



Action plan for Swedish bio energy companies - Czech Republic -

Version 1.0

Swedish Trade Council
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This report was made by the Swedish Trade Council

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Summary market prioritization bio energy

- There is a growing global demand for renewable energies
- There are many opportunities and in order to succeed the bio energy companies have to focus and have a long term commitment on the most promising markets
- In order to shorten lead times to business for Swedish bio energy companies the Swedish Trade Council analyzed 25 selected markets
- Nine markets were identified as the most promising; Austria, Canada, Czech Republic, Ireland, Poland, Romania, Spain, United Kingdom and USA
- In the next step a deeper market analysis and an action plan for each prioritized market was conducted
- This is the action plan for the Czech market



Why prioritize?

- focus and long term commitment are essential to success

Entering a new market requires a substantial commitment in terms of time and money especially in relation to a small company's resources

Before entering a new market the following factors need to be evaluated:

- Customer demand and buying criteria
- Laws & regulations
- Business climate & culture
- Local and international competition
- Access to financing

When entering a new market the following need to be created:

- Sales & distribution network
- Local references
- Customer contacts
- Brand recognition
- Local networks (Swedish companies, sub-suppliers, consultants, politicians, etc)

Substantial scale and learning curve effects exist per country



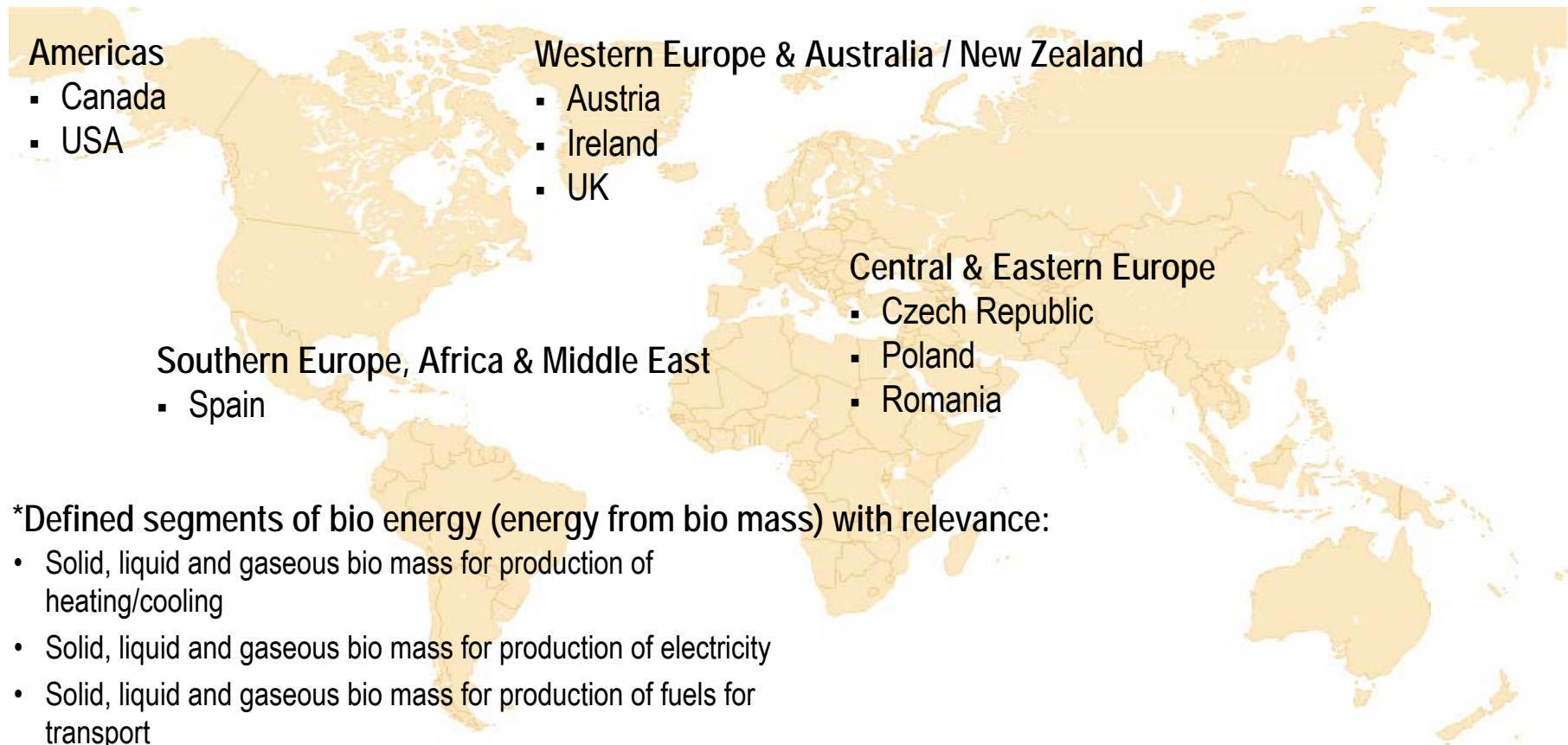
The 25 countries are found in five regions*

- identified through company preferences, industry experts, Svebio





9 geographical markets were identified for further analysis and development of an action plan in the field of bio energy*



*Defined segments of bio energy (energy from bio mass) with relevance:

- Solid, liquid and gaseous bio mass for production of heating/cooling
- Solid, liquid and gaseous bio mass for production of electricity
- Solid, liquid and gaseous bio mass for production of fuels for transport



Three tracks identified

- different characteristics for each track

"EAST TRACK"

- Czech Republic
- Poland
- Romania

Characteristics:

- New EU-member
- District heating
- Mainly public financing
- Based on opportunities waiting to be explored

"WEST TRACK"

- Canada
- Ireland
- Spain
- UK

Characteristics:

- Bio energy for transport + electricity production
- Domestic heating/cooling
- Public and private financing
- Based on demand from markets

"SPECIAL TRACK"

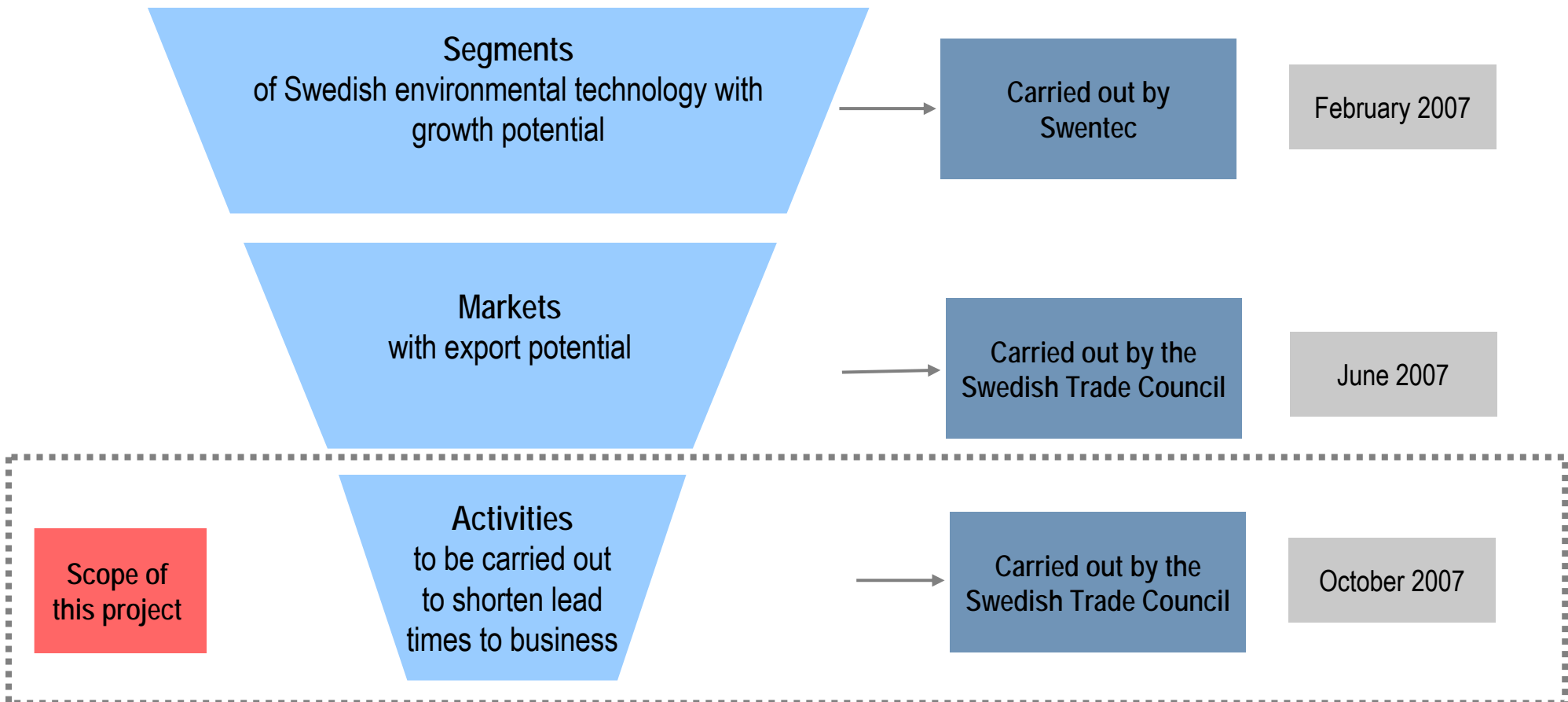
- Austria
- USA

Characteristics:

- Window of opportunity open now
- Very advanced in certain segments, i.e. bio fuels for transport
- Public and private financing
- Based on bench marking opportunities

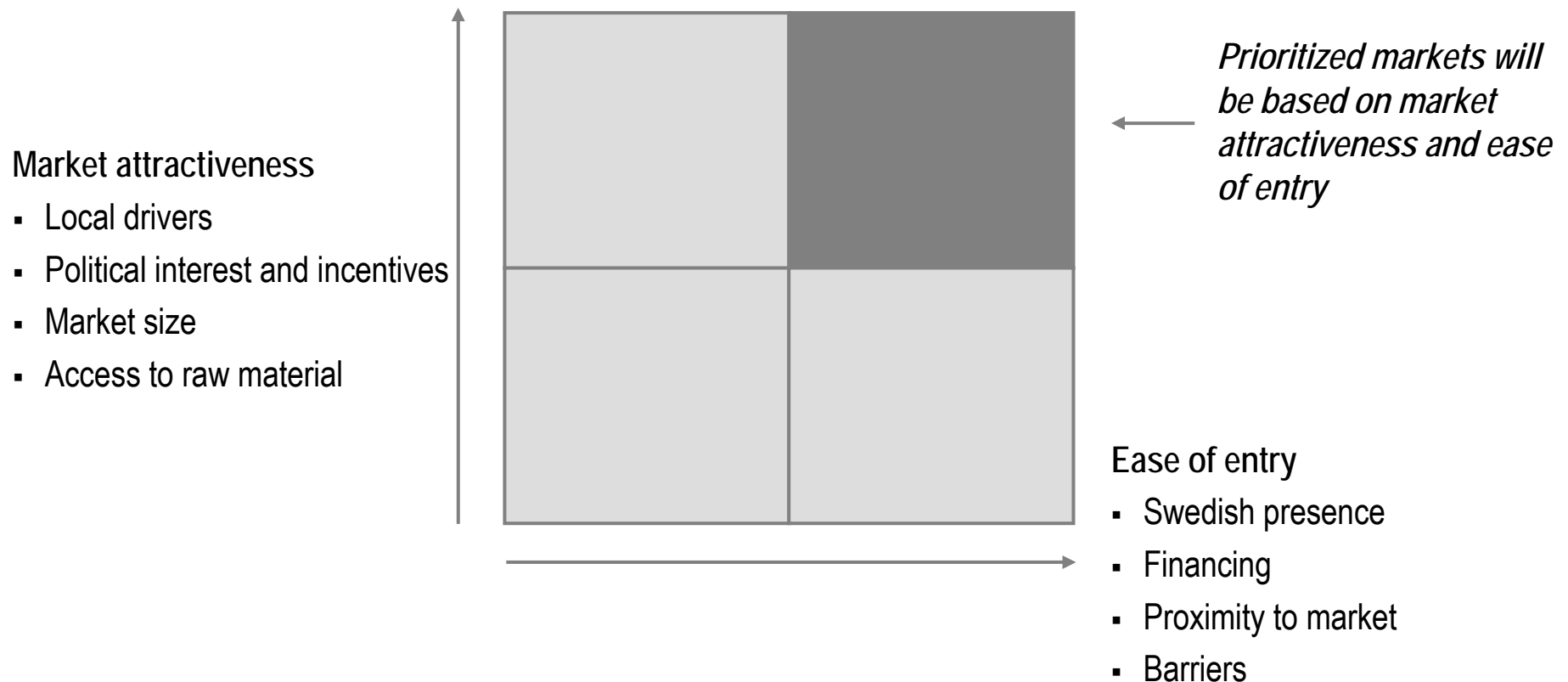


Funnel approach to zoom in on segments, markets and activities with largest potential for export



In the last report markets with most potential (market attractiveness vs. ease of entry) were identified with Svebio

- this project focuses on WHEN and HOW to enter the market



This project entails 3 segments - The company strategy needs to be adapted accordingly



Project plan: Activities

Market analysis

Activities

- Local interviews with bio energy companies, experts and organizations

Deliverables

- Answered key questions
- Local action plans for the 3 sub segments

Aggregated analysis

Activities

- Analysis of local reports and action plans
- Development of action plans for regions and or types of companies

Deliverables

- Action plans for regions and or types of companies
- Action plan for a central Swedish initiative

Seminars

Activities

- Seminars in Stockholm and Gothenburg

Deliverables

- Conducted seminars

This process will assure well founded strategies / action plans



Definitions and abbreviations

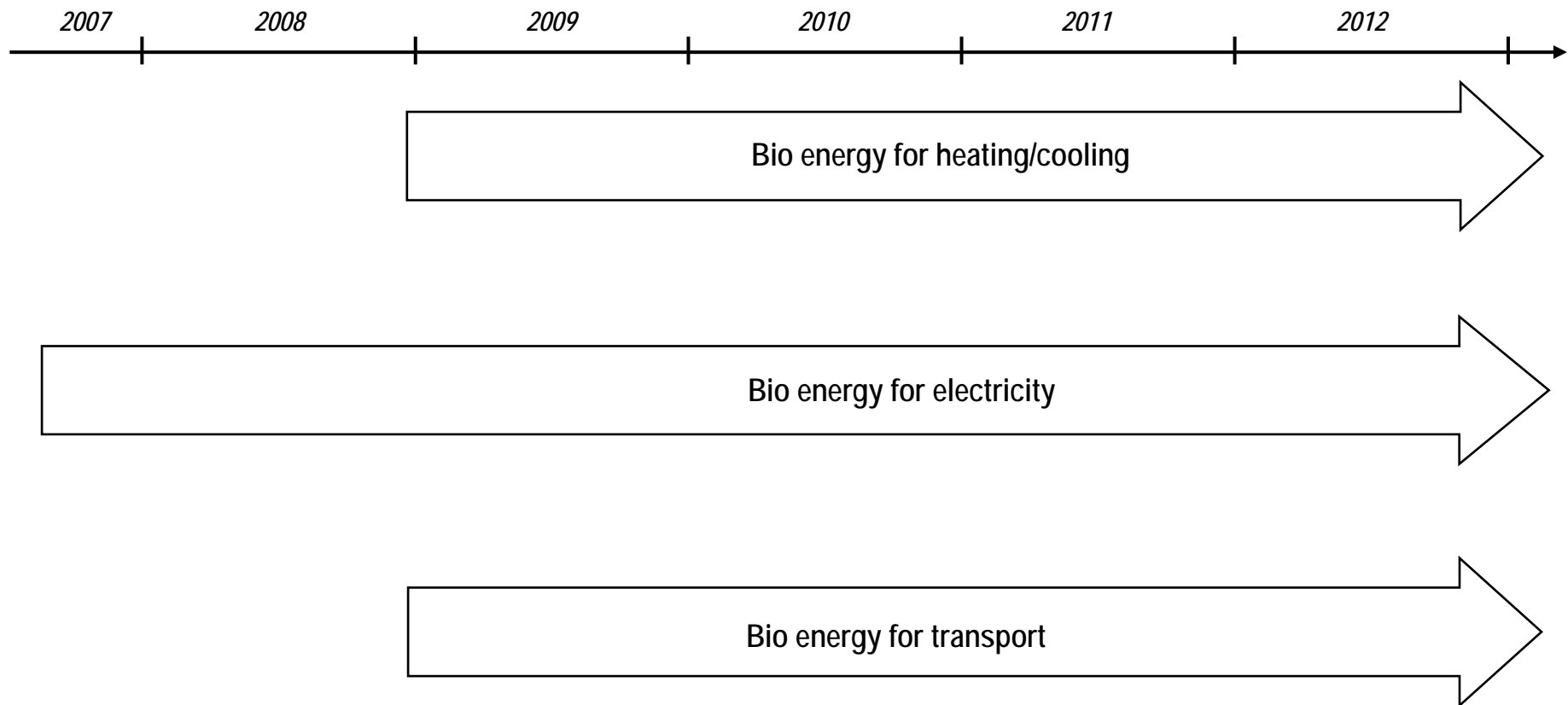
Term / abbreviation	Definition
Environmental technology	All technologies whose use is less environmentally harmful than relevant alternatives. Environmental technology are according to ETAP categorized into the following areas; air pollution control, bio energy, district cooling/heating, energy efficiency, environmental consultants, environmental training & information, hydro power, noise protection, soil remediation, solar energy technology, sustainable building, systems/control/monitor engineering, transportation, waste management & recycling, water & wastewater treatment, wave power, wind energy technology
Bio energy	Bio energy is energy from biomass. Includes solid, liquid, gaseous bio fuels for production of heating/cooling, electricity and fuel for transport.
RES	Short word for renewable energy sources, normally wind, solar, bio energy, hydro etc.
Market	In this report a market is defined as a geographical country.

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On the short term bio energy for electricity is most attractive

- Generous feed-in tariffs varying on the type of bio mass used



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Current opportunities within the segment heating / cooling include conversions of CHP systems but no subsidies available today

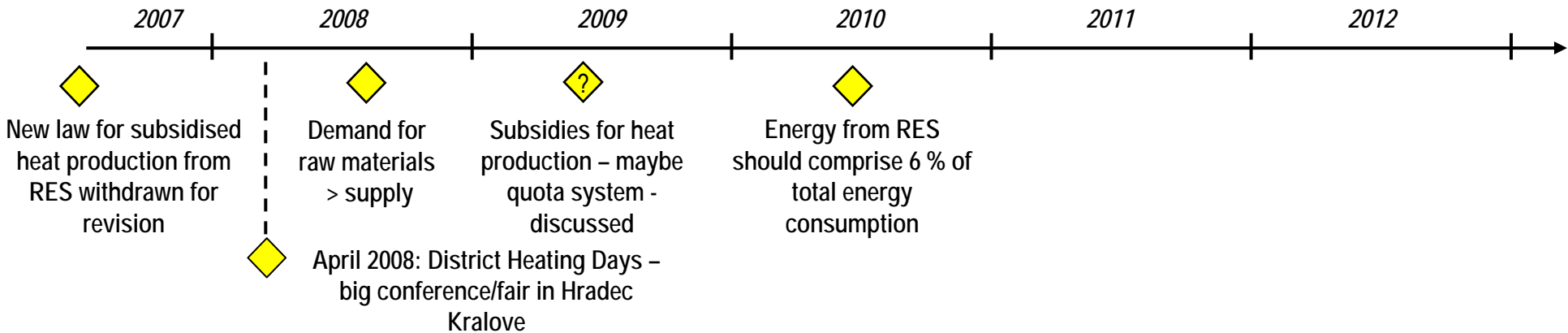
Timeline according to type of company

Refined products		Pellet burners / systems sold to distributors to commercial customers	Pellet burners / systems sold to distributors for private customers
Know how /seller could also be municipalities	CHP solutions to modernise municipalities' district heating systems	CHP solutions to modernise municipalities' district heating systems	Know how / technology for pure biomass combustion
Raw material		Wood residue / alternative bio mass sold to large distributors	
	Now	Time	2012

- The latest trend in heating is biogas from maize, with use of German and Austrian technology for mix and fermentation
 - Maize is still however excluded from the feed-in tariff system
- Proposed bill for subsidies to heat production from RES withdrawn for revision in late 2006, Minister for Environment Bursik has promised to keep it up
- A good place to start is the fair *District Heating Days* in Hradec Kralove, annually in April

Producers of system solutions and companies with know-how in the field should start planning

Solid, liquid and gaseous bio mass for production of heating/cooling is not yet a mature segment



Comments

- New subsidies for heat production from RES are being discussed
- Latest trend is heat from maize biogas
- Some plants, e.g. Pisek, have started co-combustion
- Biomass mainly from the wood and forestry industries
- Jindrichuv Hradec municipality in negotiations for a 15 MW CHP boiler for straw
- Many formerly state owned heat and gas companies are being privatised

Actions

- Monitor market as future state subsidies will make it attractive – taking part in fairs is a good way of getting to know the market and make the market know you
- Know-how and raw material for (harvesting of) bio mass already needed
- Know-how and technology for conversion of CHP plants
- Monitor competitors' – German, Austrian, Dutch – actions
- District heating boilers smaller than 10 MW could be especially interesting



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Czech feed-in tariffs for production of electricity from RES most generous of all the new EU countries

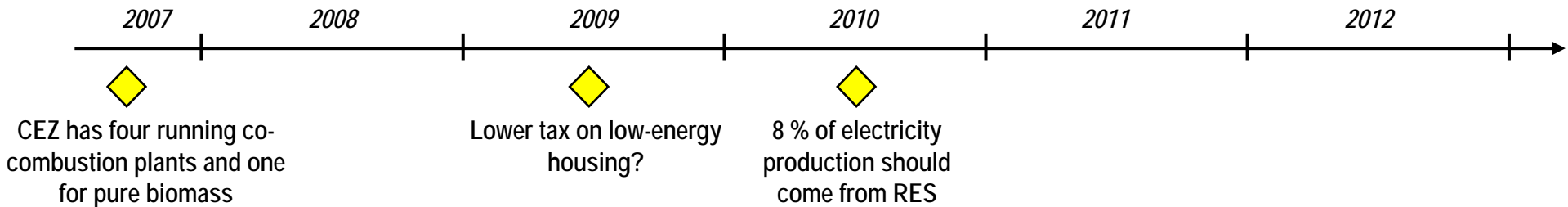
Timeline according to type of company

Refined products			
Know how (also from municipalities)	CHP solutions to modernise municipalities' plants	CHP solutions to modernise municipalities' plants	Know how / technology for pure biomass combustion
Raw material		Wood residue / alternative bio mass sold to large distributors	
	Now	Time	2012

- Feed-in tariffs SEK/MWh:
 - Biogas/crops 1000;
 - Forestry/agric.residues 850;
 - Ind.res. 760.
 - For 15 years
- Funding from EU Structural Funds also possible
- New support for electricity from biogas
- Problem with supply as co-combustion in the major coal CHP plants has drained the market of solid biomass
- CEZ has decided to invest 10 BSEK in RES the next 15 years, of which 2/3 in wind power stations

The need for modernisation of CHP plants could be an opportunity in the medium term

Czech electricity exports second in EU but local demand will grow



Comments

- Power giant CEZ are being further privatised (state share planned to be 60 %), as are other major power companies
- Coal and nuclear power still the main energy sources
- Tax reductions for low-energy houses under discussion
- Czech Rep. EU's second largest exporter of electricity and household prices are still low
- The local demand is however calculated to raise with future industry investments
- Government scepticism towards EU RES targets, wants to focus rather on energy efficiency

Actions

- Monitor municipalities in need of more modern CHP solutions / systems, especially boilers smaller than 10 MW
- Know-how, technology and turn-key solutions potential products to sell
- Supply is still scarce, alternative raw materials needed as well as technology for harvesting
- Subsidies are good but depending on type of biomass
- Competition mainly from Austrian and German entities

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Czech production of biodiesel large but no incentives for increased consumption on the home market yet

Timeline according to type of company

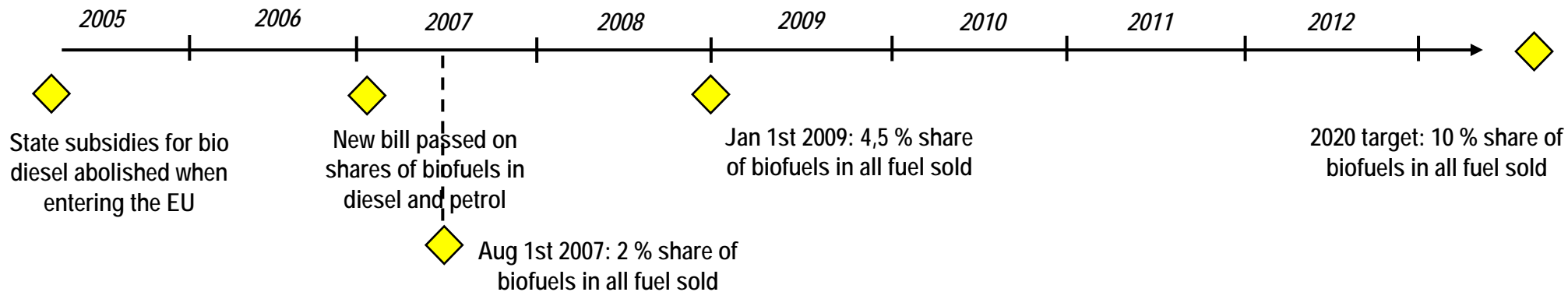
Refined products		
Know how (also municipalities)	Technology sold to bioethanol plants	Prague Public Transport nursing plans to buy biogas buses
Raw material		
	Now	2012

Time

- The Czech Republic is one of the biggest producers of biodiesel
 - Most of it currently exported to Germany
- Earlier relatively high local consumption dropped after EU accession and currently no incentives to sell more than the target percent shares
- Investments are on their way for production of e.g. bioethanol
- Swedish companies have sold technology to Czech plants

The market should be closely monitored as the development in the area could accelerate

Good experience of biodiesel in the Czech Republic, but most of the production is currently exported



Comments

- The percent shares have generated new plants and the production is now increasing also for bio ethanol.
- Supply – Lack of cereals, prices are raising
- Subsidies – None at the moment.
- Competition – Local producers Sentuza and Agropodnik Jihlava major players, others still very small
- Bio diesel (1/3 methyl-ester, 2/3 mineral diesel) quite popular up to 2004, when the government subvention system was criticised by the EU and had to be abolished
- Customers likely able to easily switch back to biofuels

Actions

- Prioritize market segments
- Adapt strategy – sell know-how and technology
- Supply – will still suffer from lack of cereals. Technology for other raw materials necessary
- Subsidies – currently none, might be in the future
- Competition – not significant, more complementary entities



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The Czech Republic is EU's second largest electricity exporter

Country facts

Population:	10,2 million
GDP/capita:	\$ 21 600
GDP growth:	5,5 %
Swedish export:	6,7 Billion SEK
Swedish export, growth:	24 %

Bioenergy facts

Feed in tariffs:	SEK/MWh: Biogas/crops 1000; Forestry/agric.residues 850; Ind.res. 760 – all for 15 years
RES in energy mix:	4 %, ambition to be doubled in 2010
Available programs/initiatives:	National investment programme., National Environment Fund, Nordic Development Bank
National Energy Plan:	Act on support for the use of RES (180/2005 Coll.)
Available raw material:	Agr.residues 13,5 PJ, Wood processing 9 PJ, Forestry res. 11,5 PJ, Energy crops 161,5 PJ
Domestic expertise:	Biodiesel (RME), co-combustion biomass + coal, smaller pellet boilers
Environmental public awareness:	Medium (30 % consider environmental issues very important)
Bioenergy companies present:	AlfaLaval, Chematur, Ageratec, etc. Mostly sales by distributors or from Sweden directly, project works
Current projects:	Chematur has sold equipment to bioethanol plants, as has AlfaLaval. Ageratec recently found a local partner.



Czech interest for Swedish solutions but pricing is always an issue

Business opportunities

- Segments with opportunities for Swedish companies are e.g. district heating, solid and liquid bio fuels
- Strong demand for energy efficiency solutions and bio-conversion of district heating plants
- Construction sector is expanding – need for “smart” and energy-saving houses
- The Swedish brand and know-how generally appreciated
- Long-term generous financial support for electricity production from biomass

Challenges

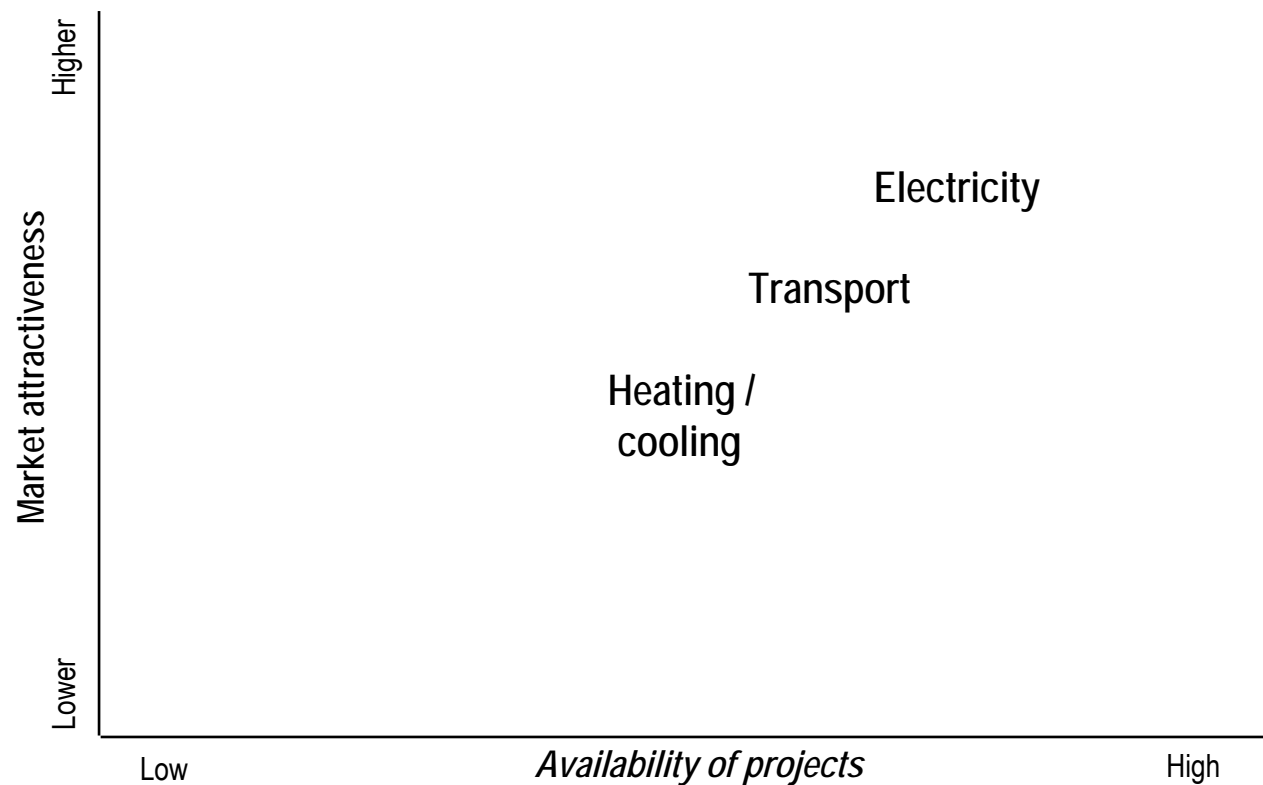
- Competition from German, Austrian and Dutch entities
- Price sensitivity makes end customers reluctant to try new and initially expensive solutions
- Some difficulties to access financing
- Political ambivalence regarding environmental issues

Conclusion

- The Czech government has created a national plan with the aim to increase the amount of RES within heating, electricity and biofuels for transport
- Total share for the energy sector from the EU Structural Funds is 300 BSEK (Of which 50 BSEK for environment technology generally and 7 BSEK for RES especially)
- Swedish companies benefit from a traditionally good reputation in the country
- The seminar and match-making event in November 2006 with five Swedish environment technology companies showed great interest from the Czech point of view for solutions, especially within conversion of district heating plants, production of biomass and energy efficiency. Market experts see great potential within these fields for the next 5 years.

All three segments are present in the Czech Republic on a rising scale of attractiveness

Market attractiveness and availability of projects



- Heating / cooling is currently not getting such generous financial support as production of electricity
- Electricity can be produced with good feed-in tariffs
- Transport fuels from biomass were subsidised from the 1990s till the EU accession
 - However, the country is still one of the Union's biggest producers of biodiesel

Czech Republic has an relative attractive market for bio energy for electricity



The Czech Republic is an increasingly interesting market for Swedish companies

Indications from the market

- **Status of the sector:**
 - High potential for system solutions, need for logistics know-how, etc.
 - Generous feed-in tariffs for electricity production from biomass
 - Co-combustion the major RES technology, otherwise coal and nuclear power still main technologies used for power and heating
 - Percent shares for transport fuels introduced 2007, biodiesel main product
- **Local organizations and financing:**
 - Not much joint Czech-Swedish activity on organisation level
 - Politicians, lobby organisations and some big companies influential
 - Public finance available, but application process usually slow
- **Customers and supply:**
 - Lack of bio mass / raw materials
 - Plenty of potential customers as modernisation a future must
 - Purchasing usually by public tenders or selection process
 - Ongoing projects include co-combustion, biogas from maize and methyl-ester production
- **Competition and complementing entities:**
 - Several traditionally big Swedish players present, but German, Dutch and Austrians were much faster and other Swedish companies will have to hurry up not to be able to take part of the opportunities
 - Foreign companies are not always the best ones at providing local presence and long-term support

Implications

- Electricity production is an attractive segment as well as the growing market for biofuels
- There is room for increased cooperation on both organisation and company level
- There is a need for new technology to compensate for the lack of certain raw materials - some segments initially more interesting than others.
- To compete with already present international companies, action has to be taken sooner rather than later.
- Advisable to establish strong local presence and thus ability to provide long-time service and support

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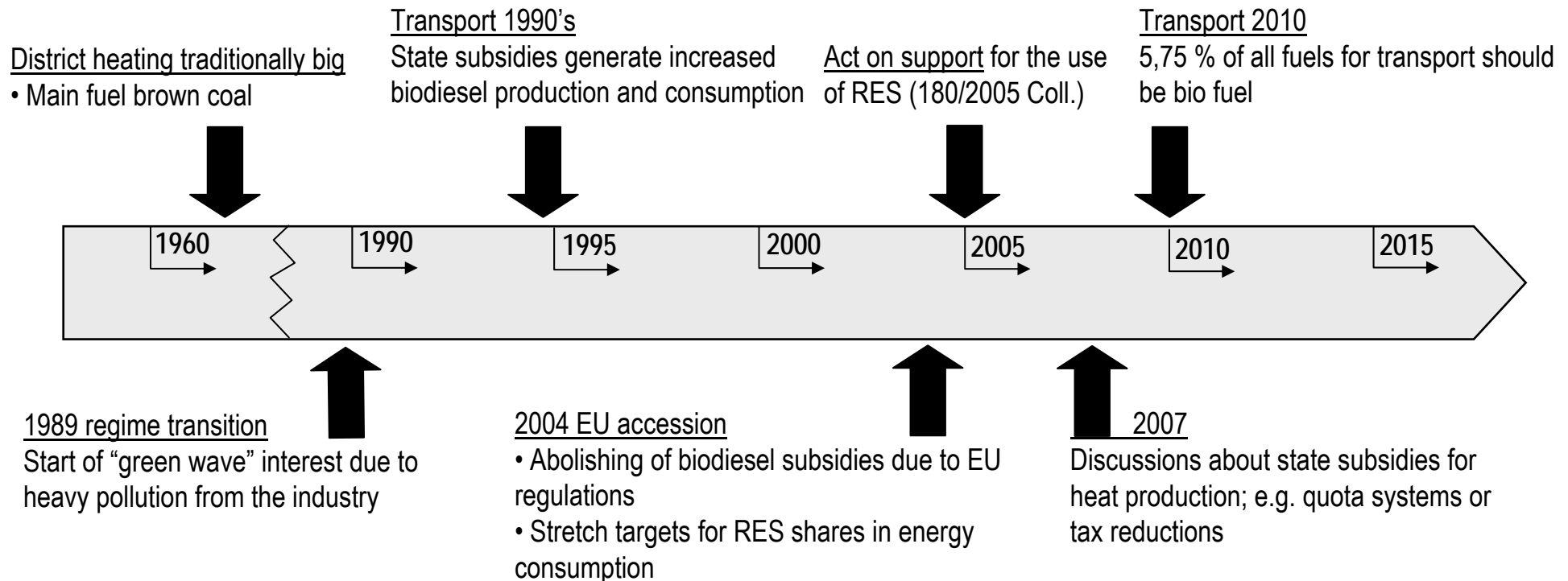
Czech Republic use more energy than any other OECD country - energy efficiency important issue

Bio energy – description of the market		
Heating / cooling	Electricity	Transport
<ul style="list-style-type: none"> • Main energy sources today are brown coal and spill-off heat from nuclear power production, plus oil and gas • District heating warms up some 60% of all households (current RES share 9 %) • Some co-combustion and CHP plants in use, more to come • Future growth potential medium, but high regarding energy efficiency • Co-combustion with coal can get more interesting once state subsidies are introduced 	<ul style="list-style-type: none"> • 60 % from coal, 30 % nuclear • A large amount of electricity is exported • Generous feed-in tariffs depending on type of biomass • Future growth potential good • One recent trend is biogas from maize • Modernisations of CHP plants to come • Energy efficiency will be more and more important as energy demand grows 	<ul style="list-style-type: none"> • Czech Republic second biggest producer of biodiesel in the EU • 2 % share of biofuels in all fuels sold introduced in August 2007, 2020 target 10 %. • Future growth potential in biodiesel but also bioethanol, some projects initiated • Some experts believe in biogas rather than energy intensive fluid biofuels



Historically brown coal and nuclear power are the main energy sources

- energy efficiency now in focus



Comments

- Government scepticism towards EU targets for RES shares in energy consumption – “unrealistic” considering the growing industry energy demand
- Energy efficiency in focus as well as co-combustion with coal in district heating and CHP plants
- If subsidies are to be introduced, the sectors for heating and transport will be increasingly interesting for investments



The most significant challenges include prevailing old solutions and unclear political visions

Bio energy – major challenges in each field

- Entry barriers (regulations etc.)
- Financing – Ministry of Industry and Trade not very positive to RES
- Supply – still scarce in many fields
- Consumer behavior – price sensitivity prevents “bold” investments
- Technology – need for know-how

Heating / cooling	Electricity	Transport
<ul style="list-style-type: none"> • Supply • Consumer behavior – price sensitivity • Technology • No current subsidies 	<ul style="list-style-type: none"> • Supply • Consumer behavior • Technology • Brown coal and nuclear still by far the major fuels used 	<ul style="list-style-type: none"> • Supply • Consumer behavior • Technology • Currently no incentives to consume or sell more than the percent share targets imply



The most significant entry barriers include a generally low interest from the public and competition from already present entities

Bio energy – main entry barriers		
Heating / cooling	Electricity	Transport
<ul style="list-style-type: none"> • Lack of funding – no structures for financing • Public ownership – complicated tender procedures • A few large companies dominate most of the market 	<ul style="list-style-type: none"> • Lack of biomass • A few large companies dominate most of the market • Tariffs • Norms and certifications 	<ul style="list-style-type: none"> • Lack of funding – no structures for financing • Small-scale production • Lack of biomass • No incentives to consume more than necessary

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The most significant influencing entities include the Ministry of Industry and Trade, Ministry of Environment, CZ Biom and CEZ

Bio energy – influencing entities

- Municipalities, Ministries of Environment and Industry & Trade, CEA (Czech Energy Agency)
- (Industry) media – No significant influence
- Industry / Lobby organizations – CZ BIOM
- Major corporations - CEZ

Heating / cooling	Electricity	Transport
<ul style="list-style-type: none"> • Government institutions • Industry / Lobby organizations • Major corporations – e.g. CEZ 	<ul style="list-style-type: none"> • Government institutions • Industry / Lobby organizations • Major corporations – e.g. CEZ 	<ul style="list-style-type: none"> • Government institutions • Industry / Lobby organizations

Hardly any current co-operation between Swedish and local organisations – definitively space to grow

Some regional co-operation between västra Götalandsregionen och Středočeský kraj regarding environment issues.

Official visits from Swedish Ministry of Environment to Prague and vice versa



Earlier general Czech-promoting and co-operating activities from ALMI Blekinge and Ronneby kommun, with some focus on environmental issues

National co-operations

- No significant co-operations found on regional and /or organisational level
- Swedish-Czech co-operation seem to be mainly on a strictly commercial basis



Bio energy projects are mainly financed through state public financing



A mix of both private and public financing is most common on the market



There are several financing alternatives available from Sweden (1/3)

Financing alternatives for Swedish corporations from Sweden

EKN (Exportkreditnämnden)

Financing: Government authority that gives warranties in order to insure export deals and cross border investments. Such a warranty can be the prerequisite for offering the buyer credit – and can also enable better financing.

Environmental focus: Gives warranties for different types of business endeavors incl. Environmental oriented ones. Takes the environment into consideration when evaluating all business endeavors.

Geographical focus: Basically all countries, but with different levels of premiums according to the country list on the website.

Info: www.ekn.se, martin.Kallervald@ekn.se

SEK, Svensk Exportkredit (“Swedish Export Credit”)

Financing: State owned corporation that offer export financing solutions, general corporate financing, project financing, capital market transactions or qualifies consulting services Swedish companies and their international customers.

Environmental focus: Not specifically

Geographical focus: All regions

Info: www.sek.se, bo.leander@sek.se

There are entities for different needs – venture capital, credits, subsidies and warranties



There are several financing alternatives available from Sweden (2/3)

Financing alternatives for Swedish corporations from Sweden

Exportlånet ("The export credit")

Financing: "The export credit" is administrated by Almi and is a collaboration between Almi, EKN, Swedish Trade Council and Swedfund. The credit is developed to be complementary to a market and specifically for export deals. It can finance up to 90 per cent of the total capital need without a maximum credit amount.

Environmental focus: Not specifically

Geographical focus: The credit is only offered to Swedish SMEs with operations in Sweden

Info: http://www.almi.se/finansiering_export.html

Exportlånet ("The export credit")

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Environmental focus: Not specifically

Geographical focus: The credit is only offered to Swedish SMEs with operations in Sweden

Info: http://www.almi.se/finansiering_export.html



There are several financing alternatives available from Sweden (3/3)

Financing alternatives for Swedish corporations from Sweden

Start Öst ("Start up East") & Start Syd ("Start up South")

Financing: The programs "Start Öst" and "Start Syd" offer SMEs the possibility of applying for financial support for knowledge transfer and equipment when establishing business in one of Sida's countries of cooperation. The financial support is in the form of a credit that is depreciated 100% after completed and authorized project. The maximum credit is KSEK 500 for knowledge transfer and KSEK 250 for equipment. It can in total only amount to 40 % of total project cost. In order to be eligible for the credit the Swedish company needs a local business partner. The credit is administrated by Nutek.

Environmental focus: Not specifically, but takes the environment into consideration when evaluating applications

Geographical focus: Selected countries in Africa, Asia, Latin America and CEE

Info: <http://www.nutek.se/sb/d/118>

DemoMiljö

Financing: Support on the basis of a gift

1. Realization of demo projects (financing of equipment or systems competence/engineering) for new environmental technology. Application trough the recieving partys counter, i.e. foreign authorities, institutions or companies. KSEK 500-3 000.
2. Feasibility study for project development and identification (which in turn can lead to a demo project). Max. KSEK 300, only for SMEs.

Environmental focus: Environmental technology within sustainable metropolitan development

Geographical focus : Sida's countries of cooperation in Africa, Asia, Latin America and CEE

Info: http://www.nutek.se/content/1/c4/60/38/demomiljo_webb.pdf (Sida finances and Nutek administrates)



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The most significant customers include CEZ and local municipalities in need of more modern district heating and CHP solutions

Bio energy – main customers

All sectors: Raw material providers in need of better harvesting and/or logistic solutions

Heating / cooling	Electricity	Transport
<ul style="list-style-type: none"> • Municipalities • Private households in a long-term perspective • Major producers and distributors of heating / cooling 	<ul style="list-style-type: none"> • Municipalities • Major producers and distributors of heating / cooling 	<ul style="list-style-type: none"> • Smaller production plants in need of technology • Companies such as Prague public transport in need of a more modern fleet of buses



CEZ – Electricity - Strongest player on the Czech market



Category	Bio fuels for power production
Line of business	Generation, import, export and sale of electricity; production and sale of heat. Also a distribution network handling with wastes. In 2006 227 ktons biomass was used in production, which was an semi-annual increase of 94,2%.
Turnover	31 990 MSEK (2006)
Ownership structure	Joint stock company. Ministry of finance has majority (67,61%), foreign investment constitute about 20%.
Investment plans	Before 2020 CEZ plans to invest 10 billion SEK in the development of renewable sources. From that amount about 2/3 will be used to build new wind power plant.
Comments	<ul style="list-style-type: none"> • CEZ has a newly started business unit called ČEZ Obnovitelné zdroje, s.r.o., which focuses on renewable sources. • ISO 9001 certified • Four plants for co-combustion and one for pure combustion



Pražská Teplárenská – Heat & Power - Domestic waste for power and heat production



Category	Domestic waste for power and heat production
Line of business	Production, distribution and sale of electric power and heat. Maintenance, repair, reconstruction and modernization of power-supply systems.
Turnover	2 213 MSEK (2005)
Ownership structure	Joint stock company. Main shareholders are International Power Opatovice, a.s. (48,67) and Pražská teplárenská holding a.s. (47,33),
Investment plans	
Comments	<ul style="list-style-type: none"> • Has ISO 9001 and 14001 compliance. • Supplies heat to 240 thousand households, several industries and institutions.



Plzenska Teplarenska – Heat & Power - Strong local player developing biomass platform



Category	Potential customer for biomass
Line of business	Production and distribution of heat, cooling and electric power.
Turnover	508 MSEK (2005)
Ownership structure	The city of Plzen owns 99,18 % of the stock
Investment plans	Plans for construction of unit K7 and TG3 (boiler K7, turbine TG3 and equipment). Power supply at condensing operation - 10 MWe and the fuel to be used in the boiler is biomass.
Comments	<ul style="list-style-type: none"> • Largest producer of heat for the city of Plzen • The company also produces cold • Has ISO 14001 quality certificate



Dalkia – Heat & Power - Cogeneration is a preferred method of heat and power generation



Category	Use of low-sulphur bituminous coal for cogeneration
Line of business	Production and distribution of heat and power. Ecological procedures are prioritized. Focuses on combined heat and power.
Turnover	2 758 MSEK (2005)
Ownership structure	Société de Participations et d'Investissements Diversifiés 2 (SPID 2) and Dalkia International hold together 98,06% of the shares.
Investment plans	Continuous investments in upgrading all energy resources to comply with all legal requirements.
Comments	<ul style="list-style-type: none"> • Has ISO 14001 certification • Eastern Czech Republic the main market



Teplarna Otrokovice – Heat & Power – A modern and ecological plant



Category	Coal and biomass for heat and power production
Line of business	Producer and distributor of heat and power. The plant supplies the towns Otrokovice, Napajedel, Malenovic and the surrounding area with heat. The biomass used is made up of plants and waste from purification of seeds. Combined heat & power
Turnover	294 MSEK (2005)
Ownership structure	E.ON Czech owns 66% of the stock and Czech Coal about 34%
Investment plans	Continious investment in new technology
Comments	<ul style="list-style-type: none"> • Belongs to the E.ON group



Agropodnik Jihlava– Bioenergy for transport - One of the largest Rape Methyl Ester producers in Czech Republic



Biodiesel

Category	RME production and biofuels for transport purposes
Line of business	Besides RME production, the company crude rapeseed oil, rapeseed cake, glycerin, refined fat acids and fertilizers.
Turnover	319 MSEK (2005)
Ownership structure	Slavia Capital has 91,06% share
Investment plans	
Comments	<ul style="list-style-type: none"> The company is ISO 9001 certified



Mondi Packaging Paper Steti– Pulp & Paper - Increasing use of biomass in production plants



Category	Use of biomass in production
Line of business	The company is a leading manufacturer of high grade sack kraft and kraft papers, as well as a major European supplier of corrugated case materials and market pulp.
Turnover	2 475 MSEK
Ownership structure	Limited company
Investment plans	Focus on the reduction of energy consumption and increasing the amount of energy generated by own operations using renewable fuels wherever possible. For example burning its by-products, such as bark and residues (biomass) as a carbon-neutral energy source.
Comments	<ul style="list-style-type: none"> • Annual production of 460,000 metric tons of pulp, paper and board • ISO 9001 and 14001 certified • Currently, approximately 42% of the energy consumed by Mondi operations is from biomass. • Syktyvkar mill already generates all its own power, and sells energy to some 60,000 people in the nearby city of Ezhva (Russia).



E.ON – A growing actor on the Czech market



Category	Producer, distributor and trader of power
Line of business	Producer, distributor and trader of power. The E.ON energy group generates the electricity in the Czech Republic from renewable (water) resources, as well as in heating plants (heating and power plant Tábor, heating and power plant Kyjov).
Turnover	5 800 MSEK (Q1 2007)
Ownership structure	Limited company. E.ON Energie AG München owns 100%
Investment plans	Striving for being an ecological player.
Comments	<ul style="list-style-type: none"> • The establishment of the company E.ON Czech Holding AG in 2001 • Has in the last past years acquired energy companies



Setuza – Bio fuels for transport

– 70 % of the market share for edible plant oils and fats

SETUZA

Category	Bio fuels for transport
Line of business	Oil seed processing: Edible oils, Chemicals, etc. Technical and oleochemical products represent 15 % of the production volume and these are supplied to other industrial clients or as fundamental raw material in the production of ecological fuels and lubricants.
Turnover	X MUSD
Ownership structure	Joint stock company. Main shareholders in SETUZA a.s. are Český olej (49.92 %) and Support and Guarantee Agricultural and Forestry Fund (38.3 %).
Investment plans	18 MEUR investment planned for methyl-ester production
Comments	<ul style="list-style-type: none"> • This entity has since 2005 capacity to produce 150 thousand tonnes of bio-ethanol. • SETUZA a.s. was granted an investment incentive by the Ministry of Industry and Trade of the Czech Republic in 2001 in the form of income tax reduction. • Has ISO 9002 quality certificate and ISO 14001 certificate of environment protection compliance.



The most common bio energy technology includes co-combustion of coal and biomass

Bio energy – most common technologies		
Heating / cooling	Electricity	Transport
Today		
<ul style="list-style-type: none"> • Brown coal • Gas • CHP (coal, co-combustion) • Pellet burners (small-scale) 	<ul style="list-style-type: none"> • Nuclear power • Brown coal • CHP (coal, co-combustion) 	<ul style="list-style-type: none"> • Biodiesel (methyl-ester), mostly exported • Bioethanol
Trends		
<ul style="list-style-type: none"> • Co-combustion • Pellets (household market) • Chips, saw dust (commercial market) • Energy crops 	<ul style="list-style-type: none"> • Co-combustion • Biogas from maize • Energy crops 	<ul style="list-style-type: none"> • Bio gas (small scale) from maize • Biodiesel • Bioethanol • Seeds currently used in food production

Purchasing generally done through a tender or selection process

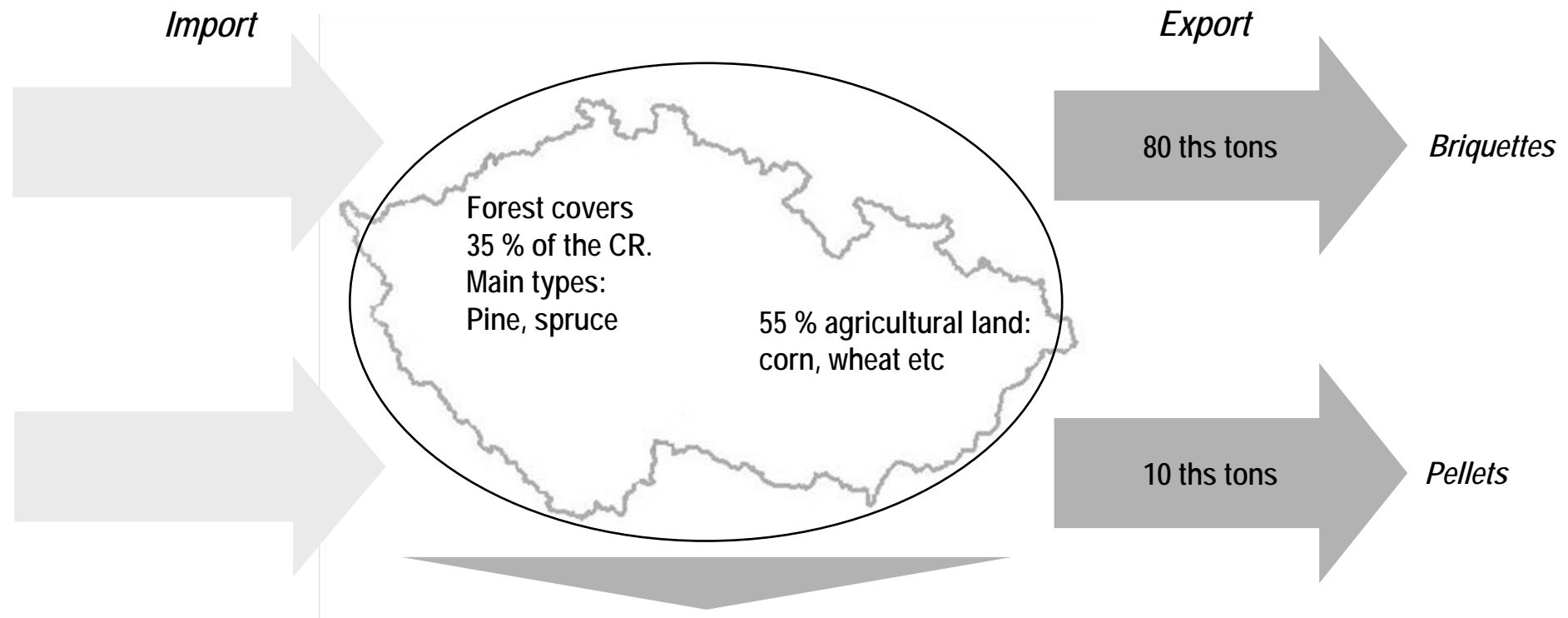
Purchasing process relative to project size and degree of public ownership

Project size	Larger	Tender process or connections / relations / marketing	Tender process
	Smaller	Connections / relations / marketing	Tender process
		Smaller	Higher
		<i>Degree of public ownership</i>	

- The purchasing process is mainly in form of a tender process
 - However, some larger projects for private corporations are handled through a normal purchasing process where relations play a significant role
- Important to get involved already before the tender
- Suppliers can benefit from close monitoring of tenders and offering the winners their products

Most projects are done by selection procedure, but public deals more likely by a tender

Supply for biomass is mainly secured within the borders - however a fair degree of refined biomass is exported



Comments about supply of biomass in Czech Republic:

- In the short / long term, there is a lack of wood and other raw material
- Pricing is an issue since raw materials can be used for several different purposes – competition from e.g. the food industry

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- Local action plan
- **Market analysis**
 - Summary and indications
 - Status of the sector
 - Local organisations and financing
 - Customers and supply
 - Competition and complementing entities
- Appendix



CEZ is by far the main player on the Czech energy market

Bio energy – main competitors and complementing entities		
Heating / cooling	Electricity	Transport
National		
<ul style="list-style-type: none"> • CEZ • Plzenska Teplarenska • Prazska Teplarenska • Teplarna Otrokovice 	<ul style="list-style-type: none"> • CEZ • Prazska Teplarenska • Plzenska Teplarenska • Teplarna Otrokovice 	<ul style="list-style-type: none"> • Setuza • Agropodnik Jihlava
International		
<ul style="list-style-type: none"> • RWE Transgas • Dalkia • E.ON 	<ul style="list-style-type: none"> • E.ON • Dalkia 	<ul style="list-style-type: none"> • Chematur • AlfaLaval



There are several large Swedish companies on the Czech market - most have been present for decades

Company	Line of business	Local position	Large projects	Contact data
Skanska	Construction	The largest construction company in CR. Employs some 7000 people.	A large number of projects all over the country	Kubanske nam. 1391/11 CZ-100 05 Praha 10 Tel: +420 267 095 111
AlfaLaval	Process technology	Locally well-known, good reputation	Has sold equipment to local producers of biofuels	U nákladového nádraží 6 CZ-130 00 Praha 3 Tel: +420 222 863 600
Stora Enso	Forestry, saw mills	Well established, has two big saw mills	Not at the moment	U Uranie 18 CZ-170 00 Praha 7 Tel: +420 281 080 555
Nibe	Heat exchangers	Recently established through acquisition of Czech company	Not at the moment	Polická 444 CZ-539 01 Hlinsko Tel: +420 469 802 295
Alstom Power	Power generation	Established local branch	Active within de-nox technology. Brno unit has also won big assignments for coal fired plants in Germany and Bulgaria.	Olomoucká 7/9 656 66 Brno Tel: +420 545 101 111

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Contact list - Czech Republic

Company / Organisation	Contact person
ČEZ	Ivo Měšťánek, Communication Manager
SEVEn	Tomáš Voříšek, Consultant
BTG Central Europe	Michaela Remrová, Managing Director
CZ BIOM	Miroslav Šafařík, Chairman
Czech Energy Agency	Daniel Brož, Project Manager
Czech Association for District Heating	Petr Linhart, Technical & Ecology Manager
Bioenergy Group	Ctíbor Plachý, Consultant
The Swedish Embassy in Prague	Truls Borgström, 2nd Embassy Secretary



List of reports used - Czech Republic

Issuing organisation	Report
SEVEn	<i>Bio-Energy in the Czech Republic – Present Use and Perspectives for Further Development</i> (Bohuslav Málek & Tomáš Voříšek, 2006)
Ministry of Industry and Trade	<i>National Programme for the Energy Effective Management and the Utilisation of Renewable and Secondary Sources of Energy</i>
Ministry of Industry and Trade	<i>State Energy Policy</i> (Petra Pišová, 2006)
Czech Energy Agency	<i>Vyhodnocení administrace OPPP v České energetické agentuře</i> (Daniel Brož, 2007)
ČEZ	<i>Skupina ČEZ a rozvoj OZE. Press material</i> (Martin Roman, 2006)
Czech Trade Promotion Agency	<i>Bioenergy Sector in the Czech Republic – General Outlook</i> (Tomáš Rak, 2006)
Bioenergy Group, a.s.	<i>Main Factors Influencing Manufacturers of Wooden Pellets in the Czech Republic</i> (Tomáš Gebauer, 2006)
The Swedish Embassy in Prague	<i>Tjeckisk energipolitik</i> (Truls Borgström, 2nd Emb. Secr., Sep 2007)