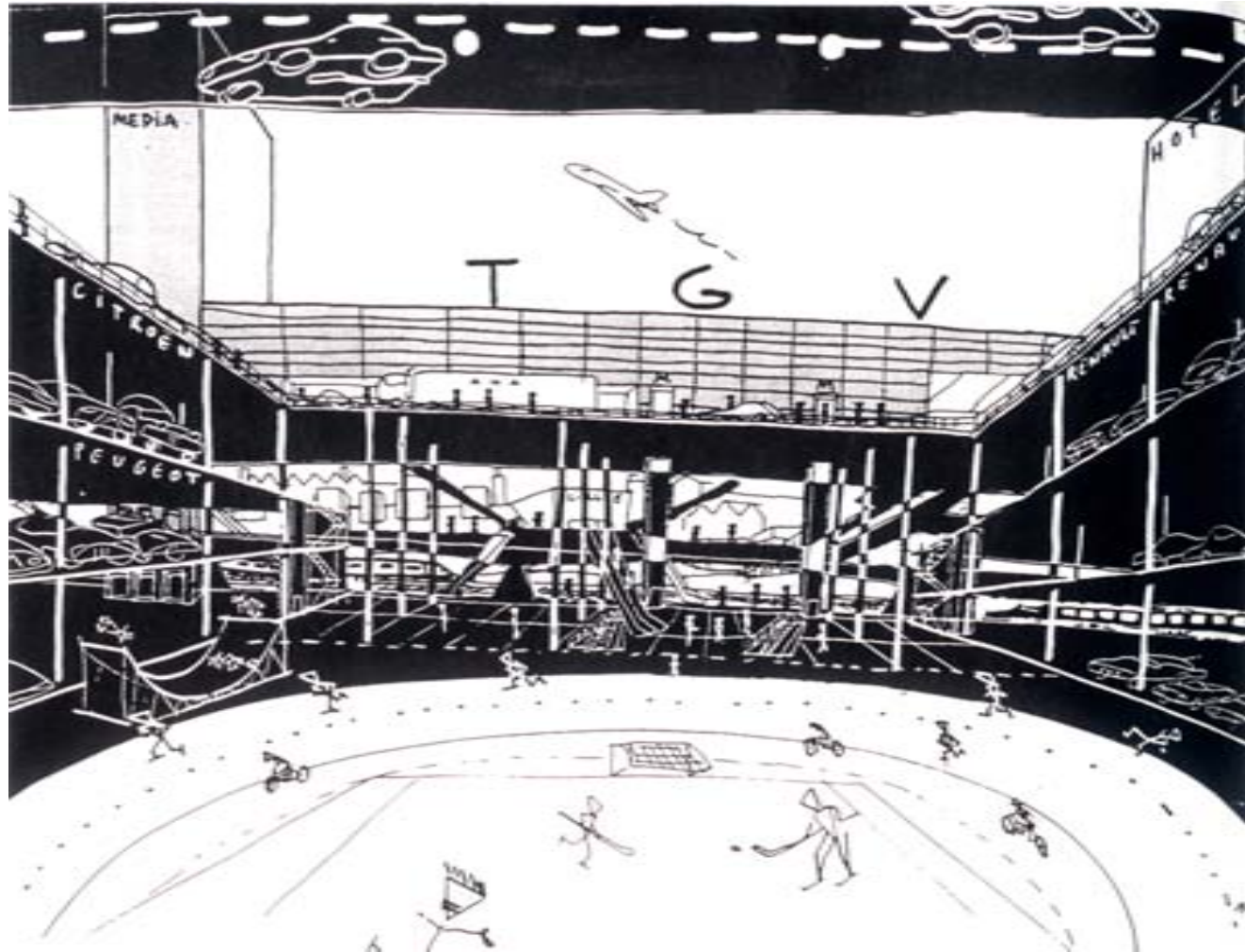
City Projects

- Ronda de Dalt, Barcelona
ring highway networks other modes
- Nordhavn, Copenhagen
bicycle-based urban plan
- Masdar,
S-bahn and Personal Rapid Transit replace autos

Europe transformed, OMA



Espace Piranesien, OMA



Euralille



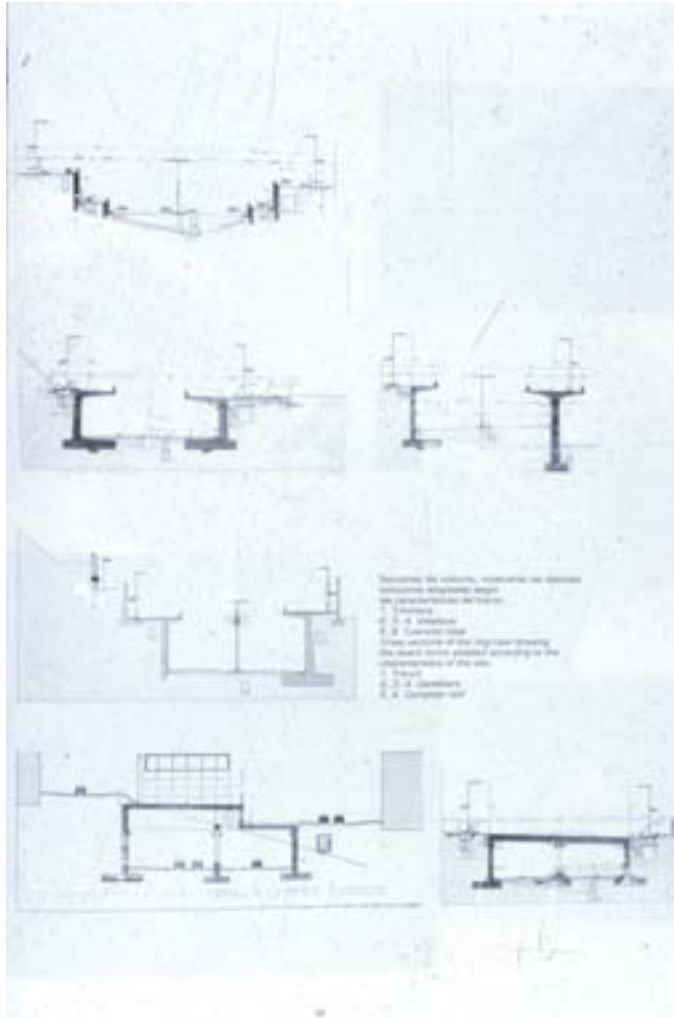
Ronda de Dalt, Barcelona



Ronda de Dalt, Alejandro da Sola, Barcelona



Ronda de Dalt, Alejandro da Sola, Barcelona



Ronda de Dalt, Alejandro da Sola, Barcelona



Bike based urban plan, Nordhavn, København

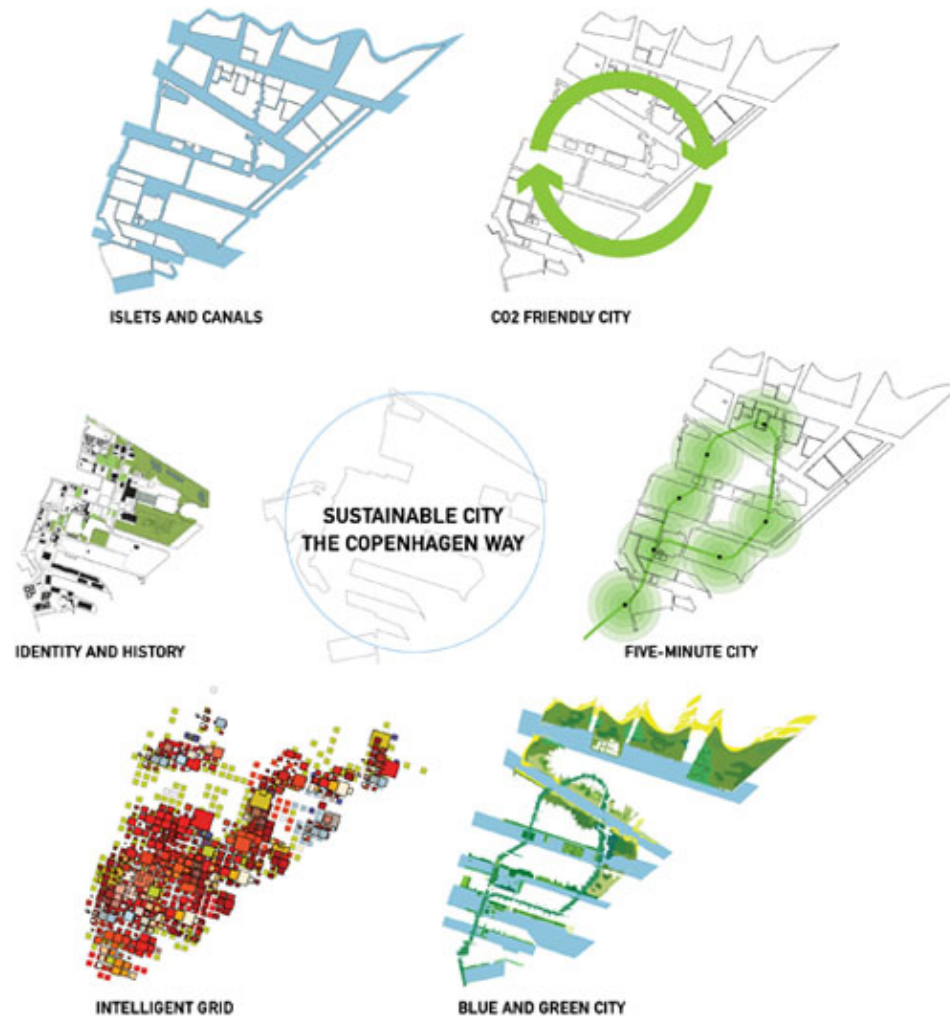


THE GREEN LOOP

Bike based urban plan, Nordhavn, Copenhagen



Bike based urban plan, Nordhavn, Copenhagen



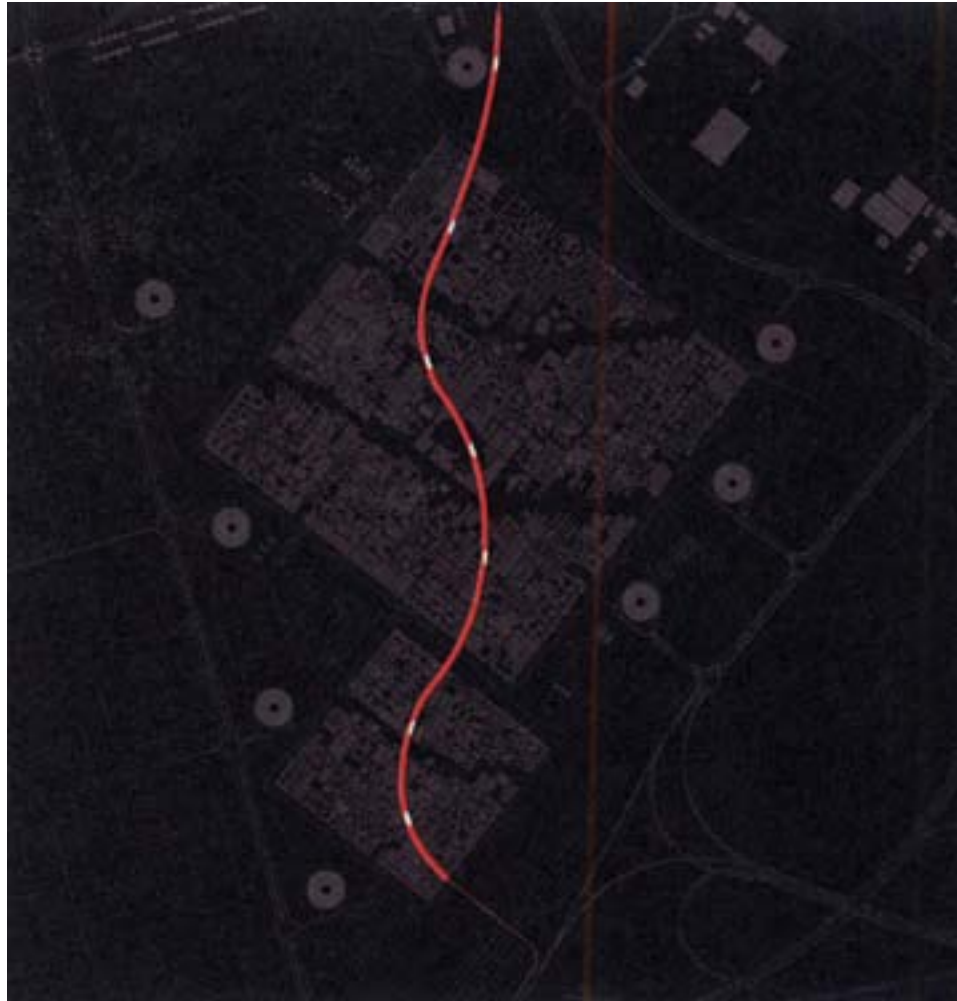
Masdar, Abu Dhabi, Foster



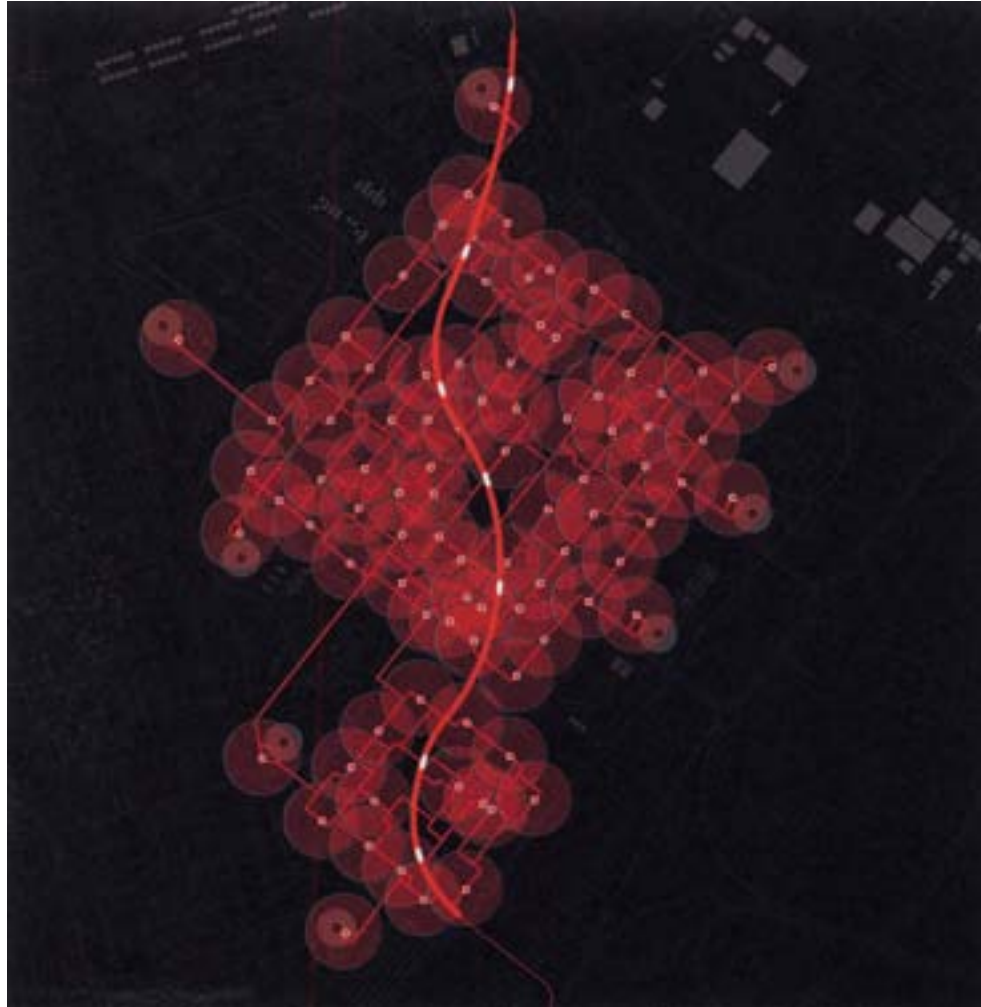
Masdar, Abu Dhabi, Foster



Masdar, Abu Dhabi, Foster



Masdar, Abu Dhabi, Foster



Masdar, Abu Dhabi, Foster



Masdar, Abu Dhabi, Foster



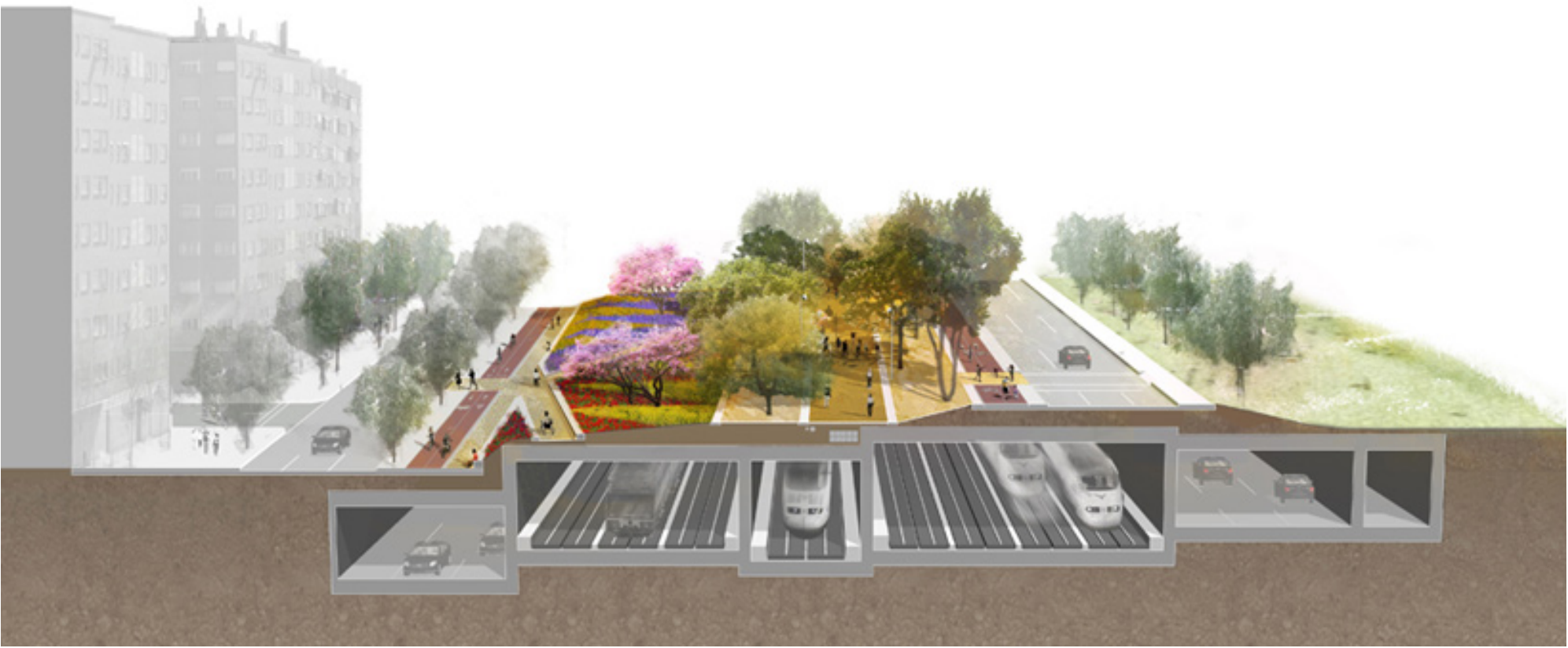
Sagrera, Barcelona, west 8



Sagrera, Barcelona, west 8



Sagrera, Barcelona, west 8



Sagrera, Barcelona, west 8

