Comments on plots for *elec\_only*

# Electricity Analysis - Mismatch

## Principal Component 1

1. Monopole of whole of Europe
2. Strong daily frequency and semi-strong half-daily frequency
3. Negative peak at midday with positive values at night
4. Small fluctuations in yearly average
5. Mainly solar PV driven with a large negative solar/load electric
6. Mainly storage driven response
7. High covariance between solar and storage

## Principal Component 2

1. North-south division with Germany with highest value
2. Very strong daily frequency
3. Small daily pattern with negative at midday
4. Same type of fluctuations as PC 1
5. High wind contribution
6. Mainly storage and import-export and their covariance
7. Mainly covariance driven by wind

## Principal Component 3

1. East-west division with France being of most significance
2. High half day frequency
3. Small daily average
4. Smaller seasonal variance
5. High wind contribution with some load
6. Mix between storage and import-export response
7. Mainly wind covariances

## Principal Component 4

1. A three-way split Europa with Great Britannia being of most significance
2. Daily frequency
3. No clear daily pattern
4. Some seasonal variances
5. High wind contribution
6. Almost equal split between Backup Generator, Storage and Import-Export as response
7. Mainly wind covariance

## Principal Component 5

1. A three-way split Europa with Spain being of most significance
2. High half day and daily frequency
3. A small daily pattern with minimum at 8 am and 4 pm
4. Small seasonal variances
5. Mainly solar PV contribution with some Wind
6. Mainly storage with some Import-Export and covariance between
7. Mainly Solar PV and storage covariance

## Principal Component 6

1. Sweden and Norway with high significance
2. Some daily pattern
3. No clear daily variance
4. Small seasonal variances
5. High Wind contribution
6. High Hydro Reservoir response with a slightly lower Import-Export and covariance between the two
7. High covariance between wind and Hydro Reservoir

# Electricity Analysis – Nodel Price

## Principal Component 1

1. Monopole of whole of Europe
2. High daily frequency
3. Clear daily pattern with peak at noon
4. Large seasonal variance with more variance in the winter months

## Principal Component 2

1. North-South division of Europa
2. A semi large daily frequency
3. Clear daily pattern with peak at noon
4. Some seasonal variances with larges variance in the winter month

## Principal Component 3

1. East-West division of Europa
2. Daily frequency
3. Very small daily pattern
4. Some seasonal variances with larger spikes at the beginning of the year

## Principal Component 4

1. Division between central-western Europa and the rest of Europa
2. Small daily frequency
3. Small daily pattern with negative peak at noon
4. Some seasonal variances with larger spikes at the beginning of the year

## Principal Component 5

1. No clear European pattern
2. Daily frequency
3. Small daily pattern
4. Small seasonal variances

## Principal Component 5

1. No clear European pattern
2. Daily frequency
3. Small daily pattern
4. Small seasonal variances

## Principal Component 6

1. No clear European pattern
2. No clear frequency
3. No clear daily pattern
4. Small seasonal variances

# Electricity Analysis – Coherence

Coherence between Electricity Mismatch and ENP

1. Most significance coherence between Mismatch and ENP of PC 1, PC 2 and PC 5
2. PC 1 of Mismatch and ENP is the only one of significance when the weight is included
3. High negative amplitude coherence between PC 1 of Mismatch and ENP as well as PC 2